JOURNAL

Midwifery practice arrangements which sustain caseloading Lead Maternity Carer midwives in New Zealand.

The impact on midwives of their **first stillbirth**.

Clinically overweight and **obese mothers and low rates of breastfeeding: Exploring women's** perspectives.

ABC by LMC midwives: an innovative intervention to support **women to become smoke-free** in pregnancy.

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New Zealand College of Midwives Journal

The Journal focuses on midwifery issues and women's health, it has a readership of midwives and others involved in pregnancy and childbearing, both in New Zealand and overseas.

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CONTENT

Any article which reports research needs to explain the processes undertaken for ethical approval.

REFERENCES

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REFERENCE

American Psychological Association. (2010). *Publication manual of the American Psychological Associatio*n (6th ed.). Washington, DC: American Psychological Association.

PHILOSOPHY OF THE JOURNAL
• Promote women's health issues as they relate to childbearing women and their families.
• Promote the view of childbirth as a normal life event for the majority of women, and the midwifery profession's role in effecting this.
• Provoke discussion of midwifery issues.
• Support the development of New Zealand midwifery scholarship and research.
• Support the dissemination of New Zealand and international research into midwifery and maternal and child health.

Contents

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EDITORIAL

Celebrating and honouring midwifery in New Zealand

Dr Susan Crowther
Sub-editor

Sitting on Takapuna beach with a visiting midwife from Europe I listened to her woes about UK midwifery and her delight in hearing about how maternity is set up in New Zealand. She rarely knows women she cares for, never experienced continuity of care in midwifery education and her colleagues complain that they do not want continuity as it is too hard, unsustainable and exploitative. Yet she yearned to work the way we in New Zealand take for granted. She loved hearing how we can move between core and LMC work as our personal lives change. She was captivated by my own stories of working as a rural LMC in Northland. She understood the challenges that meet us here yet as she exclaimed, "at least you have a system worth fighting for and maintaining!" Never underestimate the achievements of New Zealand's maternity system. When this issue comes to print I will be immersed in a very different system of maternity services; one not based on continuity. I am poised after 10 years in New Zealand to take up a midwifery professorial chair in Scotland that has a system aligned with the experience of the UK midwife above.

Continuity of care continues to enjoy mounting evidence in its favour globally. A recent Cochrane systematic review on continuity of midwifery care headed by Professor Jane Sandall (2015) included 15 trials involving 17,674 women. The review concluded that women accessing midwife-led continuity models of care are less likely to experience intervention and more likely to be satisfied with their care. The review found that rates of adverse outcomes for women or their infants were not shown to be significant compared to such rates arising from other models of care. The majority of included studies in the review reported a higher rate of maternal satisfaction in midwife-led continuity models of care as well as a cost-saving effect compared to other care models. The evidence is striking: women enjoy it, it is cost effective and safe, and New Zealand has shown that it is sustainable. It may seem foolish that others globally do not adopt our model of continuity. Yet we still have work to do. Nothing can be taken for granted even if it is embedded into our everyday professional lives. There is so much more left unsaid, unseen and to be known. Intervention rates remain high in many regions and the majority of women birth in secondary services despite being low risk and despite the centrality of continuity of carer. There is still much to explore and examine in New Zealand midwifery.

In a recent conversation with another New Zealand colleague we questioned "is it the philosophy of midwifery care or is it the continuity model that makes a difference to women, babies and their families?" We must ensure we continue to tease out the concerns and ask these questions. Whatever the questions and answers may be, it is vital that midwives are respected and honoured for their contributions. Midwives continue to provide quality care 24/7 across all regions, urban, rural and remote rural. It is imperative that midwives are not exploited and our valuable contributions to New Zealand society continue to be acknowledged. The focus for midwifery/maternity researchers is on presenting evidence that supports what we do and the improvements we can make.

In addition, research needs to focus on how we can continue to provide the best possible midwifery care that is also personally and professionally sustainable. I am pleased to see that the articles in this edition contribute to these understandings.

Over the last year you would have received nine articles electronically. Now you can sit with your feet up with this complete printed edition. There is always more "to see" in an article on a second read. This edition includes these nine thoughtful and very different research papers demonstrating the breadth of research in New Zealand. Keiko Doering and team explore the experiences of Japanese women in New Zealand's maternity system. This paper reminds us of the vastly different cultures and aspirations of women receiving midwifery care and the importance of informed decision making. The next paper is the second in a series from the AUT research team examining sustainable LMC practice. The focus in this second paper is practice arrangements that sustain LMC midwives. The practical suggestions given are based on the experience of colleagues who have worked in LMC practice for many years. The third paper by Kay Jones and Liz Smythe brings us back to the experience of the midwife at stillbirth. Their paper reminds us of the emotional work that midwives are faced with in practice. The fourth paper turns our attention to the public health issue of obesity and breastfeeding. In this paper Lorna Massov explores the correlation between overweight new mothers and low breastfeeding rates. The fifth paper examines important developments in midwifery education and the use of simulated learning for our student midwives. The sixth paper is concerned with the public health issue of smoking and pregnancy. In this paper Alison Eddy and colleagues report on an observational study that audited an intervention to support pregnant women becoming smoke-free. The seventh paper by Pamela Wood and Jan Jones is a historical study examining how domestic health guides supported women giving birth in New Zealand and Australia between 1900-1950. Appreciating where we have come from can be helpful. The paper provides a fascinating insight into the information provided to families, facilitating reconsideration and reflection upon contemporary maternity issues. The eighth paper in this issue is offered by Jean Patterson and team. This paper returns to midwifery education with a focus on communication and distance learning. Their paper reports on a survey examining blended learning and how students studying off campus can be engaged in their learning. The final paper demonstrates the importance of following robust research methods to ensure reliable conclusions.

The quality of these articles would not be possible without the peer reviewer process. Each paper is reviewed by peers who give their time and expertise freely. Much gratitude goes to these reviewers for their ongoing contribution to this journal. The editorial board has changed in the last year. The editorial board would like to acknowledge the valuable contributions of Jackie Gunn who has stepped down from her role of sub-editor. The editorial board also welcomes Lorna Davies (CPIT) as a new sub-editor. There are so many others who could be thanked; far more than can be included here. Needless to say it is a collaborative process, working in partnership with authors, reviewers, editorial board members and publishers. It is always a team effort to bring each paper and each new annual printed edition to publication. The editorial board hopes you enjoy this edition of the New Zealand College of Midwives Journal and wishes you well for the coming holiday season.

REFERENCE:
Sandall, J., Soltani, H., Gates, S., Shennan, A,. Devane, D. (2015) Midwife-led continuity models versus other models of care for childbearing women. *Cochrane Database of Systematic Reviews, Issue 9.* Art. No.: CD004667. DOI: 10.1002/14651858.CD004667.pub4.

NEW ZEALAND RESEARCH

Experience of the New Zealand maternity care system by a group of Japanese women in one centre

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ABSTRACT:

Objective: Birth is a social and cultural event, and giving birth in another country is a challenge for immigrant women. This article explores how some Japanese women experienced pregnancy, labour and birth care in New Zealand.

Methods: Thirteen Japanese women who had given birth in New Zealand participated in this study. Nine women were interviewed individually, and four women participated in a subsequent focus group. The conversations were analysed using thematic analysis.

Findings: The women had a range of experiences including some dilemmas and conflicts during their pregnancy, birth and postnatal care. This care differed from what they would expect had they given birth in Japan where care is shaped by the distinctly Japanese birth knowledge and culture. The women also experienced language and communication barriers even though they did not have problems with speaking English in their daily lives.

Discussion: The Japanese women's understanding of care in the New Zealand maternity system was influenced by the generally more relaxed image of New Zealand society, and issues emerged as a result of communication difficulties between the women and the care providers. This lack of communication was related to Japanese women's generally passive attitude, where conflict is avoided in the desire to maintain harmony and not cause offence.

Conclusion: When sharing information with Japanese women, care providers need to recognise that immigrant women hold knowledge from a different cultural history and maternity care system. Knowledge of these different cultural approaches to birth will enable better communication and help immigrant women make better informed decisions and receive more appropriate care throughout their childbearing experience in New Zealand.

Key words: Japanese women, maternity care system, New Zealand, Japanese culture

INTRODUCTION

Meanings, perceptions and experiences of childbearing vary and are strongly affected by women's own cultures (Callister, 1995; Callister, Semenic, & Foster, 1999; Cheung, 2002; Jordan, 1980; Kartchner & Callister, 2003; Liamputtong & Naksook, 2003; Matsuoka, 1985). Thus, giving birth in a different culture adds a special challenge for women as they experience differences in systems, customs and perspectives.

In New Zealand, the population of Asians accounts for 11.8% of the total population (Statistics New Zealand, 2013). The population of Japanese immigrants (14,118 in 2013) has been rapidly increasing alongside other Asian ethnic groups, and the population increased nearly 20% over the last decade. However, their birth experiences have not been specifically documented until now. This article focuses on how the Japanese women in this study understood and experienced the differences in maternity care systems between the two countries when giving birth in New Zealand.

STUDY DESIGN

A qualitative research approach was chosen to give voice to the women's understanding of their experience. This was informed by the qualitative description methodology described by Sandelowski (2000). Qualitative description allows the study to stay close to the woman's voice as it does not theorise beyond the data. Nonetheless, it allows for some interpretation of the data (Sandelowski, 2010).

Participants were recruited by advertising amongst members of a Japanese community group based in one centre of New Zealand. Only women who had given birth within the last three years of the date of the interviews, or the date of the focus group session, were invited to participate; the aim being to record recent birth experiences.

Two methods of data collection were used. First, nine individual interviews were undertaken to hear the women's stories and to seek their perspectives through their own personal narratives. Building on the interview findings, the researcher further discussed the issues raised with four other women in a subsequent focus group.

The data were analysed using a thematic analysis process outlined by Braun and Clarke (2006). This was a fundamental method used to organise and describe the data, and search for themes or patterns following the reading and re-reading of the transcriptions, and generating initial codes (Braun & Clarke, 2006). It enables the researcher to stay close to the data and to identify the

explicit meanings of the data through an inductive data-driven approach while maintaining a qualitative descriptive approach to the study.

Ethical approval for the study was given by the Otago Polytechnic Research Ethics Committee (ETHICS 470). This included consultation with the Kaitohutohu in relation to any potential impact the findings might have for Māori in New Zealand.

FINDINGS

Demographics

The ages of the women ranged from 32 to 42 years with an average age of 37 years. The women had lived in New Zealand for a period of between two and 19 years with an average time of 10 years. One woman's most recent education was at a high school, while all the other women continued their academic learning in universities or colleges. Eight of the women studied at universities in New Zealand. The women also had a variety of job experiences in New Zealand. These included working as a translator, a caregiver, and a university tutor.

Eight of the women had one child and five women had two to four children; all of whom were born in New Zealand. For their most recent birth, all of the women chose the hospital as the place to have their babies. Ten women gave birth vaginally and three women had non-elective caesarean sections.

Maternity care in New Zealand compared to Japan

While recalling their birth experiences, the women identified several differences between New Zealand and Japan in terms of maternity care. Although none of the participants had given birth in Japan, their expectations were often based on their knowledge of Japanese maternity care. This knowledge was shaped by their reading of Japanese books and magazines, and conversations with friends, siblings, and their mothers in Japan.

Key differences in pregnancy care in New Zealand noticed by the women, included fewer ultrasound scans and blood tests; recommendations to take more supplements; and key diet changes such as avoiding raw food during pregnancy. All the participants commented on the contrast in approach to weight management between the two countries, comparing New Zealand's low key approach to the strict weight checks which happen in Japan.

"What I was happy about giving birth here was that there was no weight management. I gained 14kg in the end... I was checking my weight by myself. I had been reading Japanese magazines casually, and they said the weight gain should be less than 8kg.... My midwife told me that it was not to worry. I wondered but I was relieved." (Participant 11)

Most of the women looked favourably on the New Zealand weight management care, whereas a minority were so worried that they recorded their weight themselves. Likewise, they generally enjoyed the New Zealand care, but they felt that something was missing at times.

"[At check-ups] I thought it was not long enough and wondered if it was really okay only with that at the beginning... It was quite different from Japanese check-ups [which I had when I went back to Japan]." (Participant 8)

"I thought a little that I wanted to be taught more. I asked questions, but the answer was just, 'Don't worry, don't worry'." (Participant 7)

There were clear differences in after birth care. Following birth in

Japan, women are recommended to have a long rest. How quickly women started moving after birth in New Zealand surprised most of the Japanese women. Having a shower soon after the birth is an example.

"I was told, 'Have a shower' [soon after the birth]. After the shower, the midwife said, 'Let's go to the room', so I walked... I thought 'Are you serious?' I was okay, but I was amazed." (Participant 4)

"What I was surprised about was, well... I was told to have a shower soon. I wondered whether this was okay, and said that I wouldn't, but I was told to have a shower soon... I was afraid a little, but the midwife said that I would be okay. I think I would not have been told to have a shower on the day of the delivery if I had been in Japan... I said that I would be okay without shower, but the midwife said that it would be good. Then I said that I was afraid to have a shower, but again she said that I would be okay... It was not an order, but she urged me. So I thought, 'Okay, if you say so strongly'. Then I had a very quick shower fearfully." (Participant 6)

In Japan, showering and moving around following birth are restricted to avoid an unbalanced pelvis. It is believed that being vertical and making physical movements affect the pelvis closing and lock the pelvis into an unbalanced or opened condition, resulting in backache and other problems (Kawana & Matsubara, 2004; Okutani, 2009). Using eyes (e.g. light shining directly into the eyes, reading, watching) and using heads (e.g. thinking) are also thought to affect the pelvis closing following birth. Showering and being lightly clothed are not recommended in order to avoid *hie* - chill or coldness - into the "opened" body of the postpartum woman (Nakamura, 2012).

> **Key differences in pregnancy care noticed by the women, included fewer ultra-sound scans and blood tests; recommendations to take more supplements; and key diet changes such as avoiding raw food during pregnancy.**

The most concern arose from the lack of regular ultrasound scans women were offered during their pregnancy. Ultrasounds are performed at every check-up in Japan while only one or two ultrasounds are offered through a normal pregnancy in New Zealand. Some of the women accepted this passively even though they would have preferred more, while others tried to convince their midwives to order more ultrasounds for them.

"I felt ultrasound should have been done every month. My friends had it every month in Japan and so did my sister, so I thought I would be able to do so, but it was only a few times in total... I asked to give me the chance once a month, but I was told not to take it so often... I was worried about my baby a lot. Those caused me a dilemma." (Participant 6)

In the focus group, the women did not appear to be satisfied with the number of ultrasounds either. Therefore, the researcher asked whether they knew why they only had a few ultrasounds in New Zealand.

"I hear there are more ultrasound scans in Japan. It is very few here, isn't it?... I wish [I had had ultrasounds] more often..." (Participant 11)

"I had one additional ultrasound since my baby stopped moving. But I still wondered whether it was seriously okay because the number was much fewer than in Japan. I also became anxious, so I asked to have one more." (Participant 13)

"I did, too. My midwife told me that she would need a reason to ask for another ultrasound for me. So, she said that she would write a letter saying that she could hear the baby's heart beat, but it was slower than last time. Then I had an ultrasound at last. Oh, I remember. I couldn't see my baby's face at the previous scan, so I said, 'I really want to see the face,' and she did that for me." (Participant 10)

"I also told my midwife that I wanted to do it one more time, but she told me, 'There have not been any problems. Also, they (ultrasonographers) are probably busy, so you would not get an appointment.' (Participant 11)

Interviewer: *"You only had a few ultrasounds in New Zealand while women have an ultrasound at every check-up in Japan. Have you ever thought why it is different?"*

"I have never thought about that." (Participants 10 and 11)

"I thought it was because they didn't have enough equipment [in New Zealand]." (Participant 13)

"I wondered if it was because they were not strict." (Participant 10)

"It's no problem not to see like that." (Participant 11)

"Are there any reasons?" (Participant 13)

Interviewer: *"So, were you just thinking that you only received a few ultrasounds without any special reasons [in New Zealand]?"*

"Yes, that's exactly like New Zealand." (Participant 11)

"I just thought, 'It is relaxed here. They don't check weight, either'. "Right?" (Participant 10)

"… Here midwives do not measure mother's belly, either. They do not do anything." (Participant 13)

Their answers showed that their ideas were based on their image of New Zealand and the care, rather than the effect, risk or evidence for obstetrically appropriate frequency of ultrasound screening. In other words, they did not receive or seek any detailed reasons or explanations as to the effective use of ultrasounds from their midwives and doctors, although many of the women obviously struggled with this issue.

Language and communication

The women looked for reassurance to calm their anxiety from Japanese books about birth, preferring these for getting information. This meant that pamphlets and books in English offered by the midwives were seldom read, even though the women could read English well. One woman who had taught classes in a New Zealand university said:

"I researched about pregnancy for myself. I was worried because it was my first pregnancy. I had to learn about birth from nothing. I looked around and read a lot of books… Those were all in Japanese. English books were also given to me, but I thought it would take me a year to read." (Participant 8)

One woman also found the contents of the English books unhelpful.

"I learnt about pregnancy very much. They were mainly in Japanese, Japanese books. I also read books here a little bit,

but there were some parts I did not understand. I wonder… I felt it was different, so I was reading Japanese books. I asked [my family] to send them from Japan and I borrowed from Japanese mothers here." (Participant 6)

None of the women mentioned problems with their English in daily life and they were confident about their fluency in the English language. However, some of the women worried about their understanding of English during their pregnancy and birth, particularly the medical terms.

"I considered having the baby in Japan. I was worried about medical English. I could communicate [in English] in daily life, though. You know, medical words. I would have to go to the hospital and to see doctors for 10 months of the pregnancy. I was worried about miscommunication. I would not have been happy if doctors could not clearly understand what I was saying." (Participant 6)

> **Their answers showed that their ideas were based on their image of New Zealand and the care, rather than the effect, risk or evidence for obstetrically appropriate frequency of ultrasound screening.**

Even a woman who had lived in New Zealand for 20 years, since entering a university, commented on the language barrier, especially about understanding the more technical terms. A few of the women experienced some difficulties using English, particularly during their labour.

"I became not able to speak in English [during the labour]… English never came out." (Participant 8)

"When an epidural was going to be used, I did not have any problem or anxiety until I heard technical terms. An anaesthetist asked me many questions… The questions were too specialised and I couldn't understand them, but my partner was with me and explained for me [in English]. So I signed the form for the time being supposing it wouldn't be any problem." (Participant 12)

One woman said, *"I was thinking how much I wanted a Japanese midwife here during my pregnancy"* (Participant 6). Communicating in her mother tongue was very important for her. She also believed that language influenced the way of thinking and contributed to a deeper understanding. She needed a midwife for her pregnancy and birth who could understand how she was feeling and with whom she could share her own cultural perspective. Another woman provided an example of how communication is different between how she, as a Japanese woman, communicates, and how her New Zealand care providers communicated.

"I said I couldn't sleep and was suffering, but the specialist did not recognise that I was having a hard time… The midwife had probably not realised that, either. I might not have told them the entire truth… The midwife told me that she saw me having the maternity glow… I was thinking it was really different from how I was feeling. It seemed my pain wasn't obvious on the outside. I knew that they didn't see that. I just said, 'Really? I am really painful. I am not like that.' [in a small voice]. That's all I said… I should have told them about my pain more, but I didn't. Communication was in English, so I couldn't get the message across. Wouldn't you agree that they don't work unless you

push very much? That might have been a problem. It was painful, indeed." (Participant 9)

Not only were there problems with language, but also with different communication styles. For example, Yoshida et al. (1997) report that Western tools for assessing postnatal depression do not work for Japanese women, who have different ways of expressing their feelings. Characteristically, Japanese women would rather not express how they are feeling, but their feelings find expression in physical conditions.

DISCUSSION

Japanese "strict care" and New Zealand "relaxed care"

These Japanese women described New Zealand care as relaxed, "no problem", or "take-it-easy" care, while recognising Japanese care as strict, fussy, thorough, more worried or concerned care. This perception was based on the practice by both obstetricians and midwives, for example, of not weighing pregnant women regularly in New Zealand. By contrast, the women knew that in Japan their weight would be assessed at every pregnancy check-up. These differences were considered by the women to be reflective of the differences between the two cultures and the two countries' national characteristics.

Generally, the women enjoyed the New Zealand "take-it-easy" approach. However, they sometimes wanted more advice and more detailed care, and sometimes felt anxious about the care they received. In other words, the women felt that Japanese care provided too much, and New Zealand care offered too little. As a result, they were not completely satisfied with their maternity care in New Zealand.

Attitudes to ultrasound

Of all the differences in care between the two countries the approach to ultrasound screening was the most significant issue for the participants of this study, who considered that they should have had more ultrasound scans. When coupled with the absence of regular weight checks, the women perceived their pregnancy care in New Zealand as lax management.

It has been globally recognised that the frequent, routine use of ultrasound scanning does not improve the health of the mother or baby, nor change the behaviour of pregnant women and the quality of birth outcomes (Bricker, Neilson, & Dowswell, 2009; Ewigman et al., 1993). As such there is no evidence of benefit in providing all pregnant women with frequent and routine ultrasounds in terms of effect or cost (Neilson & Grant, 1989; Wagner, 2002). Despite the lack of evidence the prevalence of ultrasounds in Japan has not decreased, with an ultrasound scan performed at every check-up and considered to be essential care by health professionals and women in Japan (Suzui, 2005). This may be due to cultural differences or for defensive practice reasons but also demonstrates the potential for the clinician's judgement and skills to be undermined by technology with no proven improvement to outcomes.

Yet, the focus of this study was not the frequency and appropriateness of ultrasounds but the differences in expectations that are driven by different cultural backgrounds. These Japanese women in this study did not recall information or discussions explaining that the limited number of ultrasounds offered within the New Zealand health system was a practice based on evidence. It is not clear if the care providers were aware of the level of these Japanese women's dissatisfaction with the number of ultrasounds. However, it is possible that had they been provided with more information about the benefits and issues concerning

ultrasounds, their feelings of dissatisfaction may not have been so strong. This finding was specific to the Japanese women in this study but may also be an issue for others. These findings demonstrate there is room for improvement, and a need to ensure evidence-based rationale when midwives discuss ultrasound with women.

Suzui (2005) suggests that Japanese women do not gain a sense of ease and happiness only with the image on the screen of ultrasounds; rather, their psychological comfort is obtained through the professionals' explanations and comments about the development of the baby in conjunction with the ultrasound. Therefore, it is possible that improved communication between the women and their care providers (around fetal development trimester by trimester [or even week by week] and the significance and reassurance of adequate fetal movements) can make up for the women's desire for more ultrasounds, as well as offering the women information concerning New Zealand's evidence-based approach to ultrasound use.

The issues of communication - English language

The Japanese women's experiences appeared to be influenced by their ability to communicate with their non-Japanese-speaking care providers. In a study of immigrant women in Australia (Small, Rice, Yelland, & Lumley, 1999), the women's English language ability was found to be strongly associated with their level of satisfaction with their maternity care.

Most of the Japanese women in the current study did not report feeling stressed when communicating in English in daily life, but they did experience difficulties with the technical language used throughout pregnancy and labour.

Most of the Japanese women in the current study did not report feeling stressed when communicating in English in daily life, but they did experience difficulties with the technical language used throughout pregnancy and labour. Furthermore, they found communicating in English all the time tiring and frustrating, especially during labour and when they were exhausted taking care of babies after birth. When people are stressed, they often find it difficult to respond appropriately to what they are asked, or to understand. Therefore, the language barrier did affect their level of satisfaction with their care and birth outcomes. Even when the women were calm during pregnancy, how deeply they could communicate and understand about their care was a concern because they avoided reading the English language maternity information given to them. As Yeo, Fetters, and Maeda (2000) suggest, care providers should not expect Japanese to read and understand written information, however well they appear to understand English.

Further, the interpretation by partners during labour and birth may not always reflect accurately the information given, or convey accurately the woman's responses. Much information is possibly missed in their translation. For example, one partner in this study attempted to translate the anaesthetist's explanations about an epidural from English into simpler English. The partner was attempting to make the woman feel at ease, but left out the more

complicated clinical details. So care providers may be misled by the initial verbal responses of women. When there is a need to talk to women during labour and birth, it is important to sensitively check and recheck understandings and feelings. This includes verifying the woman's choices in an unhurried manner and involving partners and interpreters for those who are not native English speakers.

Passive attitudes

In addition to the language difference, the women's expectations and experiences are potentially related to particular Japanese ways of thinking and communicating (Tachibana, 2009). Japanese value saying nothing, and reading the atmosphere of someone's emotion and messages between words or without words (Kenmochi, 1992; Okoshi, 2005). Also, *hikaeme* – humility, modesty, or not sharing opinions – is considered a virtue in Japanese culture. These Japanese characteristics have also been discussed in the theory of dependency, *amae* (Doi, 1971). Within the highly homogeneous society of Japan, people can expect other people to guess their intentions and implications based on this mutual dependency, so they may take a passive attitude, but this communication approach does not work well in the West.

Japanese society is also known as a collectivism or mutual collaboration in contrast to the individualism or mutual independence found in many Western societies (Fukasaku, 1971; Okoshi, 2005). With such a conformist Japanese worldview, women could feel more comfortable agreeing with other people and following their advice rather than arguing their own point of view in a relationship. However, this does not mean that people are necessarily happy with the choice and the result. The women in this study hesitated to ask questions and often did not express exactly what they were feeling or wanting, expecting the care providers to read their wishes without these being stated. This may mean that Japanese women defer to their care providers' opinions, even when these go against what they think should happen. Thus, doing what they consider the "polite" thing to do, but without the complementary, unspoken "reading between the lines", consideration by the caregivers of the needs and choices of the woman. These attitudes contribute to the lack of understanding and the feeling of dissatisfaction with their care.

> The cultural inheritance of humility and respect apparent within Japanese society is clearly at odds with that of New Zealand society. This potentially increases the **difficulties for midwives providing** care to Japanese women within the New Zealand model of maternity care.

The passive attitude of the Japanese is frequently discussed in health and medical fields and, in terms of doctor-patient relationships within Japan (Nishiyama, 2009; Sameshima, 2010). Many patients or clients trust doctors; they tell them "I will leave it to you" and entrust their treatment to doctors. This phrase was also stated by the women in this study when it came to decision making for pain relief and other care choices. Leaving the care of their bodies and babies up to doctors, accepting professional-centred care, and the medicalisation of women's bodies in maternity care and reproductive health sectors – all these have also been criticised in

contemporary Japan (Kashiwaba, 2008; Misago, 2004; Namihira, 2005). These tendencies are a contrast to the expectations inherent within the partnership model of maternity care characterised by women-centred care, informed decision making and reciprocity (Guilliland & Pairman, 2010). The cultural inheritance of humility and respect apparent within Japanese society is clearly at odds with that of New Zealand society. This potentially increases the difficulties for midwives providing care to Japanese women within the New Zealand model of maternity care.

On the other hand, these Japanese women may be considered to be easy to care for because they seldom require in-depth discussion and will follow advice without question. Yet, this may result in increased distress and dissatisfaction for the woman. This is clearly a problem for women who have a different culture from the dominant culture. In Small et al.'s (1999) study, when an immigrant woman made a decision that coincided with the dominant care in the West – having a shower after birth – but opposite to her native country's birth culture, her midwife told her, *"You're a good girl"* (p. 97). This midwife did not push her opinion with respect for the woman's culture, but by complimenting the woman's choice, she sent the message that she preferred her to act in accordance with her view.

The Japanese women in this study also described similar situations. Their focus seemed to be on being dutiful as well as not hurting the care provider's feelings. The "good" relationship is more important for Japanese women than asserting their own beliefs. For such women, the advice and opinions of care providers are very influential. Therefore, the care providers need to carefully recognise the woman's communicative background and reflect on how they are providing the care for her.

STRENGTHS AND LIMITATIONS

This was a small study undertaken in one geographical area of New Zealand, thus the findings can not be generalisable to the larger total population of Japanese women birthing in other areas of New Zealand or elsewhere. Despite this limitation, the women freely shared their experiences, shedding light on some of the issues that other immigrant women might also experience in terms of different cultures and midwifery care. These women faced language challenges and cultural differences resulting in an inability to genuinely express their aspirations and concerns. Importantly, this study highlights the need to find ways to bridge the cultural and language gaps when sharing information and seeking true consent for care in the social and cultural event that is childbirth.

CONCLUSION

This study has examined the birth experiences of 13 Japanese women living in one New Zealand centre. All Japanese are not the same, so care needs to be individualised irrespective of race and cultural differences. Nonetheless, within this small group the women were shown to have common experiences around aspects of care such as ultrasound scans and weight checks, which caused them some distress and anxiety. These feelings were exacerbated by the challenges they had with the language and communication.

What this study offers are insights into some of the cultural expectations of Japanese women and their reluctance to challenge the opinions and decisions of their care givers. It also highlights the difficulty of conversing in a language other than your own in stressful and emotional events such as labour and birth. The establishment of a trusting relationship consistent with the New Zealand partnership model has the potential to support open communication. Understanding the different cultural values should help midwives support Japanese women to discuss their

emotions and desires for their birth experience. Also, midwives' understanding will enable the women to make better informed decisions and feel supported by the system rather than alienated by it.

ACKNOWLEDGEMENTS

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NEW ZEALAND RESEARCH

Midwifery practice arrangements which sustain caseloading Lead Maternity Carer midwives in New Zealand

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ABSTRACT:

Background: The New Zealand Lead Maternity Carer (LMC) midwifery model has benefits for women and babies and is a satisfying way to work for midwives. Due to the need to be on-call for long periods of time, there have been questions raised about the sustainability of the model for midwives and the potential for burnout.

Objective: This qualitative descriptive study explored what sustains on-call, caseloading Lead Maternity Carer (LMC) midwives in New Zealand.

Methods: Eleven midwives with 12 to 20 years in practice were interviewed and thematic analysis used to identify themes which sustained these LMC midwives in practice.

Findings: Overall, the study found that it was the joy of midwifery practice, managing the unpredictability of being on-call, having clear boundaries, having good relationships with colleagues, having supportive families and friends, and workable practice arrangements which sustain them in practice. This paper presents the findings from the theme: workable practice arrangements. The midwives interviewed explained that having regular time off, a manageable caseload size, working together as a practice, the financial arrangements, and the sharing of arrangements with women created a sustainable way to practice.

Conclusion: This paper has identified aspects of sustainable practice which are congruent with the international research but also very specific to the New Zealand model of midwifery.

Key words: Caseloading, midwives, practice arrangements, sustainability

INTRODUCTION AND BACKGROUND

Implementing caseload, continuity of care, midwifery models improves outcomes and has significant benefits for the woman and baby (National Health Service, 2014; Sandall, Devane, Soltani, Hatem, & Gates, 2010; Sandall, Soltani, Gates, Shennan, & Devane, 2013), and enhances women's and midwives' satisfaction (Collins, Fereday, Pincombe, Oster, & Turnbull, 2010; Ministry of Health, 2011).

The New Zealand Nurses Amendment Act (1990) provided New Zealand midwives with the legal ability to practise as autonomous health professionals. Midwives in New Zealand are funded by the government to provide midwifery care throughout pregnancy, labour, birth and the postpartum period up to six weeks, for women who have chosen to book with them (Ministry of Health, 2007). To support this continuity of care for women, New Zealand midwives are able to work as a Lead Maternity Carer (LMC) and provide care to a caseload of women. The predominant choice as LMC is a midwife (Ministry of Health, 2012), however, a general practitioner or an obstetrician can fulfil this role; it is the woman who determines who her LMC will be.

Providing LMC care to a caseload of women often means that the midwife needs to be available to her caseload at any time of the day or night – to provide care during labour or for any urgent or emergency issues (Ministry of Health, 2007). For some midwives this requirement is unsustainable and it has been argued may potentially increase burnout (Young, 2011), whilst for others it is enjoyable and satisfying (McAra-Couper et al., 2014). Our wider study aimed to explore what it is about working as a LMC midwife, providing continuity of care, which sustains midwives and supports them to continue to work in this role. A previous paper has described this study and the main themes summing up what sustained them in practice were identified as: the joy of working in partnership with women; having good collegial relationships with practice partners who are philosophically aligned; managing the unpredictability of being on-call; having clear boundaries; having good relationships with colleagues in maternity units; having supportive families and friends; and the way the practice was organised (McAra-Couper et al., 2014).

This paper reviews the specifics of practice arrangements which contributed to sustainable midwifery practice for our participants. In 2013, 38.1% (1,118 midwives) of the New Zealand midwifery workforce reported caseloading as their main work situation, 86% of the caseloading midwives worked as self-employed LMCs (Midwifery Council of New Zealand, 2013). Midwives who work

as LMCs do so in various ways from working on their own, in pairs working together, to small group or larger group practices. Government funding enables free maternity care to New Zealand resident women regardless of where they choose to birth (Ministry of Health, 2007). LMC midwives are legally able to access named maternity facilities within their local community. Midwives choose their work situation, which may be to work as a LMC, or as a core midwife, i.e., employed to staff hospitals and maternity units. The continuity of midwifery care approach made possible by the New Zealand LMC midwifery model is viewed by the international midwifery community as providing an outstanding service (Grigg & Tracy, 2013). It is important that New Zealand is able to present research demonstrating what helps sustain this intensive on-call, LMC (practice) mode of working so that this may inform present and future maternity service provision both locally and internationally.

Caseloading makes a difference

A 2013 Cochrane review found that women who had midwife-led continuity of care were more likely to experience no intrapartum analgesia or anaesthesia, and a spontaneous vaginal birth, and less likely to experience regional analgesia, episiotomy and an instrumental birth. In their meta-analysis, Sandall et al. (2013) found a higher rate of maternal satisfaction amongst women who received midwifery-led continuity care. There was also a cost-saving effect with midwife-led continuity of care compared to other care models (Sandall et al., 2013; Tracy et al., 2013).

Women in New Zealand have expressed satisfaction with the LMC model of care (Ministry of Health, 2011). For midwives, providing continuity of care to women is a satisfying way to work, and in itself contributes to sustainable practice (Collins et al., 2010; Edmondson & Walker, 2014; Sandall et al., 2013). Sustainable is defined as something which is "able to be maintained". So in the context of this study, sustainable midwifery is a way of practising which will ensure that LMC midwifery can be maintained, whilst retaining the integrity of the mental, emotional and physical wellbeing of the midwife.

The experience of caseloading midwives

Whilst the benefits of caseloading midwifery for women and midwives are clear, recent New Zealand studies have focused on the challenges of providing caseloading and continuity of care. These difficulties relate to being on-call, work/life balance and burnout (Cox & Smythe, 2011; Donald, Smythe, & McAra-Couper, 2014; Young, 2011). These studies offer important insights into the experiences of some caseloading midwives who have found caseload work challenging, yet clearly other midwives are able to sustain LMC practice for many years. There is little in the NZ midwifery literature to date regarding the specific practice arrangements which can help grow a sustainable caseloading midwifery practice.

This study aims to fill this gap by exploring specific practice arrangements which midwives themselves consider to be sustainable. Given the importance of continuity of care as a model of care which is of benefit to women, it is important to investigate what has sustained LMC midwives who have worked in the LMC model of midwifery care for more than eight years within the New Zealand context.

METHOD

The research design consisted of face-to-face interviews with 11 LMC midwives who had been in practice between 12-20 years. Participants were recruited by sending a letter and participant information sheets via email through the networks available to the researchers. Midwives self-selected as participants, and some passed the information onto other midwives who met the criteria for the study. Participants included both rural and urban midwives from the North Island of New Zealand. None of the participants worked together in the same practice at the time of the interviews. Before agreeing to participate in the study, potential participants were given an information sheet explaining the purpose of the study and were asked to complete a written consent form indicating their willingness to participate in the research project and to the taping of the interview. The interviews were conducted by a research assistant, or a member of the research team, at a time and place that was suitable for both the interviewer and interviewee. Participants were asked about what sustains them in midwifery practice. Each interview was transcribed and returned to participants, giving them an opportunity, should they wish, to change or remove any data. Minor corrections were requested by some participants, but no data were removed.

Each transcript was read by all the research team to obtain a good understanding of the data. Using a qualitative descriptive approach, informed by Sandelowski (2010), thematic and content analysis was used to group data into themes which emerged. Themes were identified and mutually agreed amongst the research team. Once the initial themes were identified they were revised until final themes and sub themes emerged showing what sustained LMC midwives in practice for longer than eight years.

The study conformed to the ethical principles of the AUT ethics committee (AUTEC), and ethical approval for the study was granted through AUTEC in 2011.

FINDINGS

This paper explores in detail the theme related to sustainable midwifery practice arrangements. The findings show that these five aspects help create a sustainable way to practice: having regular time off, having a manageable caseload size, the way midwives work together as a practice, the financial arrangements and the sharing of arrangements with women.

How practices work

The LMC midwives in this study all spoke of how they worked within their own practices. Regular practice meetings were one area which they saw as important. The purpose of the meetings varied, and ranged from having a social catch up, to discussing birth plans for women who were due, to serious debriefing and problem solving related to practice or clinical dilemmas. Some went as far as indicating that, for them, these meetings were the "glue" that held the practice together. In Debra's practice they meet weekly on Mondays:

> *You want similar things for your women. You couldn't get other midwives to cover you that didn't kind of work in a similar way. It could be quite disastrous, for the woman as well. And having a weekly meeting like - you know - checking in with each other, being able to talk over anything that's happened, that's bothering you. (Debra)*

In Karen's practice they have a weekly lunch meeting, and also a longer meeting every two months to discuss practice issues in more depth.

> *At the moment, we have weekly lunch meetings. And then there's a more prolonged meeting every two months where we get together and talk about practice issues, things that would happen at access holders meetings, discuss our caseloads, and work out who was going to cover and be 2nd midwife for each other's clients. (Karen)*

It seems from the data that it is also important for sustaining practice that the day-to-day practice arrangements, a "check in" on how things are going, what is and is not working, are discussed and revisited on a regular basis:

> We're always kind of revisiting how we work as a practice. We have a meeting every fortnight. We used to have weekly meetings but it just seemed to be too often. So we have a practice meeting for an hour and a half every fortnight. We just talk about the house that we rent and keep things humming along there...'cause we love having a really nice environment and keeping things updated. I have to say I've been to a few midwifery practices where I think, 'oh, gosh.' You know...'feels like a second hand shop here.' And so I think having a nice environment is important and respectful. (Psu)

Participants in this study agreed that regular practice meetings are essential to keep the midwives in touch with each other and to share things that have happened or to discuss things they are concerned about. The meetings also provide an opportunity to organise second midwife back-up or talk about wider practice issues, such as the clinic environment and shared purchases for the practice facilities. Sustainable LMC midwifery practice requires good support and communication amongst practice members. Regular meetings are key to facilitating this.

Sharing arrangements with women

The other arrangement which helps sustainability of practice is how the practice arrangements are shared with women. Taking time to explain and discuss the way the practice works appears very important. In Psu's practice, for example, a phone conversation happens first, during which the midwife explains how the practice works in terms of philosophy and midwife time off. Then, if the woman thinks such an approach will work for her, a half-hour appointment is made to further explain the philosophy and practice arrangements face to face. In this way when the woman comes to book in, she knows exactly what she can expect from her midwifery care, whichever midwife becomes her LMC, whichever midwife is the back-up. It provides the foundations for a well-functioning, sustainable partnership. This sharing of arrangements underpins the concept of partnership through dialogue that is clear about how the practice works.

> We talk a lot over the phone initially just to let them know how we work. Then if she says, "oh, yeah that all sounds fine..." we'll make a half-hour appointment at the clinic where we offer information about the practice philosophy, how we work, the back-up midwife, the time off...(Psu)

One further question we asked midwives in this study was about antenatal care, and the timings and length of antenatal clinic visits.

> I normally allow an hour for each visit. I mean I guess if there is such a thing as a routine antenatal visit it might be sort of 40 minutes or 45 minutes but I think the business of the visit is three minutes actually, isn't it...in terms of what you do but the chat is so important isn't it? I really enjoy having the time to spend that long with the women. (Debra)

There was a range of responses in relation to the time required for a booking visit, i.e., from 1 to 1½ hours, and return visits - from half an hour and up to 1 hour. It seems for these midwives that a substantial length of time for antenatal care was important. Participants in this study noted their impression that when women's questions and needs were met during the antenatal visits, then the number of out of hours calls were reduced.

> I just needed more down time. I didn't enjoy rushing with half-hour appointments and rushing women through wasn't that satisfying, you know, and I just wanted it to be more relaxed... and if you've done your homework really well antenatally, then they'll generally phone you less with minor questions and do better in the labour and birth. (Ali)

The strategy of making sufficient time to ensure that visits are unhurried for each woman and midwife resulted in less stress and promoted satisfaction. In addition, communicating practice arrangements well to women reduced the frequency of phone calls for minor questions at a later date. Arrangements which created rational boundaries around contact by women were central to sustaining LMC practice for the midwives in this study.

Caseload size

The LMC midwives in this study spoke about having a manageable caseload size as being one of the factors which sustained them. There remains a question as to what is a "manageable" caseload. The New Zealand College of Midwives recommends between 40-50 women a year (New Zealand College of Midwives, 2008). Our participants agreed that a range of 4-6 women a month for them is a sustainable case load, as this enabled them to give quality antenatal, intrapartum and postnatal care.

> We probably all stayed between 4-6 women a month. Sometimes you'd have a lot of births in one month, maybe you'd end up with 8, but then the next month you'd have a smaller month but 4-6 seems to be a really good model when you're doing all your own postnatals and we like to give plenty of time to women antenatally and postnatally. (Karen)

Practice is sustainable when all practice partners have a similar caseload size, so that when a midwife is having her time off, the midwife who is covering is not overwhelmed with extra work. Participant Ali highlights that it is important to have a similar caseload to other midwives in the group..."so that we're not covering too much... Two of us work together... so that when one of us is off the other isn't swamped."

Caseload size is important not only for ensuring that midwives have enough time to feel satisfied and confident that they have provided quality care to their own clients but also when covering for their practice partners. For the midwives in this study, the size of their caseload is linked to the quality and safety of the care they give. Caseload, however, is also inextricably linked to the financial arrangements of self-employed LMC midwives because caseload size determines income.

Time off

Participants were asked whether they had regular time off and, if so, how those arrangements were made. Findings revealed two categories in relation to midwives having time off; there was the annual long holiday break on one hand and, on the other, regular time off-call, usually scheduled over a weekend. In the midwives' practice groups, time off tended to be negotiated and planned a year in advance so that when practice midwives had scheduled time off, this would be covered within the practice itself as opposed to needing to organise a locum midwife or reliever.

Some midwives negotiated one to two months off per year with their practice partners. One profession-specific aspect of managing a prolonged period of leave is midwives needing to take the precaution not to book women who were due one week either side of their time off. There are two reasons: so that practice partners would be less likely to be covering for too many women due to

birth; and a woman then has the option of not booking with a midwife who is due to go on holiday the month in which the woman's baby is due. Participant Georgia says that to get a full month off, she needed to restrict bookings for a number of weeks prior to, and after her planned leave dates:

> *I usually have two months off a year....well try to. I get one full month off, but by the time you are finishing up and women not being due when you come back.. you're basically looking at a two month timeframe, otherwise it's not satisfactory for the women…I haven't booked any women in December so I should be finished all my Novembers so I don't stress my partners by them having to run their caseloads and then pick up post-natals from me, as that kind of added onto your caseload at a critical time…I've got women due when I come back but not too close, most of them are due two weeks after I come back. (Georgia)*

Midwives had different arrangements for having regular nights or weekends off. Some had a first-second on-call system for each weekend and, as Holly says, it is only once a month that she is on-call: *"It's only about once a month (that I am on-call) we have a first on-call, second on-call person. It works out pretty well..." (Holly)*

In Psu's practice, she goes off-call for 24 hours on a Thursday night, and then if it is her monthly scheduled weekend off, Psu has Thursday night through to Monday morning off-call and she feels as if she has a mini holiday:

> *I love it during the week that I might work really hard Monday to Thursday night but I know 5pm Thursday night my phone goes off and I've got 24 hours. If it's my weekend on I've got 24 hours now to chill or go out for dinner or stay up late if I want to and then if it's my weekend off as well, I've got like a mini-holiday. I've got Thursday night to Monday morning... I do highly recommend that that's what people should do if they want to do this for more than a year or two. (Psu)*

In Debra's practice, they employ a paging system so that each night one of the midwives in the practice takes all the overnight calls:

> *The way that our practice manages that is that we have a paging system where all the midwives get all the messages on the pager. So at 6 o'clock every evening all the midwives turn off their pagers and just one of us takes all the calls over night and the same happens at the weekend so you're not constantly tied to your pager and nobody gets your cell phone number. So there's no texting, so you actually are available when you want to be available and if women are trying to contact you out of hours, if it's your night on call then yes, they'll get you. Otherwise they'll get somebody else who will say [for non-urgent calls], "look call after 9am in the morning." (Debra)*

These midwives recognised that regular planned time off was essential if they were going to sustain themselves in LMC practice long term. Alongside manageable caseloads, securing arrangements for having time off was one of the most significant features of sustainable practice.

Financial arrangements

Midwives in this study spoke of a variety of financial arrangements, sometimes very detailed, and sometimes inexact but whatever the arrangements were, midwives said it was crucial that clear, agreed, financial arrangements were negotiated by the practice at the beginning, and were very clear to all midwives in the practice.

Financial arrangements were important, particularly when the LMC midwife was having time off, and the back-up midwife looked after a woman who birthed. LMCs in New Zealand are paid modular payments at the completion of each woman's antenatal trimesters, intrapartum care and at the six-week discharge postpartum. The largest proportion of the modular payment system is the labour and birth payment.

One example of a financial arrangement is a "swings and roundabouts" (give and take) arrangement which would work for midwives who had a similar caseload size.

> *We each put in our claims and the money is paid into one account and we just divide it... I never even count up who has done more births. I don't even want to go there…it just puts complete trust in that it is "swings and roundabouts". (Jane)*

Psu said that because she has a smaller caseload than her back-up midwife, they can't just follow a "give and take" arrangement, so her practice has arranged a sliding scale around the birth fee:

> *If the back-up midwife looks after the woman, the midwife gets half the birth fee and then if she is with the woman for any longer than six hours she gets an extra $40 or $50 an hour. So that really kind of honours her work but it doesn't take the whole birth fee away from the LMC. (Psu)*

Others spoke of paying a percentage of their income into a pool or reserve of money, referred to as a "kitty", to pay for rent, paging system and equipment, etc.

> *Another part of our structure is that we all pay 5% of our income into the kitty and that pays for our rent and paging system and all of the equipment and that kind of thing... We own a house together so we do have another layer of complexity in our practice. The practice is a company who are the house owning entity which meant that other people can come in and out of the practice without having to come in and out of owning the house because we could see that that might become problematic in the future. People do have the option of becoming shareholders in the house owning part of the business but generally people don't want to do that. (Debra)*

Alongside manageable caseloads, securing arrangements for having time off was one of the most significant features of sustainable practice.

Midwives reach agreements about financial arrangements that suit their own practice group requirements, caseloads and individual circumstances. There is no "one size fits all" when it comes to financial arrangements and the practice partnerships within those groups. Whatever the arrangements, whether it is "swings and roundabouts" or "paying into a kitty" it needs to be mutually agreed, articulated and revised regularly in order that it works for each particular group. Financial arrangements will vary, but it appears important for sustainability that the financial arrangements are well understood, and mutually agreed to, by all within the practice. This supports the practice to function well and ensures optimal relationships within the practice.

Process for new LMC midwives joining a practice

Debra spoke of what happens when new midwives were thinking of joining their practice. For her it appeared to be important to sustaining practice that new midwives know how the practice works, and time is spent considering whether the new practice partner is philosophically aligned and wants to work with the arrangements established in the practice. As Debra says:

If somebody wants to join us we have them approach us by writing us a letter telling us about themselves and about their midwifery philosophy and why they were attracted to come and work with us. Then we invite them to come and have a meal or something and just get them to come and meet with us. Often we know them already because they may have been students that worked in our practice and we really love it when that's the process that happens because they're a bit of a known quantity for us as well. That gives us an opportunity to talk to them about what it is that they might need from us but also how it is that we function and what we might require of them, mostly particularly if it's a new graduate midwife. (Debra)

Having a carefully thought through process for including new midwives into the practice protects the practice philosophy and ensures that agreed arrangements are maintained.

DISCUSSION

This paper has examined findings emerging from the theme "practice arrangements". This theme reveals the constituents of practice agreements and their role in supporting sustainable LMC midwifery practice. Analysis of the theme "practising arrangements" has shown that when setting up sustainable caseloading midwifery practice, it is crucial that all midwives in the practice think through, negotiate, and reach agreement about: taking regular time off; aligning caseload size; how they will work together as a practice; committing to regular meetings; having clear financial arrangements; and sharing the practice arrangements with all women before they book with a LMC midwife from the practice. The arrangements need to be revisited and articulated on a regular basis to optimise their positive effect on sustainable LMC midwifery practice.

Practice arrangements by themselves do not sustain LMC midwives. They are an essential part of a complex whole which includes the other six themes identified in our research and discussed in a previous paper. In addition to "the way the practice is organised", these were: "the joy of working in partnership with women"; "having good collegial relationships with practice partners who are philosophically aligned"; "managing the unpredictability of being on call"; "having clear boundaries"; "having good relationships with colleagues in maternity units"; "and having supportive families and friends" (McAra-Couper et al., 2014).

Limiting caseload size when providing continuity of care to women has been identified as essential in other studies. Collins et al. (2010), in their research into the sustainability of a caseloading practice in Australia, found that having a manageable caseload was important as the volume of work had an impact on sustainability. This included the need to consider when midwives were on leave, the impact of travel times, the needs of the women and time spent in meetings. For the New Zealand midwives in this study, sustainability included limiting caseload size but also managing the caseload to ensure that practice partners were not expected to cover a routine normal workload because due dates were not considered or booked regardless during their leave periods.

In another Australian study, Edmondson and Walker (2014) found that an arrangement, where: midwives worked in a partnership of two midwives who covered for each other's holidays; took a relatively small caseload of 40 women per annum; and hours of work were determined by the midwives, created a more sustainable way to organise the practice. Caseload size was also seen as important for an Australian Midwifery Group Practice (MGP), where three full-time midwives took a personal caseload of 40 women per year each, and within each group practice provided back-up for each other through an on-call arrangement. (Toohill, Turkstra, Gamble, & Scuffham, 2012). The New Zealand College of Midwives (2008) recommends a caseload of between 40-50 women a year and, in the United Kingdom, the "One to One" midwives take a caseload of 40 women per year (National Health Service, 2014). Our study aligns with these and endorses the potential of caseload size to impact on sustainability for the midwife. The New Zealand midwives we interviewed found that a caseload of between 4–6 women a month worked best. This essentially translates to between 40 and 50 women annually, when annual leave of four to eight weeks when no women are booked, is taken into account.

The main difference for New Zealand midwives, compared with those in Australia and the United Kingdom, is that they are self-employed' so they make their own decisions regarding caseload size, days and times of work, time spent with women and decisions about who they work with. However, there is also a downside to being self-employed in that caseload size also has an impact on income. Our participants discussed a variety of ways of limiting loss of income if absent for a birth, and the need for clear financial arrangements within the practice.

> **The main difference for New Zealand midwives, compared with those in Australia and the United Kingdom, is that they are self-employed so they make their own decisions regarding caseload size, days and times of work, time spent with women and decisions about who they work with.**

The findings of this study support those of Edmondson and Walker's (2014), who found that providing continuity of care, practising autonomously, having a good work-life balance, effective working relationships and clear guidelines for practice were important for caseloading midwives in an Australian birth centre. One of the key differences for the New Zealand midwives was the importance of being clear, and the sharing of their practice arrangements, with women. The New Zealand midwifery model of partnership is based on continuity of care, trust and informed decision making (Guilliland & Pairman, 1995), and working in partnership extends to being explicit about practice arrangements with women.

This New Zealand study found that having effective working relationships, having a similar philosophy as practice partners, setting boundaries and having personal time off were central to the sustainability of practice (McAra-Couper et al., 2014).

Although this study cannot be generalised due to the small number of participants, the findings expand the knowledge and understanding about sustainable LMC midwifery practice

Table 1: Guide to sustainable midwifery practice arrangements	
Time off	As a practice, plan time off a year in advance where possible so that the holidays are staggered
	Plan to have 1-2 months off each year
	Plan time off during the year with regular weekends and/or weeknights off call
Case load size	4- 6 women per month for 10-11 months of the year as a full-time caseload is sustainable
	Caseload needs to be similar size to that of practice partner/s
Financial arrangements	Important that financial arrangements are discussed, agreed and clear to all from the beginning
	Financial arrangements for back-up midwife who covers for the midwife on leave need to be agreed in advance.
	May be a "give and take" arrangement
	May have a specific percentage of birth fee going to the back-up midwife
	Consider how rent, equipment, supplies are paid for
Sharing arrangements with women	Describe the arrangements before women register (book in)
	Include information about time off and back up arrangements, who to call, when and how

arrangements for midwives working with a caseload of women in New Zealand. The findings provide an understanding of the principles of ensuring sustainable practice arrangements and can be used to provide guidance for midwives who are setting up, or joining a midwifery practice, and for midwifery service managers who are establishing caseloading LMC midwifery practices.

Table 1 summarises the findings from this study and could act as a guide to the essential elements and principles of sustainable midwifery practice arrangements.

CONCLUSION

This paper identifies the fundamental practice arrangements our participants found were needed to sustain self-employed caseload midwifery practice within the New Zealand model of maternity care. Each practice of midwives finds and defines its own unique arrangements for working together. The strengths of this study are that an in-depth analysis of 11 midwives' experiences of what sustains them in practice has identified aspects of sustainable practice which are congruent with the international research but also very specific to the New Zealand model of midwifery. A wider study of how LMC midwives arrange their practices would be useful to further enhance understanding of the sustainability of midwifery practice. The findings of this research provides guidance for midwives both in New Zealand and globally who seek guidance about how caseload midwifery can be organised sustainably.

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NEW ZEALAND RESEARCH

The impact on midwives of their first stillbirth

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ABSTRACT:

Objective: This study seeks understanding of the midwife's experiences in relation to the loss of a baby. Current research focuses mainly on the experiences of the families who have gone through stillbirth, while studies of the experience of the midwife involved in stillbirth care is lacking.

When caring for a woman who is going through a stillbirth, the midwife must navigate her own personal and professional journey.

Methods: The midwife's journey was the focus of this qualitative study which utilised hermeneutic interpretive phenomenology.

As part of a master's dissertation, five New Zealand self-employed midwives were interviewed and asked to tell their story of the first time they cared for a woman whose baby had died in utero and the aftermath of their experience.

Findings: Two emergent themes were identified: "A pocketfull of grief" and "A heavy heart". This paper focuses on the theme, "A pocketfull of grief" which is made up of three sub-themes: "Shockwave", "Self-protection" and "Blameworthiness". The death of a baby is a significant event for the midwife providing care.

Conclusion: This study has provided a deeper understanding of the emotional impact of stillbirth on the midwife. Each midwife experienced shock and an intense and personal sense of loss. This created tension as they strived to cope with their own emotions and continued to care for the woman and her family.

Key words: Phenomenology, hermeneutics, stillbirth, community-based midwifery, grief, bereavement.

INTRODUCTION

The phenomenon of stillbirth is often about suddenness, not just from the concept of the passing of time but also from a viewpoint of experiential felt unexpectedness. Suddenly the fetal heart is not there; suddenly the baby is born and despite intensive resuscitation, there is no response. Along with the family, the midwife is thrown into this crisis, sharing in their sense of loss. While the stillbirth is sudden the consequences of grief continue. This paper focuses on the impact of the initial suddenness of being at a stillbirth.

Stillbirth is defined, in Australia and New Zealand, as the death of a baby before or during birth, from the twentieth week of pregnancy onwards, or weighing 400 grams or more at birth. The current rate of stillbirth in New Zealand is 0.5% of the births recorded (ANZSA, n.d). Mitchell (2004) suggests that developments in antenatal screening have resulted in a belief that if any problem develops during a pregnancy, then obstetric intervention can solve it. Yet, in practice, the continuing incidence of unexpected stillbirths reminds us that problems may remain hidden (despite all rational screening) until it is too late. Bereaved parents turn to midwives for advice and emotional support following the death of their baby (Lovell, 2001) and this may perhaps be particularly so in the New Zealand caseload model of practice where midwives have provided continuity of care and have an ongoing relationship with the family (Davis & Walker, 2010). There is both a professional and personal commitment to support the parents through their journey of loss and the nature of this commitment can be both complex and intricate because of the on-going connection between the midwife and the family.

The principles and priorities of providing care for women experiencing loss are well documented (Cartwright & Read 2005; Wallbank & Robertson, 2008) but there is little research exploring the midwives' experiences of providing care in this clinical situation. However, without the ability to manage the emotional responses to the death of a patient (baby), the practitioner may be compromised by physical, emotional, cognitive, behavioural or spiritual distress (Keene, Hutton, Hall & Rushton, 2010).

"The Grief Response" has been described by many and often conceptualised as various stages of emotions (Kubler-Ross, 1969; Worden, 1991; Parkes, 1972). It could perhaps be better described as a roller coaster of emotions and feelings rather than a cycle or a predictable path of stages (Kubler-Ross, 1969). The most commonly experienced immediate response to the realisation of a loss is that of denial or numbness. This can be followed by anger (Kubler-Ross, 1969; Worden, 1991; Parkes, 1972). Often when denial can no longer be sustained, it is replaced with anger and self-reproach. There may be a desperate need to find someone to be angry at and, for parents, that person may be the midwife or other health professionals involved in their care. Grief and loss experts expand these responses to include depression, acceptance and finally resolution (Kubler-Ross, 1969; Worden, 1991; Parkes, 1972).

In their exploration of midwifery care during perinatal loss, Fenwick, Jennings, Downie, Butt and Okanaga (2007) found that the midwives in their study described being emotionally overwhelmed. The midwife may try to immediately separate herself from the woman to 'buy time' to deal with her own raw emotions. In fact, the midwives felt that this was necessary to do before they were able to provide professional midwifery care for this woman. This may be a self-protective action while the midwife deals with her own response of shock and disbelief. Kohner and Henley (1991, p. 241) suggest that those who care for and support bereaved parents "may find it difficult to manage their personal reactions at the same time as performing a professional role".

In order to work through the overwhelming pain of grief the midwife may search for a way out and she may silently beg for the baby to somehow be alive and that the reality be merely a momentary misperception. Worden (1991) suggested that the midwife may promise to be a better, kinder, more watchful midwife in the future as an attempt to negotiate her way through these feelings. The phrase: "The heavy feeling that gets inside you" was suggested, by a health professional who has witnessed others' pain as a phrase that may reflect this feeling (Morrison, 2007, p.2).

> **Many midwives may feel unprepared and inexperienced in this complex level of midwifery care regardless of their previous midwifery experience.**

The grief response and stages of responsiveness to loss may be randomly experienced by some midwives over varying periods of time. For others, in fact, these stages may be seen as only an abstract concept and not experienced in their fullness at all. For many midwives in this situation, there are questions of how do they identify their own needs, and are they even entitled to have any needs. For many midwives, death remains a mystery and they keep their own personal responses to grief silent. Consequently, the focus may be displaced onto the clinical care rather than continuing to follow the humanistic model of care that focuses on the person (Hospice Friendly Hospitals Programme, 2013). By diverting the focus away from the face of suffering, the midwife is not reminded of her own personal limits, failings and insecurities. Caring for bereaved parents after the death of a baby is emotionally challenging for some midwives (Fenwick et al., 2007). The strong desire to provide the best care under the circumstances may well be paramount to the practitioner but this is likely hampered by their own emotional response, uncertainty and anxiety. Many midwives may feel unprepared and inexperienced in this complex level of midwifery care regardless of their previous midwifery experience. There is a need to explore, understand and appreciate the lived experience of midwives who have cared for parents whose baby has been stillborn. Increasing our understanding of the potential emotional impact of such work may help the individual midwife better comprehend the experience when she finds herself faced with it for the first time and may help others to "be there" to support any midwife, providing care during and following a stillbirth.

METHODS

The methodology of hermeneutic interpretive phenomenology was chosen to help explore the lived experiences of the midwives, from their own personal vantage points (Streubert & Carpenter, 1999). The quest was to find meaning within their narratives and to shine a light on the interpretations of their experiences. Using this methodology enables us to ensure the midwives' stories are heard when they seemingly had been silenced and therefore allows us to impart an in-depth exploration of their lived experiences.

All of the five registered practising midwives involved in this study were self-employed midwives and who had, for the first time in their midwifery practice, cared for a woman who experienced a stillbirth. None of the midwives in this study were supervising student midwives at the time that they had this experience.

Professional networks were used in order to identify suitable participants. When a midwife voiced an interest in being involved in the study, details were provided, anonymity and confidentiality issues were discussed, and information sheets sent to her, along with a consent form. Each midwife was given a pseudonym to protect her identity. The number of participants selected was based on the assumption that five different midwives, each with a unique story, would provide deep experiential data because of their own experiences of the phenomenon (Robinson, in Cluett & Bluff, 2000). In this methodology, adequacy of data is reached when enough of the phenomenon is revealed to enable resonating similarities to emerge.

Individual interviews were conducted with each midwife and were audio-taped. The range in the duration of practice experience was from two to over twenty-five years. For the midwives in this study, their first experience of stillbirth happened between one year and eight years into their practice. The time lapse between the stillbirth and the interview was between a few months and almost a decade. The gestations of the babies lost to stillbirth were all at term and the outcome of a stillbirth was not expected in any of the cases.

The Auckland University of Technology Ethics Committee (AUTEC) granted ethical approval in August 2011. I heeded my obligation to protect the participants in my study throughout the process.

The question asked of the midwives was: "Can you set the scene for your first experience of caring for a woman having a stillbirth?" It was designed to help participants not only remember the clinical experience but also recall the thoughts and feelings associated with the event. The individual interviews were transcribed and sorted into two main thematic sections through an interpretive process. The two themes were labelled: "A pocketfull of grief" and "A heavy heart", with each theme having three sub-themes. This paper focuses on the first theme: "A pocketfull of grief".

To assist with interpretation of the data collected, Smythe and Spence's guide for "dwelling with a transcript" (1999, p.3) was utilised; that is, writing, drawing and grouping stories together looking for themes. It is suggested to use questions as prompts to delve deeper and deeper into meaning behind or below the data. The meaning of the phenomenon comes gradually as a result of careful and repeated reading, reflecting and dwelling with the data. When a researcher is using phenomenology as a research methodology, interpretation of data commences at the end of the data collection rather than during.

Pre-existing understandings

Lopez and Willis (2004) suggest that the philosophical assumption underlying interpretive phenomenology is that the knowledge of the researcher can be seen as a guide to the inquiry. Prior knowledge of the phenomenon provides context for the inquiry and can enhance the researcher's sensitivity to the data (Strauss & Corbin, 1998). In my case, personal clinical experience as a community-based midwife and caring for women who have had a stillbirth has provided me with an understanding of the personal and professional ramifications of this situation. In addition, as I was working beside and supporting colleagues who have experienced this form of loss, I found myself questioning the effect the unstated impact of these experiences may be having on a community-based midwife. Utilising the primary author's (my) clinical experience and presumptions around caring for a woman who has had a stillbirth has added subjectivity to this research

and aided the 'phenomenological expression' of this phenomenon (Robinson, in Cluett & Bluff, 2000, p.153).

Trustworthiness

The ultimate test of this study's worth is that the findings ring true to the people who read it. Even if they haven't experienced the phenomenon of caring for a woman experiencing a stillbirth themselves, my aim is that by reading this research they will gain a sense of recognition from what they read. The trustworthiness of phenomenological research is critical not only to the reader but also to those who are impacted by the research (Shenton, 2004).

The purpose of this study is to draw the reader closer to the midwives' lived experiences and to offer an interpretation of their stories. For this to be useful to the reader, the trustworthiness of the findings needs to be addressed and confirmed. To affect increased likelihood that these findings become incorporated into a midwife's practice, the data need to be authentic and the discussion around these narratives has to stay true to the experience.

FINDINGS

Two main themes appeared out of the text. They represent how the midwives made sense of the experience and gave meaning to their narrative. The first theme is based on each midwife's immediate response to the death of the baby; that is, in every case a response of intense grief. This first theme is titled "a pocketfull of grief". The second theme relates to an even more personal path the midwives subsequently travelled. This theme talks of the midwives' own feelings of sadness about the loss and their personal concept of death and is titled: "a heavy heart".

This paper discusses the theme 'a pocketfull of grief' which involved the initial intense response of grief and shock experienced by the participants, the depth of which often took them by surprise. Three sub-themes emerged: "shockwave", "self-protection" and finally "blameworthiness".

Shockwave

Vicky tells of being in a small birthing unit with a labouring woman and becoming concerned about the baby's heart rate. She decided to transfer the woman to the local secondary/tertiary unit for closer monitoring and obstetric support. On their arrival Vicky was unable to find the baby's heartbeat. This unexpected and sudden outcome hit her like a shockwave, a jolt that left her feeling overwhelmed.

> *I was sobbing so I went into the tea room and let rip. I just felt dreadful. I was a sobbing mess. All I know was that I was a distraught mess. It was shock, horror, just "Oh, my God!"*

It is the suddenness of the event and her own realisation that, in fact, the baby was not alive and had died en route that find her overwhelmed with emotion. She reported experiencing a reality shock when she found herself in a situation she thought she would be prepared for, but suddenly found that she was not. They had arrived at what could be considered a "safe place", in view of the concerns she had, only to discover that it was too late. Vicky continues:

> *I never thought the baby would die. I knew I wanted to get her out because I wasn't happy but I didn't think that little baby would die. I thought the baby might have been born a bit flat or maybe there might be some meconium. I was prepared for that. I thought if that baby is feeling a little unhappy then I would rather it be born in the base hospital so that the paediatricians could be there. But there was never any time that I thought the baby would die.*

Vicky found her emotions were difficult to contain and she felt torn between dealing with the parents' obvious feelings of devastation and containing her own personal shocked responses.

> *The biggest thing was trying to keep it together because the parents were so distraught. It was about them not about me…you're trying to hold back all of these emotions. That's why I let rip in the tea room. You can't get your head around the fact and then be left to catch this little baby. So perfect and so beautiful and you're just waiting for something… come on! You wait...and there is just nothing… just wishing that the baby would breathe.*

Vicky felt she had to leave the room to save the woman seeing her own distress. She had tried to keep her emotions under wraps but couldn't. Out of sheer desperation to not add to the woman's pain, she needed to get away to let her own emotions out.

The woman's labour progressed extremely quickly and the baby was born. The outcome was now visible for everyone to see. The reality was confronting for all in the room: this was not a mistake; the baby had truly died. Vicky remembers waiting desperately for the baby to show signs of life. This was the one chance for the truth to be challenged. She couldn't comprehend what was actually happening because it all occurred so quickly. This would have felt surreal to Vicky not just because she had never experienced anything like this before but in her head she had a vision of how this woman would birth and nothing she was now witnessing was part of that vision.

> ### Her relationship with the woman had naturally formed a sense of attachment that made the shockingness of the loss even more overwhelming.

By the time the parents left the hospital, Vicky hadn't slept for hours. She had travelled to the hospital with the woman in the ambulance so had to find her own way back home which was some distance away.

> *You could imagine with no sleep, I was just a crying, tired mess. I waited until they were discharged because I didn't feel that I could leave. I didn't know what to do. Do you leave them to their own devices to look at their baby or do they want someone around? I didn't know what to do so I just waited. They didn't want a post-mortem so they carried their baby out in a little box. You don't expect to see that. You know, what do you say to them?*

The possibility of the baby being stillborn was not thought of and not expected. This description of being shocked illustrates that Vicky too, was affected by the death of the baby. Her relationship with the woman had naturally formed a sense of attachment that made the shockingness of the loss even more overwhelming.

Self-protection

The suddenness of a precipitate labour and subsequent unplanned homebirth where the baby was stillborn, left Mary confused and searching for a way to process what had happened.

> *I didn't understand. I thought that babies who come that quickly usually come out screaming. It was such a shock. It was just so unexpected. Just the last thing I expected to happen. I didn't know what to do. It was all very new to me.*

After Mary had completed all the appropriate care for the woman, she felt she needed to distance herself from the raw reality.

I didn't go home until about 5pm that evening. I hung-out at the hospital. I just hung-out wherever. I hung-out at my colleague's house. I had a bath at her place. She said 'You need to go home…can I ring your partner and tell him what happened?' But I didn't want to talk to him. The hardest thing was just telling him. It's just telling people. I didn't want anyone else to know. If I could have kept it to myself and have no one else know about it, I would have.

As a form of self-protection Mary tells of "running away" to her colleague's house as she couldn't cope with having to explain, to anyone else, what had just happened. She could hardly make sense of it herself. By telling anyone else she would make the experience real. By keeping the details to herself and not letting anyone else know, she could maintain the facade of everything being alright- almost as if it had never happened. In essence, perhaps she was "buying" some emotional time to come to terms with the reality of the loss. Mary saw her colleague's home as a safe place; a place where explanations were not necessary. The experience could be contained and kept "invisible", even for a little while longer. The symbolism of 'having a bath' could be seen as Mary needing to wash the events of the day away; to rid herself of the burden she felt she was carrying.

> ## As with any adverse outcome involving birth, the midwife involved will be required to account for her practice.

Mary used the strategy of denial as a way of protecting herself from what she dreaded: the undeniable fact she had been the midwife for a baby who was born 'still'.

I remember Samantha, a midwife at the hospital, looking at me and looking like all she wanted to do was give me a cuddle. I said "You can't look at me like that because I am going to burst into tears". I didn't want that at all. Everyone would look at you and be thinking "I am so sorry". Sometimes sympathy is really hard. People would show it in their eyes.

Mary tried to avoid talking about her experience, wishing that people would soon forget about it; almost wanting it to be forgotten to pretend it never happened. Her emotions were tender and close to the surface like a newly healed wound. Mary conceptualised the meaning of sympathy as an agonising reminder of what had happened. She chose to keep a low profile, waiting for the intensity of the situation to settle down. She may have felt her own grief response to the stillbirth was open to misinterpretation and that her vulnerabilities would become "visible" to others. It was safer to deny it ever happened.

Blameworthiness

As with any adverse outcome involving birth, the midwife involved will be required to account for her practice. Reviewing and considering her care provision may involve self-doubt together with questioning as to whether she could have done things differently. This can often be prolonged and distressing. In her assessment, the midwife, Jill, felt the woman was labouring well and everyone was expecting the baby to be born alive and well. That was until the baby was born.

The baby was so pale and floppy. Just like a rag doll. My heart just went "thump" down to the floor. I looked up when I was doing CPR and she knew that the baby hadn't cried after the birth and she kept looking at me. I could feel her looking at me. Then in the end she said, "no, give me my

baby…you know as well as I do, Jill, that my baby is dead." So I just gave her the baby and she cuddled it.

For Jill, the woman's sense of knowing would have been bitter-sweet. She wouldn't need to break the news to the mother but the longer she stayed focused on helping the baby, the longer she could avoid acknowledging the truth of what had just happened.

I felt that I had missed something and that I should have been able to make that baby come alive. I don't know why, it's just I have live bubbies, not dead ones. Why did it happen..? What did I do wrong..? What didn't I see happening..? Yeah…all those sorts of things. It was really raw emotions. We were all sort of in a daze and to be quite honest I don't remember what happened after that. I think you blame yourself for something like this. More than you think you do.

The self-doubt was overwhelming for Jill and she remembers finding a hiding place to cry. This allowed her to let go of some of her own responses of shock and disbelief. She believed that she alone was accountable for what had happened. She reproached herself for missing some signal that the baby had tried to give her that it was in danger. She condemned her own practice, even after years of being a midwife. The impact of these thoughts were so great that Jill has deleted these details from her memory and stated that she couldn't remember what happened after that. The extended family called a meeting the following day to get answers to their questions.

I had to re-live it all again and I had to go back to where it was quite sore and hurtful but at the same time it was quite healing in a way. I'm pleased that the family know now that I did try my very best. But that is what you do anyway. But even now when you meet them in the street you think, "Oh, dear, there's the family". Your heart takes a skip. It's not a frightened skip; it's just a skip.

If a baby is born still, the usual common assumption may be made that the midwife did not live up to the shared expectations. When outcomes do not show themselves as being the epitome of perfect, the midwife may potentially feel responsible.

DISCUSSION

With the emergence of the first theme of this research, a deeper understanding was gained of the lived experience of community-based midwives who have cared, for the first time, for a woman who has had a stillbirth.

When a baby is stillborn, the woman, her family and the midwife caring for her enter a time and place of loss and pain. The woman and her family are expecting a healthy, live baby; a baby that has been in their dreams, and its arrival intensely anticipated. For the midwife, she too, is expecting a healthy, live baby but from her training and experience, she is also aware of the twists and turns pregnancy and birth can take, sometimes without reason or warning.

> ## When a baby is stillborn, the woman, her family and the midwife caring for her enter a time and place of loss and pain.

These findings suggest that we are often thrown into situations rather than consciously choosing to enter a particular situation. Heidegger's (1962) notion of "thrown-ness" implies that the midwife needs to make sense of where she has been thrown, or where she has been placed, in relation to the experience of being there at the moment of stillbirth. She finds herself suddenly "thrown" into a place or situation that was unexpected; in fact

the exact opposite of what was expected, unforeseen and always alarming. So she is forced to confront where she has "landed" rather than being able to run from it, evade it, or cover it over. By metaphorically turning around to face the reality that there is no escaping this truth, the truth becomes embedded in the lived world of the midwife. It is then that death becomes real to her and the realisation that there is nothing she can do about it. They are involved in this tragedy, whether they want to be or not.

Perhaps the most challenging revelation of these research findings is the notion of the midwives experiencing a grief that isn't seen as belonging to them. Each midwife's testimony confirms that, although the loss was not theirs, their own sense of loss was intense and deeply personal. In other words, the midwife is involved intimately with the loss yet the loss is not hers to openly grieve over. Her public sorrow is for the woman's loss but her private sadness is for herself. The complexities surrounding this situation can find the midwife drawn beyond herself to a place that challenges her sense of self in a profound way. Her experience can be mysterious and exquisite, touching and tragic, scary and sacred, all at the same time.

For most, their emotions were only able to be visible for the briefest of moments. They felt their true feelings needed to be hidden and only acknowledged in their own private world during self-reflection. They found themselves experiencing the loss of a baby from a place on the outside looking in, as if in the shadows.

> The intensity of each
> midwife's story, of caring
> for a woman who has
> had a stillbirth,reflects
> the deeply personal
> journey travelled.

These findings could suggest that the midwife felt a sense of loss in her core-self, a place of essence, where personal meaning and understanding sit. The midwife was part of the woman's reality and felt her emotions. It could be interpreted from the stories of the midwives that this empathy was a double-edged sword for the midwife. On the one hand, this empathy demonstrates "being-with" the woman; on the other hand, the act of "being" leaves the midwife vulnerable to this very act in the event of this outcome. It is suggested that the act of "being-with" the woman or attending the woman, is linked to the midwife's perception of her experience and her relationship to the world she is in (Heidegger, 1962). This concept of "being-with" the woman is not just a physical locality but a journey travelled together. The findings of this research suggest that the journey through the loss of a baby is navigated personally and privately by each midwife in contrast to the journey travelled when there is a live baby. Each step of the way, the midwife steers her way between providing situation-sensitive care to the woman and her family, and coping with her own intense, overwhelming feelings that are necessarily hidden and unspoken. There is no map to follow on this journey but rather a sense of finding your way. When I reflected on the first theme developed from hearing these five midwives' stories, the theme suggested that they came out of this experience with a sense of shock and unpreparedness. Individually, each midwife gained practice wisdom which cannot be taught nor scripted. They were taken into uncharted territory and each deciphered the experience in their own unique way.

The intensity of each midwife's story, of caring for a woman who has had a stillbirth, reflects the deeply personal journey travelled. The midwife is entrenched in the woman's experience and this, in turn, brings the midwife into the experience loop that encircles them

both. Although each midwife attempts to unravel her experience from her own personal perspective, there are commonalities that are apparent. The sense of loss is highlighted and this is common to both the midwife and the woman. The midwife is seen to be searching for meaning, searching for solace and searching for validation of both herself and her midwifery practice. A midwife's "life-world" or personal reality exposes the professional caring reality and illustrates the closeness of the involvement a midwife has with the woman and her family during the birth of a baby (Heidegger, 1962). The midwife "bears witness" to the event and is compelled to be involved and is bound to experience commonly felt emotions by just "being there". For the midwife, the meaning found in the shared experience is what nurtures her own practice wisdom and highlights the "being of midwifery", or in other words, the total immersion into the shared experience.

LIMITATIONS OF THE STUDY

For this study I chose to explore stillbirth from the perspective of the self-employed midwife in the New Zealand context of maternity care. This was not intended to negate other situations of bereavement care but rather to hear the stories of midwives who had cared for women who experienced the phenomenon of stillbirth as an unexpected outcome of the birth rather than when they were anticipating a stillbirth. Within the limitations of this master's study, I was unable to explore other aspects of bereavement care and particularly was unable to explore the stories and experiences of hospital employed midwives. However, the themes that emerged from these stories may resonate with other midwives regardless of their workplace setting. If so, then I can claim they usefully represent the commonality of experiences of all midwives who care for women who have had a stillbirth.

Implications for practice

The themes identified have encapsulated the message that for these midwives the experience of their very first stillbirth had a significant impact on their emotional wellbeing, both professionally and personally. These findings may resonate with other midwives and, it is hoped, will provide a better understanding of the impact of that initiatory stillbirth on the midwife. It appears that as the scenario of sudden stillbirth unfolds, the midwife's relationship with the family may intensify as the shared experience is realised. It is important that the midwife's colleagues understand the ebb and flow of emotional vulnerability both during and following a stillbirth. There is a need for support for both the woman and the midwife. There is equally a need for an understanding of the individuality of the midwives' emotional responses which may vary between shock, denial and self-blame. One notable recommendation arising from these data is to encourage the midwife to acknowledge and accept the emotions she is feeling and be helped to manage her emotions effectively as a way of recognising or supporting her own resilience.

CONCLUSION

This research has added to our knowledge of the experiences and impact of stillbirth on the midwife by exploring the reactions of five midwives to their first involvement with an unexpected stillbirth. They described feelings of shock, denial and self-blame. These build on the enduring impression of the initial sheer suddenness of being present during an immediate stillbirth, which was the focus of this paper. The participants described the tension of continuing to care for the woman and her family, and coping with their own intense feelings. The findings illustrate the impact of having the experience of a stillborn baby is one that is shared by the woman, her family and also the midwife. Although the loss is not the midwife's, these findings endorse the conclusion that the impacts on the continuity of care midwife involve feelings of loss and grief, when a baby is stillborn.

ACKNOWLEDGEMENT & DISCLOSURE

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NEW ZEALAND RESEARCH

Clinically overweight and obese mothers and low rates of breastfeeding: Exploring women's perspectives

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ABSTRACT:

Background: It is universally recognised that breastmilk is the best food for babies and that breastfeeding provides significant health benefits for both mothers and babies. Women who are overweight or obese have lower rates of initiation and duration of breastfeeding. There is a need to understand the woman's perspective, and any additional factors that may contribute to breastfeeding difficulties for overweight or obese women.

Objective: The aims of this research were to explore the breastfeeding experiences and perspectives of a specifically recruited group of clinically overweight and obese women and to gain an understanding of what influenced their infant feeding decisions.

Method: This study used a qualitative methodology. In-depth interviews were conducted with six mothers who were overweight or obese and initiated breastfeeding, but then did not continue to exclusively or fully breastfeed their babies. Using a thematic analysis the researcher identified seven themes which captured the breastfeeding experiences of these women.

Findings: The women believed in the importance of breastfeeding for their babies' health, but experienced challenges with latching and perceived their breast milk supply to be insufficient. The physical challenges of large breasts and body image issues when feeding in public also contributed to early cessation of exclusive breastfeeding. This study adds to the body of knowledge on this subject and to our understanding of the association between maternal overweight and obesity and early cessation of breastfeeding.

Conclusion: It is important to recognise the unique needs of overweight and obese women and provide support antenatally and postnatally. This support is crucial if we are to achieve the public health aim of reaching World Health Organization (WHO) and national targets for exclusive and full breastfeeding.

Key words: Breastfeeding, lactation, feeding behaviour, maternal obesity/body mass index (BMI), low rate

INTRODUCTION

Breast milk is considered the optimal nutrition for babies and, as a global public health strategy, the World Health Organization (WHO) recommends exclusive breastfeeding (breastmilk only with no water, other fluids or solids) for six months, with supplemental breastfeeding continuing for two years and beyond (World Health Organization, 2001). In response, the New Zealand Ministry of Health has previously set targets of exclusive and fully[1] breastfeeding by 90% of mothers at six weeks postpartum by 2010, 70% of mothers at three months postpartum by 2010, and 27% of mothers at six months postpartum by 2010 (Ministry of Health, 2008).

However, key results from 2013 Plunket Society data (www.plunket.org.nz) show that the exclusive and full breastfeeding rates fall short of both international and national recommendations. In the six to nine week age group, 66% of babies are exclusively or fully breastfed and in the 10-15 week age group, 55% of babies are exclusively or fully breastfed.

In New Zealand, between 1997 and 2012/13, the prevalence of obesity[2] among women increased from 21% to 32% (Ministry of Health, 2013). There are significant ethnic variations in the obesity pattern in New Zealand also. While 23% of Pākehā (New Zealand European) adults are obese, the Pasifika rate is triple that (68%) and the Māori rate is double, at 48% (Ministry of Health, 2013; Ministry of Social Development, 2010). Being overweight or obese has been identified as an independent risk factor for early cessation of breastfeeding (Li, Jewell & Grummer-Strawn, 2003; Rutishauser & Carlin, 1992) and for reduced breastfeeding initiation rates (Krause Lovelady & Ostbye, 2011; Li et al., 2003). This association between mothers being overweight and low rates of breastfeeding initiation and duration is therefore of public health concern given that the prevalence of obesity among child-bearing women is increasing worldwide (Vahratian, 2009).

However, the reasons mothers who are overweight are less likely to initiate breastfeeding, and more likely to breastfeed for a shorter

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[1] The infant has taken breastmilk only. No other liquids or solids have been given except a minimal amount of water or prescribed medicines in the last 48hrs (this matches the WHO exclusive indicator).

[2] The World Health Organization defines a Body Mass Index (BMI) >25 as clinically overweight, and a BMI >30 obese (World Health Organization, 2000)

duration, are not clear. Breastfeeding behaviour is complex and multifactorial (Amir & Donath, 2007), and a woman's decision and ability to breastfeed are influenced as much by emotional and psychological responses as by physiological responses (Amir & Donath, 2007; Rasmussen & Maher, 2007.

Studies of populations in the United States and elsewhere have found that overweight and obese mothers were less likely to initiate breastfeeding compared to normal weight women.

Research on the negative association between maternal overweight and obesity and breastfeeding is predominantly quantitative. Studies of populations in the United States (Kitsantas & Pawloski, 2009; Li et al., 2003) and elsewhere (Baker, Michaelsen, Sorensen & Rasmussen, 2007; Donath & Amir, 2008; Guelinckx, Devlieger, Bagaerts, Pauwels & Vansant, 2011; Mok et al., 2008) have found that overweight and obese mothers were less likely to initiate breastfeeding compared to normal weight women, and that they ceased breastfeeding earlier than normal weight women.

While these studies have found an association between maternal overweight and initiation and duration of breastfeeding, they are unable to address the question of why. It is not clear which factors influence a mother who is overweight or obese to not initiate breastfeeding or to breastfeed for a shorter time. The causes are likely to be multifactorial (Lovelady, 2005), and may be related to physiological factors (e.g., hormonal variations), physical factors (e.g., large breasts) and socio-cultural factors (e.g., body image, low self-esteem, poor mental health) (Amir & Donath, 2007).

Delayed onset of lactation and poorer prolactin response to suckling are associated with maternal overweight/obesity.

Delayed onset of lactation and poorer prolactin response to suckling are associated with maternal overweight/obesity (Dewey, Nommsen-Rivers, Heinig & Cohen; Nommsen-Rivers et al., 2010; Chapman & Perez-Escamilla, 1999; Hilson, Rasmussen & Kjolhede, 2004). In a population study of 40 mothers with full-term infants, Rasmussen & Kjolhede (2004) measured serum prolactin and progesterone concentration in normal weight and overweight women in the first week postpartum. Women who were overweight or obese had a lower prolactin response to suckling, thus compromising their ability to produce milk, which over time could result in early cessation of breastfeeding. While this finding provides evidence of a biological basis for the association between maternal overweight/obese and shorter duration of breastfeeding it is important to note that the prolactin response is dependent on effective suckling by the baby. If overweight or obese women have greater latching difficulties, the prolactin stimulus is further reduced, thus additionally affecting milk production and supply.

There are a number of risk factors for delayed onset of lactation. These include caesarean birth, prolonged second stage of labour, gestational diabetes mellitus (Chapman & Perez-Escamilla, 1999; Chen, Nommsen-Rivers, Dewey & Bo, 1998; Dewey et al., 2003; Perez-Escamilla & Chapman, 2001) and large for gestational age (LGA) babies (Rasmussen & Maher, 2007). Maternal obesity carries with it a greater risk for emergency caesarean section,

instrumental birth, shoulder dystocia and gestational diabetes mellitus (Perez-Escamilla & Chapman, 2001; Cedergreen, 2004).

Physical and mechanical factors present difficulties to successful latching of the baby onto the breast. Obese women tend to have larger breasts, with an excess of periareolar adipose tissue which may flatten the areola and nipple, making the nipple more difficult for the newborn to grasp. This difficulty contributes to the reduced prolactin response to suckling (Coates, 1989; Jevitt, Hernandez & Groer, 2007; Lovelady, 2005).

Additionally, women's experience of breastfeeding is influenced by a range of psychological, emotional and sociocultural processes. These cognitive factors have been found to influence breastfeeding behaviour and breastfeeding duration. Psychological factors statistically associated with the duration of breastfeeding include: anxiety, breastfeeding expectations, faith in breastmilk, and breastfeeding self-efficacy (O'Brien, Buikstra & Hegney, 2008).

Higher maternal anxiety is associated with early weaning (Papinczak & Turner, 2000) and maternal postnatal depression has a significant negative impact on breastfeeding duration (Dunn, Davies, McCleary, Edwards & Gaboury, 2006; Henderson, Evans, Straton, Priest & Hagan, 2003; Taveras et al., 2003). Further, there is a well-documented association between obesity, depression and anxiety in women. A recent study (LaCoursiere, Baksh, Bloebaum & Varner, 2006) found a two-fold increase in self-reported postpartum depressive symptoms requiring assistance among overweight and obese women compared to normal weight women.

Low maternal self-esteem and self-confidence, and reduced belief in their ability to breastfeed are two of the strongest predictors of breastfeeding cessation.

Low maternal self-esteem and self-confidence, and reduced belief in their ability to breastfeed are two of the strongest predictors of breastfeeding cessation (Blyth et al., 2002; Grassley & Nelms, 2008; Harris, Nayda & Summers, 2003). Low maternal self-esteem is associated with negative body image and pregnant women may be concerned about changes in their body shape. Obesity is also linked to poor body image, particularly for women (Rubin, 1984). Hilson et al. (2004) found that obese women were less satisfied with their appearance and planned to breastfeed for a shorter duration than normal weight women. This dissatisfaction with body image may extend into embarrassment with exposure of their body (Amir & Donath, 2007) and is likely to be one reason overweight and obese mothers feel uncomfortable breastfeeding in public.

A frequent major breastfeeding problem identified by women was perceived low milk supply (Lamontagne, Hamelin & St-Pierre, 2008). Fewer obese mothers felt that their milk supply was sufficient at one month and three months compared to normal weight women (Mok et al., 2008). This challenge has been recognised with some midwifery care plans identifying overweight and obese women as needing extra support due to their reduced perceptions of breast fullness and milk production (Jevitt et al., 2007).

The importance of health professional support for women in establishing and sustaining breastfeeding is widely recognised (Glover, Waldon, Manaena-Biddle, Holdaway & Cunningham, 2009; Guyer, Millward & Berger, 2012; Thulier & Mercer, 2009).

Research examining lactation-counselling practices used with obese mothers (Rasmussen, Lee, Ledkovsky & Kjolhede, 2006) found that the majority of health care providers surveyed neither believed that there was a difference in the success rate between obese mothers and normal weight mothers, nor advised obese mothers differently about breastfeeding (Rasmussen et al., 2006).

The importance of health professional support for women in establishing and sustaining breastfeeding is widely recognised.

Qualitative research can explore women's breastfeeding experiences in more depth and examine the influence of psychological and/or behavioural factors, (Rasmussen & Maher, 2007). However, a literature search was unable to find any qualitative research which specifically studied overweight and obese mothers and their experiences of breastfeeding. The important issue is whether these personal factors affect overweight and obese women differently to normal weight women (Rasmussen & Maher, 2007).

The aims of this research were to describe, from clinically overweight and obese women's perspectives, their experiences of breastfeeding; what influenced their infant feeding decisions; and to understand better the reasons for short breastfeeding duration among this group.

The following research question was formulated: 'what factors for short breastfeeding duration can be identified from the experiences of a small group of clinically overweight and obese women?'

METHOD

A qualitative design using thematic analysis was chosen to explore the breastfeeding experiences of six clinically overweight mothers who did not exclusively breastfeed their infants. Thematic analysis is a method for identifying, analysing and reporting patterns or themes within data. It describes the data set in "rich" detail (Braun & Clarke, 2006) and has the potential to interpret various aspects of the research topic (Boyatzis, 1998), and to report experiences, meanings and the reality of participants (Braun & Clarke, 2006).

Rigorous qualitative research acknowledges that researchers are part of the setting, context and culture they are trying to study (Rice & Ezzy, 1999). My professional role as a practising midwife was made clear to the participants and supported my understanding of the nature of the breastfeeding difficulties the participants experienced. This knowledge guided me when interviewing and assisted in developing a rapport with the women.

Participants

Six women from a large city in New Zealand were recruited for the study. The inclusion criteria were: 1) women who were clinically overweight or obese at the time of their antenatal booking visit (as defined using the WHO definitions of – BMI >25 clinically overweight, BMI >30 obese (World Health Organization, 2000)) and: 2) women who had initiated breastfeeding but were not exclusively or fully breastfeeding at four to six weeks postpartum. The women's ages ranged from 31-36 years. Four of the women identified as New Zealand European or Pākehā, one as Samoan and one as New Zealand Māori. Two of the participants were primiparous and four were multiparous. Two of the women interviewed had had normal vaginal births, while four of the women had had caesarean section births. Two of the six participants had had gestational diabetes. The participants' BMIs,

collected by their Lead Maternity Carers at the antenatal booking visit, were 35, 36, 40, 43, 46 and 66.

Ethical approval was obtained from the University of Otago Ethics Committee (Reference Code: 13/029). The women who met the study criteria were recruited by Lead Maternity Carer (LMC) midwives in the community and core midwives in local hospitals. The midwives identified eligible participants, outlined the project and gave them an information sheet and a consent form. Interested participants were phoned by the researcher who explained the research project further and arranged an interview time. Signed consent for a digitally recorded interview was obtained before the interviews commenced. An information sheet was provided and explained that participants could withdraw at any time, without prejudice. Pseudonyms were allocated to the women participants to preserve confidentiality.

The women were interviewed in a semi-structured interview, lasting 30 minutes to an hour, in their own home. In-depth interviewing is appropriate to qualitative research as it allows participants to describe what is meaningful and important to them using their own words (Minichiello, Aroni & Hays, 2008). The interview opened with a broad question: 'Could you tell me about your breastfeeding experience from the moment your baby was born until the present?' This key question enabled the mother to tell her breastfeeding story, including reflecting on any difficulties encountered, and to highlight what was significant for her.

Data Analysis

The interview recordings were transcribed verbatim by the researcher with initial themes in the narratives being identified during the transcription process. Seven main themes emerged: breastfeeding as difficult, perceived insufficient breastmilk supply, physical difficulties—latching and mechanical factors, unrealistic expectations, pressure to breastfeed, professional help as distressing, and being philosophical about their decision.

FINDINGS

Four of the six women intended to exclusively breastfeed their babies immediately after birth for as long as possible. One of the women had planned to bottle-feed her baby after birth but was persuaded by her LMC midwife to attempt exclusive breastfeeding. One of these women had planned to mix feed, i.e., breast and bottle feeding combined. The overarching theme that emerged in the participants' narratives was that breastfeeding was a challenging and demanding experience that required practice and perseverance. As well as the physical challenges of breastfeeding, the experiences of the women evoked complex emotional responses highlighting the integral relationship between breastfeeding and emotional wellbeing. The seven main themes are illustrated using direct quotes.

Breastfeeding as Difficult

Rather than finding it a natural instinctive process, the women in this study described their experiences of breastfeeding in terms of being difficult, a struggle and a challenging task that had to be worked at to get right. Breastfeeding was conceptualised as "work" or "labour", or a task needing preparation in order to be successful.

> Yes well I think for us it was breastfeeding is good for him, it's free and it's a nice bonding thing but I can't say it's a bonding thing now. For me it feels really hard, it feels like a full time job… (Kate)

> …so I had to use a nipple shield anyway which is kinda difficult, you know, it's not just a matter of getting it out and away you go. You know there's still a lot of prep work.

I guess you'd say, because you still have to make sure it's sanitised and on properly and so on and so forth. It was still a lot of work. (Jess)

The women expressed a concern that the closeness created by breastfeeding was stifling and confining. There was a sense of loss of autonomy and self-identity for the women due to the demands of breastfeeding. For Annie there was a sense that introducing bottles enabled some separation from her infant and regaining of control over her life. This allowed her partner to assist in feeding and for them to establish predictable feeding routines:

…when you are solely breastfeeding, it's like he got really attached to me and he didn't want to let me go….but now that he has bottles it's like, well can you feed him while I do this whereas if I was breastfeeding it's a little bit harder to let him get attached or when I was leaving him it would have been very, very hard…. (Annie)

Insufficient Breastmilk Supply

All the women attributed lack of breastfeeding success and introduction of formula as being at least partly due to insufficient breastmilk supply. This unavoidable conclusion was strongly linked to their baby's discontented behaviour and to assessments of their baby's weight loss by health professionals:

…then because I didn't have enough milk they realised he wasn't getting enough because he was screaming half the time and he wasn't putting on the weight…He was getting so frustrated and so upset, so that would get me upset which doesn't really help with the "let down"…(Annie)

We were in bed because he just cried all night and he wouldn't sleep and he wouldn't settle. I thought he was cluster feeding. I thought he was making up for the time he didn't get much at the breast and then it turned out that he was actually starving…(Kate)

For many of the women, once they had decided to introduce supplements for their baby, the change in their baby's behaviour and weight increase seemed to confirm their belief that they had had insufficient breast milk supply and they felt vindicated:

….so he's been fully bottle fed for at least a week and he's been so much happier and when Plunket came and did their first visit he'd put on the most weight the entire time so it makes me feel like he was just never getting enough. (Jess)

One woman talked about her milk coming in "late". As she stated "…they had to put him straight on to formula because my milk didn't come in until two days after I'd given birth". Additionally some women were concerned because they couldn't feel any breast changes which are often a sign of "milk coming in" or the "let down."

"…my boobs never felt full or hard and by that stage I'd moved on to expressing and I just noticed that I wasn't getting, I mean 20mls each feed would have been my best take. (Rowan)

Physical Difficulties – Latching and Mechanical Factors

Five of the six women interviewed had difficulties latching their babies related to the physical challenges of having large breasts. For example, Rowan attributed her difficulty with breastfeeding to her increased body weight and the size of her breasts. That is, she directly attributed her lack of success in breastfeeding to her weight, or at least felt it was a significant factor:

Yes, definitely, I feel it was, the lactation consultant said

"lovely big boobs, you shouldn't have any problems" but no, it didn't help with milk production, or the technical side of things.

The women described their breasts in terms of their heaviness, and of the weight of them pressing on their baby; in some instances objectifying them as if separating them from their bodies:

They were very full and I'm a big busted girl, they just felt like this huge weight…and because I'm a big busted girl having him in the right position…In the end I found the rugby position the best because I didn't have to worry about the fact of squishing him to death…(Annie)

Probably, because my boobs had just gone boing (gestures with her hands over her breasts like they had gotten bigger), like really big, I didn't know whether he was breathing. (Carol)

The size of the women's breasts also posed practical problems with latching their babies and made it difficult to feed discreetly in public. Comments associated with this aspect included "self-consciousness", "discomfort", and "reluctance" to breastfeed in front of others:

Yes, me personally, I'm just too self-conscious to, because they're so big, to actually get them out in public. (Jess)

…Yeah I guess because there's so much boob there and also I didn't want it to become a problem. I did want to feed and everything but I did notice there was an uncomfortableness about it for me. (Rowan)

Unrealistic Expectations

All the women found their breastfeeding experience difficult and challenging. There was a real sense that they weren't prepared for the reality of breastfeeding. They suggested that there was almost a conspiracy of secrecy around the realities of breastfeeding and the difficulties many women encounter.

…like, I think it's hard because everyone says that breastfeeding is natural so when you can't do it you feel unnatural and no-one really talks about how hard it is… no, everyone talks about how easy it is, how natural it is or that it takes practice, it comes with ease, but no-one talks about the actual sheer exhaustion of it, you know…(Kate)

I know that they do put a lot of emphasis on breastfeeding but it's hard and I think they should put more emphasis on that and just how long it can take to establish. (Rowan)

One woman reflected on the unrealistic expectations of the women in her antenatal class about breastfeeding and newborn baby behaviour:

Most of the women had never been around children before and their whole expectations were "I'm going to be able to breastfeed my kids, they're not going to cry, they're going to be settled within seconds, I'm just going to look at them and they're going to be, like…" And I was, like, "whoa, rewind that, realistic slap in the face here". (Annie)

Annie believed these (so-called "unrealistic") women were influenced by idealised media images:

Oh, you know, they think of babies they see on TV; they're well-behaved; they're cute; they hardly ever cry. Hello, real world! (Annie).

One woman wanted to hear from other women about the realities of breastfeeding, including the difficulties and problems they experienced.

…the ones that do have children are really, like: "Yeah, it is really tough", and I'm, like: "why didn't you tell me that before?" (Kate)

Pressure to Breastfeed

Two of the women described encountering a judgmental attitude from people about bottle-feeding following their decision to either supplement or wean their babies. The women also spoke of the pressure to breastfeed that is put on women by society and, also, by themselves:

There is a lot of pressure just in general society to breastfeed, a lot of it. Even if you can't breastfeed for medical reasons, you know, there is a lot of pressure out there to breastfeed. I think mothers put a lot of pressure on themselves and cause a lot of problems to themselves because they can't do it or they feel bad because they supplement their babies…I think we put a lot of pressure on ourselves to do it. (Jess)

…I think its peer pressure to perform as a good mother…I did feel pressured to be a good mother and that and, like, you should breastfeed. (Penny)

Professional Help as Distressing

For one woman the inappropriate behaviour of one midwife was distressing. She found the experience of having this midwife assist with breastfeeding aggressive and rough:

I just remember the midwife coming in and almost angry that I was upset because I was having trouble doing it and "I'll show you how to express" but then just pretty much grabbed my breast without asking if that was OK. And being really, really rough and aggressive with her and I kind of…it's not on…She just ruined the whole stay in hospital, like then it made me apprehensive about any other midwife that walked in the room and what were they going to do to me? And stuff…(Jess)

For another woman the experience was just as disempowering. The woman commented that rather than assisting her by showing her how to attach her baby to the breast, the midwives were taking over.

I felt really disempowered totally because I felt like every time I pressed the button I was a problem that needed sorting, not a person who needed help. (Kate)

Being Philosophical about their Decision

Despite the breastfeeding difficulties they experienced, the women acknowledged the benefits of breastfeeding and were pleased that they had persevered and given their baby this optimum nutrition in the beginning:

…it's up to you to switch to formula but try breastfeeding because all the nutrients come from the milk. I always think it's the best for babies. (Carol)

I would do it again in a heartbeat. I would not not do it. I would spend hours pumping if that's what I've got to do. I'd do it because it's best for a child; because it's the good stuff right away. (Annie)

The women rationalised their decisions to introduce supplementary feeding in terms of the importance of their baby's health and wellbeing:

…at the end of the day if baby is happy and healthy that should be all that matters. We all know that breast is best but for some women it doesn't work. (Jess)

DISCUSSION

The aims of this research were to hear from this small group of women who were overweight or obese, to learn about their experiences of breastfeeding and to report what influenced their decisions about initiation and cessation of breastfeeding. The specific explorations of difficulties with breastfeeding largely aligned with other related research. These were the challenging nature of breastfeeding, which included perceived insufficient breastmilk supply, and latching difficulties. For women in this study there was more of an emphasis on the physical difficulties of latching a baby on to large breasts than that found elsewhere in the literature. Large breasts were also an issue in terms of discretion when breastfeeding in public and a body image concern for these women. Other findings included cognitive factors, such as unrealistic expectations, and societal pressure to breastfeed. However, the women were philosophical about their infant feeding decisions. Concerning was the distress caused for some of the women by the approach and actions of some midwives.

> ## The women in this study described their breastfeeding experiences in terms of work, hardship and struggle.

The women in this study described their breastfeeding experiences in terms of work, hardship and struggle. These findings are similar to those of Larsen, Hall and Aagaard (2008), Schmied and Barclay (1999) and Hjalmhult and Lomborg (2012), whose studies included women who described their breastfeeding experiences as a "battleground" or "a fight", or breastfeeding itself as sustained hardship and their having to fight to succeed.

These struggles possibly linked to having perceived insufficient breastmilk supply which contributed to early cessation of breastfeeding. For five out of the six women this problem with supply was thought to be due to difficulties latching their babies on to their breast. The infant's ability to latch and suck effectively has a physiological influence on breastmilk supply (Woolridge, 1995). These physical factors were found to be associated with early cessation of feeding in studies by McFadden and Toole (2006) and Binns andle Scott (2002).

Binns and Scott (2002) also found that women diagnosed breastmilk insufficiency on the basis of their baby's behaviour. This included references to a baby's unsettled behaviour, frequent crying, screaming and reluctance to sleep. Whereas after the introduction of supplements the women described the change in their baby's behaviour as – more settled "and happier". Of concern for some of the women in this current study was their baby's weight gain. This concern with weight is also reflected in other research, for example Hjalmhult and Lomborg (2012) in their study, who describe women beaming with pride when the baby's weight increased.

The issues described above may well be experienced by women who are not overweight or obese. However, in this study, the women had additional physical challenges related to their body and breast size plus issues of body image, particularly when attempting to feed in public. Five of the women in this study, who experienced difficulties with latching their baby to the breast, attributed their difficulties to the size of their breasts. This supports the idea that mechanical difficulties are one reason overweight and obese women have low rates of initiation and duration of breastfeeding. One woman directly attributed her breastfeeding difficulties to both her body size and to the size of her breasts.

Although some of the women in this study reported positive experiences with health professionals, three women found the way health professionals touched their bodies distressing, uncomfortable and disempowering. The women used strong terms such as "manipulate", "shoving" and "aggressive" to describe the actions of midwives as they attempted to latch the baby to the mother's breast. This differed from the literature reviewed, which described professional help to breastfeed. For example, participants in Lamontagne, Hamelin and St-Pierre's study (2008) found that health care professionals could sometimes be a negative influence when their breastfeeding advice to women was inconsistent, inadequate, or in conflict with the advice of others.

LIMITATIONS OF THE STUDY

This study has explored the experiences and perspectives of six women and the difficulties they encountered when initiating breastfeeding. It seeks to deepen our understanding of the issues facing overweight and obese women when they initiate breastfeeding. A limitation of this study is the small sample size. Thus the results are not generalisable to the wider population of women who are overweight or obese.

IMPLICATIONS FOR PRACTICE

Managing weight gain in pregnancy may contribute to breastfeeding success. However, there is a limited time available for midwives to assist women to make lifestyle changes during pregnancy and postpartum. For maximum effectiveness these changes need to begin pre-conceptually and at least by the time of the first antenatal visit (Li et al., 2003; Hilson, Rasmussen & Kjolhede, 2006). Antenatal education should also include healthy eating guidelines with women being encouraged to avoid gaining more than the recommended weight gain during pregnancy. Importantly, women should never be advised to lose weight during pregnancy (Hilson et al., 2006).

> Women who are overweight
> or obese need additional
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Women who are overweight or obese need additional breastfeeding support in the antenatal period, immediately after birth and postnatally. There are unique challenges for this group of women, such as reduced prolactin stimulation, body shape and image issues and physical difficulties due to large breasts. Being aware of these issues and planning supportive care have the potential to enable this group of women to achieve a positive and successful breastfeeding experience, increased self-esteem and confidence, and better health for their babies.

CONCLUSION

This study gives voice to six overweight and obese women, their experiences of breastfeeding and what influenced their infant feeding decisions. The women report that their breastfeeding experiences were commonly problematic and challenging despite a strong desire to breastfeed and an awareness of its importance to their baby's health. Women in this study experienced breast latching difficulties which could have been a contributing factor in a perceived insufficient breastmilk supply. These factors may also be common for women who are not overweight or obese but in this study the women identified the physical factor of large breasts as contributing to their breastfeeding difficulties in addition to body image issues, particularly when attempting to breastfeed in

public. The findings highlight the need for overweight and obese women to have additional and specific breastfeeding support during childbirth.

> ...the complex nature
> of breastfeeding means
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> women face when
> establishing breastfeeding.

While quantitative studies show a strong biological association between maternal overweight and obesity and low rates of initiation and duration of breastfeeding, the complex nature of breastfeeding means that additional factors contribute to the difficulties that overweight and obese women face when establishing breastfeeding. It is these potentially modifiable factors which midwives, other health professionals and women's social support networks can positively influence to maximise the possibility that this group of women will succeed at breastfeeding.

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LITERATURE REVIEW

Learning by simulation – is it a useful tool for midwifery education?

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ABSTRACT:

Background: In both undergraduate teaching and post-registration education, simulation is increasingly being used as a teaching tool within midwifery to teach both emergency situations and practice skills. Yet simulation may not suit the needs of all. It can increase stress, especially if it is related to assessing competency. A literature review was undertaken with the aim of exploring and facilitating a greater understanding of simulation as a learning strategy within midwifery from a pedagogical perspective.

Methods: CINAHL Plus and Science Direct databases were searched using the search terms: simulation, drill and midwifery or obstetrics. Inclusion and exclusion criteria were applied, resulting in 15 studies being reviewed. These studies used both qualitative and quantitative methodologies so a thematic analysis was undertaken to identify the consistent themes.

Findings: Eight themes were identified demonstrating that simulation is frequently used within midwifery education. Simulation supports feelings of confidence and self-efficacy but in order to be effective needs to include briefing, good communication, observation (witnessing peers/being observers), repetition, reflection/debriefing and evaluation. Lecturer preparation is important as is the realism of the simulation.

Conclusion: Although simulation can improve confidence, it is less convincing as a determinant of skill acquisition/clinical ability. Ongoing caution is warranted before considering simulation as a substitute to clinical practice experience without further evidence of its impact on clinical outcomes. As exposure to clinical emergencies can be rare it is important to ensure that substitute education is appropriate. Simulated activities, that allow participants to establish expectations, seek clarification, collaborate, assess against an accepted standard and integrate reflections, can improve learning. Further research is necessary which recognises the "expectant" and "observational" nature of midwifery and how this could be incorporated into simulation activities.

Key words: Midwifery, simulation, pedagogy, learning, education

INTRODUCTION

There has been a growth in the use of simulation as a learning tool within midwifery education (Laschinger et al., 2008). This has been influenced by numerous factors, such as declining inpatient populations, rarity of some emergency clinical situations, safety concerns and advances in learning theory, forcing educators to move away from traditional clinical encounters to support student skill acquisition (Laschinger et al., 2008; McKenna et al., 2011). Simulation is being used in undergraduate midwifery education as a way of preparing students to practise safely; it has the potential to ensure graduate midwives are capable of assuming the full mantle of responsibilities and accountabilities of a midwife on graduation (Lake & McInnes, 2012).

Ongoing education for registered midwives is a recertification requirement (MCNZ, 2014), with some education workshops incorporating simulation activities, such as the mandated combined emergency skills day (MCNZ, 2014). Whilst simulation learning with role play is being used within midwifery education, it can also be seen as problematic. Some participants may find this type of learning stressful and may be unable to perform effectively if the simulation lacks fidelity. There are a variety of ways of learning aimed at stimulating the differing learning styles of learners. Simulation is one of these tools and as such has a role within education. However, it would appear that in some instances simulation activities are being used to determine competency. This has the potential to influence a participant's willingness to engage in the simulation and raises the questions of for whom, how and whether simulation should be used to judge midwifery competency.

Pedagogy, the "art" and "science" of education (Daniels, 2002), is constantly evolving, as new techniques and ways of teaching are assimilated into education. Simulation is the imitation of a real life process or situation (Skelton, 2008). For simulation to be useful within education it is important that the context is realistic and has depth and credibility (Skelton, 2008). Fidelity refers to the "realism" or resemblance of real-life experience of a simulation method, with high fidelity being the words used to indicate the most realistic (Reznick & MacRae, 2006). An example of a model used is a mannequin for vaginal examination practice.

Role play is a common simulation term and considered an important aspect of simulation in clinical education, particularly in relation to teaching communication because it supports clarity

in roles and expected responses. It is unconcerned with clinical skills laboratories and technical equipment, instead utilising dialogue. The focus of the simulation becomes the implications of "language" and meaning (Skelton, 2008). This literature review aims to explore and facilitate a greater understanding of simulation as a learning strategy within midwifery from a pedagogical perspective.

METHOD

A formal literature review was undertaken using defined search criteria and terminology. The search terms used were: 'simulation' or "drill" and "midwifery" or "obstetrics". The inclusion and search criteria were:

- Full text being accessible on line
- English language only
- Published within the previous 5 years (2008 - February 2013)
- Published research, in peer reviewed and academic journals with midwives or student midwives as subject participants.

The search was limited to two electronic databases, with this review being undertaken as a post-graduate study activity. CINAHL Plus with full text and Science Direct were selected, as both cover a broad spectrum of health and social sciences. The alternative term 'obstetrics' was included to extend the search and as a way of increasing the likelihood of there being midwifery participants. The search elicited 178 articles, with 15 meeting the eligibility criteria (Table 1). One article was published as one of a three-part series which required additional searching to ensure all three were included. The total number (n) of participants from all the studies combined was 409, with the total number of review articles being 47. Papers included both quantitative and qualitative research findings, so thematic analysis was used to identify consistent themes due to its sensitivity and ability to summarise both types of research (Liamputtong, 2009). Eligible articles were evaluated with concepts categorised and displayed thematically. Themes were determined by searching across the data set, deconstructing data categorically and making connections for repeated patterns of meaning (Liamputtong, 2009). This process required immersion in the topic with repeated reading of the data generated until it made sense and could be organised in a meaningful way.

FINDINGS

Eight themes were identified as being important for understanding the pedagogy of simulation within midwifery education.

Briefing

It would appear that preparation in the form of briefing prior to simulated learning activities is important. This was discussed in several studies (Cohen, Cragin, Wong, & Walker, 2012; Dow, 2012a; Smith, Gray, Raymond, Catling-Paull, & Homer, 2011). This involved preparation of both the teachers and those being taught. Pedagogical preparation (consideration of teaching methodology) and orientation to the simulation environment were found to notably improve lecturer performance of facilitation (Cohen et al., 2012). When midwifery students were given the opportunity to consider the simulation requirements and to practise, their confidence was increased (Dow, 2012a; Smith et al., 2011), which was important when working within a team and appeared to enhance learning (Smith et al., 2011). When the students were not afforded an opportunity to prepare, they reported misgivings about what was to happen, e.g., *"well I actually felt quite nervous because I didn't know what to expect and then we went into the room"* (Dow, 2012a, p. 512).

Confidence/Self–efficacy

Confidence or self-efficacy featured frequently within the studies with an expectation that simulation would strengthen confidence in practice (Birch et al., 2007; Cohen et al., 2012; Cooper, Bulle et al., 2012; Cooper, Cant et al., 2012; Dow, 2012a, 2012c; Harder, 2010; Norris, 2008; Skirton et al., 2011). The hypothesis is that simulation has the power to mitigate fear because the familiarity with settings and emergency scenarios can give an insight into clinical practice and support an increase in confidence and ability to manage the situation (Dow, 2012a, 2012c; Norris, 2008).

Cohen et al. (2012) examined the relationship between low-technology and high-fidelity (realistic) simulation-based training and changes in participant self-efficacy over pre-determined time frames. A statistically significant increase of self-efficacy in all categories was achieved immediately post-training, which was maintained at above pre-training levels four months later. Students concluded that the training had increased their confidence. *"I feel more secure, and that gives me strength to assure that I am capable of solving any complications"* (Cohen et al., 2012, p. 21). However, length of time since the simulation did diminish confidence, so the authors stressed that repeating the activity is important.

> The hypothesis is that simulation has the power to mitigate fear because the familiarity with settings and emergency scenarios can give an insight into clinical practice and support an increase in confidence and ability to manage the situation.

In a comparative study for obstetric skills and drills that included midwives, it was found that when evaluating lecture-based teaching (LBT), simulation-based teaching (SBT) and a combination of these two (LAS), only SBT demonstrated sustained improvement in perceived knowledge and confidence at a three-month retest. LBT and LAS scores decreased over time while SBT increased by a point. Although the finding was not statistically significant, the SBT group felt they had transferable skills and that they would be less anxious in subsequent emergencies (Birch et al., 2007).

During simulation any deterioration in the woman's wellbeing was found to increase the anxiety of participants, with stress causing poorer performance (Cooper, Bulle et al., 2012). Skirton et al. (2011) reported that their newly registered midwife participants desired simulation of high-pressure situations within the practice environment, finding that simulation within a realistic clinical setting bolstered their preparation and confidence prior to practice.

In their systematic review of simulation-based learning in midwifery education, Cooper, Cant et al. (2012) revealed improvements in self-efficacy, confidence and clinical judgment in postpartum haemorrhage simulations. They found that participants had gained improved clinical judgment from practising estimating blood loss, along with improvements in perceived technical competence and stress hardiness (coping strategies) from simulated obstetric emergencies. Similarly, Birch et al. (2007) noted that training, which included simulation for emergencies, improved performance and communication as well as reducing anxiety.

Increased self-efficacy may not always correlate with improved performance. In another systematic review (Harder, 2010), several studies found students did not demonstrate statistically significant

improvements in competency but scored statistically higher in self-confidence and perceived competence. Similarly, Cohen et al. (2012) found simulation training was statistically significant in improving self-efficacy above pre-training levels in all areas (cognitive, behavioural and technical) but found a small decrease at the four-month follow up, theorising a regressive relationship between leaving the safety and support of the simulation environment and entering practice settings.

Witnessing Peers/Observer

It would appear that there may be benefits to the participants if they are able to witness peers or be observers during simulation activities (Dow, 2012c; Freeth et al., 2009). Team participation could also be seen as a mechanism important to both learning and team/relationship building. Respect for differing roles and perspectives was fostered by witnessing other practitioners (Freeth et al., 2009). Observation enabled learning; alternative strategies were able to be explored as perceptions of their own performance were compared to how others managed. The more critical nature of performance review in clinical practice, compared to simulation, was also discussed, suggesting that errors during simulation invoked less fear of real life repercussions (Freeth et al., 2009). Simulation situations which supported corrections to responses before going into clinical practice were considered to be beneficial (Dow, 2012c; Norris, 2008).

Facilitation

The skills of those facilitating simulation activities were considered to be important, with the potential to impact on the quality of the learning experience for the learner (Bogossian et al., 2012; Dow, 2012a, 2012c; Dowie & Phillips, 2011; Fox-Young et al., 2012; Skirton et al., 2011; Smith et al., 2011). Skirton et al. (2011) found that undergraduate midwifery students wanted more involvement from teachers in the simulation as a way of supporting practice, especially when the simulation involved high-pressure situations and complications. Teacher input within simulated activities was viewed as a valuable component of preparation to practise, with students learning better when they felt "safe" and "secure" during emergency skills practice (Smith et al., 2011). Knowledge retention also improved if students could relate skills to a practice scenario and if the environment was perceived as non-urgent and supportive (Smith et al., 2011). Poor insight by lecturers about students' anxiety, misgivings and their feeling daunted or nervous was considered to be a barrier to learning (Dow, 2012a).

Lecturer preparation was a significant component necessary for facilitation (Bogossian et al., 2012; Dow, 2012a, 2012c; Fox-Young et al., 2012). Simulation is used extensively within undergraduate/student midwifery education (Bogossian et al., 2012; Fox-Young et al., 2012); yet setting up for simulation education is not without challenges. There is the need to have preparation time, adequate knowledge, appropriate venues, technical/academic support, sufficient funding and appropriate equipment if the simulation is to be successful (Bogossian et al., 2012). Low resourcing, lack of preparation and low confidence were issues found by Fox-Young et al. (2012) in their focus group research with Australian midwifery academics. In this study the midwives were asked to discuss barriers and enablers for simulation in midwifery education. Many expressed frustration about their role in simulation education; one stating, for example: *"there's usually one of you trying to be the actress, be the assessor, support the student… it's really difficult"* (p.498).

Dow (2012a, 2012b, 2012c), in her case study series exploring the application of midwifery undergraduate clinical simulation in the hospital setting, also found that there were excessive workload demands on lecturers during simulation activities. Participants reported the struggle of competing clinical demands and expectations, with other issues being given priority. This was because simulation activities were considered as resource intensive but not time sensitive and, as such, they were more easily delayed or not undertaken (Dow, 2012a). When simulation is not prioritised there are fewer learning opportunities (Dow, 2012c). Dowie and Phillips's (2011) review of lecturers (n=20), exploring perceptions of delivering high-fidelity simulation, noted only 40% felt confident in using simulation, with just 35% feeling sufficiently prepared in its use. However, 80% indicated that education about facilitating high-fidelity simulation would improve confidence. All participants believed high-fidelity simulation was a beneficial approach to learning. Lecturers often did not use the full capabilities of the manikins; they were not aware of them and thus were unable to prepare fully for simulation scenarios.

> ## Team participation could also be seen as a mechanism important to both learning and team/relationship building.

Although simulation is embedded within the Australian midwifery curricula (Bogossian et al., 2012; Fox-Young et el., 2012; McKenna et al., 2011), it is clearly apparent that most lecturers feel underprepared for teaching using this modality (Bogossian et al., 2012; Dowie & Phillips, 2011; Fox-Young et al., 2012).

Fidelity

Simulation fidelity, or feelings of "realism", is discussed extensively in the literature about simulation (Bogossian et al., 2012; Cooper, Bulle et al., 2012; Dow, 2012b; Fox-Young et al., 2012; Harder, 2010; McKenna et al., 2011; Skirton et al., 2011; Warland & Smith, 2012). Cooper, Bulle et al. (2012) found that during scenarios in which there was a deterioration in the woman's wellbeing the student's anxiety increased and she became less aware of what was happening around her. It was thought that this "poor performance" occurred and was compounded by the artificial nature of the simulated scenarios. Help-seeking behaviour, such as calling medical teams, was reduced, hampering demonstration of good decision making. Students anticipated support as unavailable within the simulations (Cooper, Bulle et al., 2012).

In their examination of perceptions related to realism, McKenna et al. (2011) found that education leaders found it difficult to integrate midwifery philosophical tenets with practice during simulation. This difficulty related to creating simulation environments that captured the important, but somewhat intangible, practice philosophies of being "with woman", "holism" and "women-centred" care provision. The unique challenges of midwifery were highlighted as in this quote: *"often unlike other practice-based disciplines such as nursing, midwifery involved not having hands-on, but rather standing aback and observing. This meant that there were fundamental aspects that did not lend themselves to simulation"* (McKenna et al., 2011, p. 684). It was also perceived that midwifery's extrinsic, sensory and cultural experiences were difficult to simulate when it came to such as smells, noises and adrenaline rushes, as this quote explains: *"you're going to miss the culture, you're going to miss the social aspects, the psychological aspects, so there's a lot you can't capture"* (McKenna et al., 2011, p. 685). This concept was also supported by Fox-Young et al. (2012) whose participants expressed their concerns with the ability of simulations to replicate the complex physical, social and psychological contexts of midwifery care, particularly when

considering the being "with woman", "holism" and the sometimes seemingly "passive" nature of clinical care. *"The dynamics of sitting with somebody and watching them labour…knowing when not to do, when you actually have to stop yourself from intervening"* (Fox-Young et al., 2012, p. 497).

When the environment is unfamiliar there is more likely to be poor performances during simulation, so environment is an important factor to consider (Harder, 2010). However, when simulation is undertaken with highly realistic scenarios (high fidelity), clinical skills are improved regardless of the environment (Harder, 2010). Harder (2010) found also that there were no differences in performance between simulation exercises and other, more traditional methods of teaching (three studies) and, of note, no poorer performances when using simulation method. Dow (2012b) argues that the clinical skills laboratory should be similar to the clinical environment because context-dependent memory is thought to play an important role in the application of knowledge and skills, gained from simulation, to practice.

Skirton et al. (2011) found that, in the absence of practice experience, simulation was considered an appropriate alternative, especially for activities such as suturing, neonatal resuscitation and cannulation. Conversely, respondents also indicated that simulation was not always seen as the total solution to the problem with there being no substitute for reality: *"That fake arm is one thing but a real arm is something else"* (Skirton et al., 2011, p.5).

Fox-Young et al, (2012) found that simulation is used extensively in Australia even though it was not considered to be amenable to the expectant and observational nature of midwifery care. This acknowledges that being "with woman" is not replicable. With clinical requirements becoming more difficult to achieve due to increased placement costs and increasing "medicalisation", a curriculum tension can often develop. As exposure to physiological birth diminishes, simulation becomes the curriculum substitute (Fox-Young et al., 2012).

There is an absence of evidence to support improved clinical outcomes or justify replacement of clinical experience with simulation. However, midwifery programmes need to be resourced in order to provide high-quality simulation experiences in addition to providing quality clinical placement experiences (Bogossian et al., 2011).

Communication

Fostering of communication skills was considered important in simulations but could be both positive and negative (Birch et al., 2007; Dow, 2012a, 2012b; Freeth et al., 2009; Norris, 2008; Warland & Smith, 2012). Norris (2008) highlighted that students enjoyed the opportunity to have dialogue and work within a team with participants, stating: "…applying the theory to practice was an excellent idea especially in a controlled environment with the opportunity to ask questions" (p. 234). It was unclear as to whether this progressed into ongoing improvements within the multi-disciplinary team functionality. Although the finding was not statistically significant, improved multi-disciplinary communication was reported by the SBT participants within the Birch et al. (2007) study. The development of professional awareness and team work was also a positive feature within Dow (2012a). Simulation activities can improve communication as scenarios facilitate building relationships. Conversely, threats to a positive environment were possible when there were entrenched hierarchies and pre-existing inter-professional tensions. These conflicts made it hard for some participants to work well or respond appropriately, suggesting a need for increased support and awareness from the facilitators. A small study using asynchronous, on-line role-play, via a discussion board, found that effective communication skills and communication style could be fostered (Warland & Smith, 2012). This medium gave the opportunity for debate and increased knowledge by presenting a viewpoint the participants did not hold but were required to discuss (Warland & Smith, 2012). Another facet of simulation that improved communication was if patient actors were used rather than manikins, as there were improved interaction and realism (Warland & Smith, 2012).

Repetition

The opportunity for repetition or practice of skills was a recurrent theme expressed within several studies (Cooper, Bulle et al., 2012; Dow, 2012a, 2012b, 2012c; Freeth et al., 2009; McKenna et al., 2011; Norris, 2008; Smith et al., 2011). Simulation enables students to be exposed to rare and unfamiliar situations that are adapted to the needs of the student until they feel competent with the skills involved (Norris, 2008). This appears to foster the opportunity for skill mastery without harm. Repeated practice allows for mistakes to be rectified and gives the student a sense of "safety" and control over their own learning (Norris, 2008). Simulation along these lines is more commonly used within undergraduate teaching. Correction of common errors prior to going into practice was seen as beneficial by midwifery lecturers (Dow, 2012c). Students also recognised repetitive practising as important in their preparation for actual practice, with incremental steps enabling knowledge to be built on (Dow, 2012a; Smith et al., 2011). Simulation of emergency skills and other skills not frequently used in clinical practice was considered to be an important aspect of technical skill enhancement by midwifery lecturers (McKenna et al., 2011).

> **There is an absence of evidence to support improved clinical outcomes or justify replacement of clinical experience with simulation.**

When there is a highly stressful situation (also explored within confidence/self-efficacy), especially when a woman's condition is deteriorating, the practitioner's performance can be affected. Repetitive performance or practising many times was noted to at least "maintain" a level of skilled (or "competent") performance (Cooper, Bulle et al., 2012).

Similarly the opportunity to "rehearse" or repeat emergency skills established links to practice, with participants reporting that they felt more prepared for "real" emergencies after the simulation (Freeth et al., 2009). The ability to focus on developing practical skills to a safe standard as often as necessary to gain that, i.e., repetition, was felt by lecturers and mentors to be beneficial. However, this finding was not supported by any ongoing links to clinical practice (Dow, 2012b).

Reflection/Debriefing

Dedicated reflection time or debriefing was found to be a beneficial component to learning via simulation (Cooper, Bulle et al., 2012; Dow, 2012a, 2012c; Fox-Young et al., 2012; Freeth et al., 2009). The opportunity to examine, critique and analyse behaviour was an important bonus (Freeth et al., 2009). Dow (2012a) uses the term "insight" to describe how participants' simulation experiences can heighten awareness of practice and provide a learning catalyst as students gain experience and become open to other learning.

Poor performance or "failings" within simulated activities had links to workplace culture (Cooper, Bulle et al., 2012). Participants' reflection on their simulation performance identified their practice "reality": *"we don't do it like that here"*. This suggests the need to

understand the practice reality and ensure that the scenarios fit the practice context (Cooper, Bulle et al., 2012, p. 34). Several studies identified the importance of the facilitator in the debriefing of participants following simulations (Dow, 2012c; Fox-Young et al., 2012; Freeth et al., 2009). Important expectations of facilitators were their ability to foster a supportive atmosphere by providing both a "safe" and "open" environment for sharing and an appropriate level of challenge. Effective facilitation was described as enabling of learning with participants by making links between daily practice and the simulated emergencies (Freeth et al., 2009).

Assessment and Evaluation

Simulation may also be used for evaluative purposes and is commonly used as an assessment tool (Bogossian et al., 2012; Fox-Young et al., 2012; Harder, 2010; Warland & Smith, 2012). Whether this improves learning is debatable (Fox-Young et al., 2012; Harder, 2010). Harder (2010) argues that there are difficulties in determining the differences between simulation and traditional teaching modalities due to the lack of, or poorly structured, assessment tools for evaluation (Harder, 2010). Using the simulator as both an intervention and an evaluation tool is problematic. Tools, such as the objective, structured, clinical examination (OSCE), have been developed to assess and evaluate learners' abilities and are common in the simulation setting (Harder 2010).

Simulation offers students the opportunity to practise skills in a safe, non-threatening environment as a precursor to practice (Fox-Young et al., 2012). Assessment of competence through "… OSCE was identified as a potential essential precursor to clinical practice" (Fox-Young et al., 2012, p. 499), even though the OSCE has not been specifically designed for simulation situations (Harder, 2010). This suggests that simulation plays a potential gate-keeping role and raises interesting questions as to whether using simulation for both practice and assessment can be a non-threatening experience. *"I guess it is a stepping point for assessing the safety before you're allowed out there to do the real thing"* (Fox-Young et al., 2012, p. 499).

Some transfer of learning from simulation into the workplace was identified by Freeth et al. (2009) but the mechanisms to support this were also noted to be underdeveloped. Smith et al. (2011) also caution that while the midwifery students' satisfaction improved, their expansion of learning was less obvious. Further research into the impact of simulation on competence and reflective practice was recommended. Dow (2012b) also struggled to find transferability of targeted abilities to overall clinical performance, apart from confidence.

DISCUSSION

Simulation is now widely utilised within the undergraduate and ongoing midwifery education contexts (Bogossian et al., 2012; Laschinger et al., 2008; Skirton et al., 2011). This review has identified several issues, both positive and negative, related to the use of simulation for midwifery education.

Preparing for or "briefing" can set the tone of simulation activities and mitigate anxiety for the learner and therefore should be considered an essential part of simulation activities (Dow, 2012a; Smith et al., 2011). Additionally, being explicit about expectations with established and identified learning outcomes supports the participants to understand their role and responsibilities (Harder, 2010). Debriefing should be an integral part of simulation activities because, if done well, it has the potential to be a learning catalyst (Cooper, Bulle et al., 2012; Dow, 2012a, 2012c; Fox-Young et al., 2012; Freeth et al., 2009). The role, integration and timing

of debriefing should be considered, as should any assessments that may occur during the simulation, with clear communication to participants of expectations. The lack of, or resorting to adhoc, clinical assessment tools is a significant issue that requires addressing (Harder, 2010). More research is needed to explore the structure of simulation activities and discover what constitutes an optimal evaluation tool for practical simulation so that tensions can be managed appropriately. Simulation has the potential to "gate keep" access to clinical practice, with simulation seen as a replacement of clinical hours (Fox-Young et al., 2012). There is a need for more evidence to demonstrate whether simulation is a suitable, valid and reliable substitute for clinical practice hours within midwifery.

One of the benefits of simulation is the potential to ensure skill mastery via repetition or "scaffolding", with ongoing feedback and dialogue considered to be important to learning (Cooper, Bulle et al., 2012; Dow, 2012a, 2012b, 2012c; Freeth et al., 2009; McKenna et al., 2011; Norris, 2008; Smith et al., 2011). Poor performance may be reduced prior to practice by repetition, the recognition of mistakes and ongoing dialogue with facilitators and peers (Dow, 2012c; Fox-Young et al., 2012; Freeth et al., 2009). However, there is a need to consider how skills should be assessed during simulation and whether the simulation is the optimum method of assessing a particular skill development or skill competency. In order for simulation to work well, lecturers need expert support and advice to increase their confidence and capabilities in using simulation activities (Dow, 2012b; Fox-Young et al., 2012; McKenna et al., 2011). It helps if there are links to clinical practice to infuse "fidelity" and support realism during simulations. Further research into lecturer impact within simulated activities is warranted to understand their relationship to results. How credible are assessment results if a lecturer is not pedagogically prepared for this modality? Preparing for simulation, providing learning through simulation and debriefing following simulation all have a time impact which needs to be factored into tutors' workloads to ensure optimum participant involvement and enhance learning.

Similarly, fidelity has a major impact on the quality of the participant's experiences, particularly when there is cultural and "psychological" fidelity (Bogossian et al., 2012; Cooper, Bulle et al., 2012; Dow, 2012b; Fox-Young et al., 2012; Harder, 2010; McKenna et al., 2011; Skirton et al., 2011; Warland & Smith, 2012). The simulation experiences need to be believable, with consideration being given to using realistic situations and "live" models whenever practicable. Although somewhat intangible, the nature of midwifery was also found to be a barrier to fidelity, with midwifery care more often about support and observation rather than "doing" in the case of "well" women (Fox-Young et al., 2012; McKenna et al., 2011). This can be in contrast to the role of other health professions who are more commonly engaged in the treatment of pathology or complications. The ability to allow a situation to unfold, only stepping in with an intervention when a complication is likely or arises, is integral to midwifery. The physiological vagrancies of pregnancy and birth, and the time over which an assessment may need to be made and intervention considered, require the need to demonstrate a particular skill set which may not lend itself well to the constraints of simulation.

The distinction between the concepts of "mastery" and "confidence" is important (Harder, 2010). While simulation appears to have a clear impact on the participant's feelings of self-efficacy, this did not necessarily translate into increased skill acquisition and improved practice performance (Cohen et al., 2012). The role of the facilitator would appear to have an impact

Table 1: Summary of research papers relate to research question.			
Author	**Type of study**	**Aim**	**Participants**
Birch et al., (2007). United Kingdom.	Questionnaire, simulation video analysis using quantitative OSCE tool and qualitative semi-structured interviews. Mixed methodology.	Determination of most effective method of delivering training to staff on the management of an obstetric emergency.	n = 36 Junior and senior medical staff. Midwifery staff.
Bogossian et al., (2012). Australia.	Electronic survey.	Describes the extent, nature and types of simulation used as a learning method in contemporary Australian midwifery curricula.	n =31 Midwifery academics.
Cohen et al., (2012). Mexico.	Prospective, descriptive study.	Examination of the relationship between low-tech, high-fidelity, simulation-based training and pre- and post-training changes in participant self-efficacy.	n =12 Obstetric nurses. Professional midwives.
Cooper, Bulle et al., (2012). Australia.	Exploratory quantitative analysis of student performance based upon performance ratings derived from knowledge tests and observational ratings.	Assess student midwives' ability to assess and manage maternal deterioration, using measures of knowledge, situational awareness and skill performance.	n = 35 Student midwives.
Cooper, Cant et al., (2012). Australia.	Systematic Review.	Critically examine evidence for simulation-based learning in midwifery education.	n =24 papers (all quantitative).
Dow (2012a), (2012b), (2012c).United Kingdom.	Instrumental Case Study.	Explore the application of clinical simulation in the maternity hospital practice setting.	n =13 Midwifery lecturers. First year midwifery students. Mentor midwives.
Dowie & Phillips, (2011). United Kingdom.	Informal review. Questionnaire.	Identification of lecturers' feelings about simulation in one faculty using high-fidelity simulated scenarios to inform a subsequent research study.	n = 20 Midwifery lecturers.
Fox-Young et al., (2012). Australia.	Thematic analysis. Outcomes of 11 focus group interviews.	To describe Australian midwifery academics' perceptions of the current barriers and enablers for simulation in midwifery education and the potential resources required for simulation to be increased.	n = 46 Midwifery academics.
Freeth et al., (2009). United Kingdom.	Analysis of telephone or e-mail interviews and video-recorded debriefing.	Examination participants' perceptions of multidisciplinary obstetric simulated emergency scenarios (MOSES) courses, their learning and the transfer of its principles to clinical practice.	n =55 Midwives. Obstetricians. Anaesthetists.
Harder, (2010). Canada.	Systematic Review.	Evaluate current literature on the use of clinical simulation in health care education.	n = 23 papers (Included obstetrics and student midwives).
McKenna et al., (2011). Australia.	Qualitative, Focus group interviews. Thematic analysis.	Identify relationships between the use of simulation, learning outcomes and subsequent clinical practice change.	n = 46 Midwifery academics.
Norris, (2008). United Kingdom.	Evaluation of a pilot study.	Evaluation of obstetric emergency study day. Reduction theory-practice gap.	n = 23 Undergraduate midwifery students.
Skirton et al, (2011).United Kingdom.	Prospective, longitudinal, qualitative study, using participant diaries to collect data.	Determine whether the student midwives' educational programme had equipped them to practise competently after entry to the professional register.	n = 35 Newly qualified midwives.
Smith et al., (2011). Australia.	Questionnaire (pre- and post-intervention questionnaire and online survey).	Analysis of integration of practice and theory through clinical simulation in order to improve student learning and satisfaction.	n = 45 Graduate diploma midwifery students.
Warland & Smith, (2012). Australia.	Survey student evaluation of online role play.	Evaluation of online role play to test effectiveness against other learning activities.	n = 12 Undergraduate midwifery students.

on skill acquisition and practice performance with good facilitators enhancing communication, and improving learning and skill acquisition (Dow, 2012c; Freeth et al., 2009). The opportunity for reflection and debriefing (Cooper, Bulle et al., 2012; Dow, 2012a, 2012c; Fox-Young et al., 2012; Freeth et al., 2009) and the use of a good benchmarking tool with which to measure efficacy are also important (Harder, 2010). As clinical opportunities diminish, alternative strategies need to be employed. If participants are unable to establish expectations, seek clarification, collaborate, assess against an accepted standard and have time to integrate their reflections into simulated activities, then successful learning via simulation will likely be problematic. Ongoing caution is warranted before considering simulation as substitutive to clinical practice without further evidence of its impact on clinical outcomes.

CONCLUSION

This literature review found that there were several pedagogical themes related to simulation, all of which supported the importance of active dialogue as a recurrent thread. The benefits of simulated activities for learning were dependent on the opportunities afforded to practise, discuss, work with peers, reflect and evaluate skill acquisition. Barriers to learning centred around establishing expectations, the ability to benchmark, opportunities for communication and reflection, feelings of safety and realism alongside responsive facilitation. There are important distinctions between practising and formal assessment via simulation with facilitators. Fidelity has a significant impact on both. The use of simulation as an assessment tool needs to be considered carefully, with awareness of the impact of communication, learning styles and performance stress, as well as the realism or fidelity of the situation and how each of these can impact on the individual's performance. While simulation clearly improves confidence, there is less evidence that it improves performance or clinical care provision. More research is needed to explore the responses to different facilitator styles, clinical context, and gender roles. There are challenges to using simulation within the uniquely expectant and observational nature of the midwifery context. This literature review is a first step in opening the conversation about simulation pedagogically within midwifery education.

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NEW ZEALAND RESEARCH

ABC by LMC midwives: an innovative intervention to support women to become smoke-free in pregnancy.

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ABSTRACT

Background: Smoking in pregnancy is associated with significant adverse outcomes for women and their babies. Certain population groups contribute disproportionately to smoking prevalence in New Zealand such as younger women and Māori women. It is however a modifiable risk factor and midwives have a role to play in supporting women to achieve smoke-free pregnancies.

Objective: This was a demonstration project designed to assess whether frequency of midwives' smoking cessation advice within the home environment had an impact on smoking rates for the women and their wider household contacts over a 15 month period.

Method: A prospective observational study audited the results of smoking cessation intervention practices provided by six Lead Maternity Carer (LMC) midwives using the ABC framework. Demographic and smoking data were collected by the midwives, on each woman who smoked, during a 15 month period. This included women who were already being cared for at the time when data collection commenced as well as women who registered for care subsequently. Data were also collected on the smoking status of partners and other household members, and on the frequency with which the midwives had discussions with the women and others about smoking.

Findings: Young and Māori women within this project were more likely to become smoke-free than others. A significant number of the women lived in households with other smokers, which may have made it more difficult for them to become smoke-free. The midwives provided smoking cessation interventions using the ABC to the women with varying frequency; however, the frequency of these interventions did not appear to be related to the likelihood of the women becoming smoke-free. The midwives did not provide ABC at every single visit for every woman; however, for some women it was provided more often than for others.

Conclusion: Although midwifery care is provided within, and acknowledges the woman's context, the majority of women in this project faced considerable day-to-day challenges to becoming smoke-free, as they lived in households with others who also smoked. Broad strategies are needed to reduce smoking, that reach beyond the realm of midwifery practice and the health care sector, such as wider tobacco control policies, public health campaigns and smoke-free environments.

Key words: smoking in pregnancy, midwife, smoking cessation, Lead Maternity Carer, young women, continuity of care

INTRODUCTION

There is a strong government focus on reducing smoking as a major cause of preventable morbidity, with an aspirational goal of achieving a smoke-free Aotearoa by 2025 (Ministry of Health, 2011). This focus has resulted in a range of policies, including health targets which require providers to routinely ask about smoking status, provide brief advice and offer support to quit to current smokers (Ministry of Health, 2015a). Pregnant women are considered a priority population for smoking cessation support because smoking in pregnancy is associated with higher rates of perinatal mortality (PMMRC, 2013). Smoking in pregnancy also contributes to a range of morbidities, such as an increased incidence of low birth weight, pre-term birth and placenta praevia (Cnattingius, 2004; Ko et al., 2014; Ward, Lewis, & Coleman, 2007). It may also have an impact on the lifespan of children born to smoking mothers and is associated with increased risks of behavioural disorders in childhood and ongoing respiratory complications (Hofhuis, de Jongste, & Merkus, 2003).

Although smoking rates in New Zealand are gradually trending down, they are highest in women in the childbearing age range (Statistics New Zealand, 2013). Estimates of the overall rate of smoking in pregnancy in New Zealand vary between 18.7% (Andrews et al., 2014) and 16.9% (PMMRC, 2013). Estimated rates of smoking in pregnancy vary with age and ethnicity, with women who identify as Māori having the highest rates of smoking (42.9%), followed by Pasifika women (15%) and those of New Zealand European ethnicity (13.4%). Pregnant women in the 16 to 19 years age group are estimated to have the highest rates of smoking (39.4%), followed by the under 16 years age group (35.7%) (Andrews et al., 2014). While some women will cease smoking when they discover that they are pregnant, those who continue to smoke are more likely to be heavily addicted to tobacco, have a partner who smokes and be socio-economically disadvantaged (Cui, Shooshtari, Forget, Clara, & Cheung, 2014; Moshin, Bauman, & Forero, 2011; Synovate, 2009).

Various researchers have explored the most effective interventions to reduce smoking rates amongst pregnant women. These include the integration of smoking cessation guidelines by midwives as a routine part of antenatal care (Fendall, Griffith, Iliff, Lee, & Radford, 2012). Cessation support methods include the use of

psychosocial interventions (such as multi-sessional counselling) and Nicotine Replacement Therapy (NRT). Although some studies have demonstrated an increase in cessation rates with the use of specific support services, others have shown little or no effect (Chamberlain et al., 2013). In particular, the use of NRT has been shown to have little effect on cessation rates in pregnant women (Cooper et al., 2014). Recent studies have focused on the use of material or financial incentives (e.g., vouchers exchangeable for retail items) (Higgins et al., 2012). These included a New Zealand feasibility study which found that such incentives, in addition to the usual smoking cessation support among Māori pregnant women, had the potential to increase cessation rates (Glover, Kira, Walker, & Bauld, 2014).

Young pregnant women (including teenagers) have high rates of smoking and are likely to have specific needs in relation to smoking cessation strategies (Bottorff et al., 2014; Greaves et al., 2011). These include acknowledgement of the influence of partners and friends on their smoking behaviour and other contextual factors in their living circumstances and lifestyles (Greaves et al., 2011). However, there is a dearth of research which demonstrates effective smoking cessation interventions for this population group (Bottorff et al., 2014; Greaves et al., 2011).

Within the New Zealand maternity service model, women choose a Lead Maternity Carer (LMC) who provides and co-ordinates the woman's maternity care. In New Zealand 88% of women register with an LMC and, of those, 92% choose a midwife (Ministry of Health, 2015b). Therefore the vast majority of New Zealand women receive continuity of care from a chosen midwife (or her backup) during pregnancy, labour and birth, and the postnatal period. The care provided by New Zealand midwives is located within a partnership model (Guilliland & Pairman, 2010), which recognises the woman as an expert of her own context, with shared responsibility for decision making with her midwife, in relation to her childbirth choices. Socio-economically disadvantaged women are more likely to choose a midwife as their LMC, than a general practitioner or obstetrician (Ministry of Health, 2015b). This is significant for midwives, as these women are more likely to smoke during pregnancy (Moshin et al., 2011; Statistics New Zealand, 2013; Thrift, Nancarrow, & Bauman, 2011).

Given the high level of engagement New Zealand women have with midwives during pregnancy, any assessments of the efficacy of smoking cessation interventions for pregnant women need to consider the role of the midwife. Although there is little published research in New Zealand about the midwife's role in promoting smoking cessation in pregnancy, one study did demonstrate that midwives can effectively provide education and support if they match the woman's readiness to make changes with the type of advice and support they provide (McLeod, Pullon, et al., 2003).

The framework for all health practitioners to address smoking with clients is set out in the New Zealand Guidelines to Help People Stop Smoking (the Guidelines), (Ministry of Health, 2014). It describes an ABC approach:

- A – Ask about smoking
- B – Brief advice – offer tailored, specific brief advice about the harms of smoking/benefits of being smoke-free
- C – Cessation – offer referral to specialist smoking cessation service for additional support and provision of NRT as an aid to cessation

New Zealand midwives have acknowledged their professional responsibility to address smoking in pregnancy (New Zealand College of Midwives, 2015) and the New Zealand College of Midwives (NZCOM) has formally endorsed the Ministry's guidelines. Although the Guidelines have a pregnancy section, they are laid out in a generic document and the partnership relationship between a woman and her midwife, and the New Zealand continuity of care model, are not specifically recognised within them.

AIM

To gain a better understanding of the role of midwives in supporting young women to become smoke-free, the Ministry of Health funded NZCOM to develop and implement a smoking in pregnancy "demonstration project" during the years 2011 to 2013. A demonstration project is a broad term, which has been described as "a relatively self-contained, small-scale capital investment, or technical assistance project, the purpose of which is to 'demonstrate' a particular approach" (UN-Habitat, 2003, p.77).

This project aimed to observe the frequency with which a practice of six LMC midwives provided ABC to women in their care and to their household contacts/whānau. The interventions were to be undertaken in the woman's home environment, following which the midwives would record any impact on smoking cessation over a 15 month period. The project also examined qualitative aspects of the midwives' group practice and communication with young women, however the findings from that arm of the project are not presented in this paper.

METHODOLOGY

The project took the form of a prospective, observational study. A practice of six LMC midwives who cared for approximately 200 women per annum, (around 50% of whom smoke) was selected. These midwives routinely provide care to a young client group, with 60% of the women being under the age of 25 and 50% identifying as Māori. The practice is based in a large urban centre in New Zealand and the midwives routinely provide the majority of their care in the women's homes. It was anticipated that the midwives would care for up to 100 smoking women and their families/support networks over the 15 month period of the demonstration project.

The midwives in the practice provided significant input into the design of the project through a series of meetings with Ministry of Health and NZCOM staff prior to the project's commencement.

Although undertaking ABC is a part of usual midwifery practice, for the purposes of the project the midwives made discussions about smoking a specific focus of their care, providing ABC not only to all pregnant and postnatal women in their care who smoked, but also, opportunistically, to household members, partners and whānau. To maximise these opportunities the midwives provided exclusively home-based care.

Data collection and analysis

The midwives routinely collected demographic and living circumstances information about the women, as well as their smoking behaviour and that of their partners and household contacts. Additional information was collected about whether or not their homes and cars were smoke-free. For the purposes of this study the number of ABC conversations the midwives held with both the women and others in the home was also recorded. Providing the ABC to women and their whānau is part of usual midwifery care; however, collecting data around frequency at which LMC midwives provide these interventions is not routinely collected or reported.

Data were collected prospectively at the point of care, on a specific, anonymised, data collection form. The form was designed to look similar to the Midwifery and Maternity Provider Organisation

(MMPO) maternity notes, used by the midwives and held by the women, as a means to prompt the midwives to collect the data. The midwives use the MMPO notes routinely, so this supported them to collect smoking data as a part of usual care. The data collection form also contained health information about smoking in pregnancy for women and midwives to refer to.

Data collection commenced in May 2012 for all women registered in the midwives' practice who smoked. This was regardless of their gestation or stage of maternity care. All the women, who reported smoking who registered for care, subsequently had their data collected from the date of registration with their midwife. The forms on which these data were collected over the 15 month period did not identify either the midwife or the woman.

Forms were submitted to the project co-ordinator/researcher at the completion of maternity care. Therefore data were collected and analysed continuously for the entire pregnancy and postnatal period for a number of women; for others, data were captured for only a part of their maternity care, depending on their gestation or postnatal stage reached when data collection commenced or ceased.

The total number of women cared for by the midwifery practice during the 15 month period of the demonstration project (including those who did not smoke) was used as the denominator to determine overall smoking rates for the entire caseload of the practice. No other information was collected about the women who did not smoke.

This study was granted ethical approval by the relevant Ethics Committee in May 2011. All data will be securely stored for ten years following completion of the study as required by the approving Ethics Committee (Reference: URA/12/EXP/015).

FINDINGS

The midwives provided maternity care for 202 women experiencing 203 pregnancies during the data collection phase. 101 women reported smoking and were included in the practice audit giving a smoking prevalence rate of 50%. Smoking was defined as smoking at least one cigarette every day and, whilst the number of women included in the project was too small to provide statistically significant results, a number of interesting findings emerged from the data.

Demographic and initial smoking status data were collated for all 101 women. End point data (end of the maternity care episode or end of the study period in a small number of cases) were collated for 87 women, giving a follow-up rate of 86% through the fifteen months of the study period. The lead researcher met with the midwives regularly throughout the project to discuss and identify issues as they arose and encourage full data collection to be completed by the midwives for each woman.

The data collection forms functioned well with most data fields completed in full and there were very few missing data (between 95% and 98% of data fields completed depending on the parameter). The parameter with the highest rate of missing data was the initial number of cigarettes per day smoked by women; however, there was still a good completion rate of 95%.

Table 1 presents demographic and parity characteristics of the 101 women who smoked at the commencement of the project and who subsequently registered for midwifery care with the practice. There was a high proportion of women who identified as Māori — 46 women (45.6%) compared to the general New Zealand childbearing population (Ministry of Health, 2015b). 50 women (49.5%) identified as New Zealand European, four as Pasifika (3.9%) and one as Asian (0.9%). The age of the women

Ethnicity	Smoking status by ethnic group	
	N	%
NZ European	50	49.5
Māori	46	46.5
Pasifika	4	3.9
Asian	1	1
Total	101	100
Age	Smoking status by age group	
	N	%
<20	30	29.7
20-24	41	40.6
25-29	18	17.8
>30	12	11.9
Total	101	100
Parity	Smoking status by parity	
	N	%
Nulliparous	49	48.5
Para One	34	33.6
Para Two +	18	17.8
Total	101	100

Table 1: Demographic characteristics of women who reporting smoking during the project period.

ranged from 15 to 42 years, with a mean age of 23 years, which is younger than that of the general childbearing population in New Zealand (Ministry of Health, 2015b). The majority (70%) were under the age of 25; close to a third (29.7%) were under the age of 20. 49 women (48.5%) were expecting their first baby, 34 women (33.6%) were expecting their second child, with the remaining 18 (17.8%) women expecting their third, fourth or fifth child.

Personal circumstances

Most of the women, 83 out of 101 (82.2%), described themselves as being in a stable committed relationship with 66 (65.3%) living with the father of their child, in a de-facto or married relationship. Seventeen women who described themselves as being in a stable committed relationship were not living in the same house as the person with whom they were in a relationship. Only 18 (17.8%) women described themselves as single.
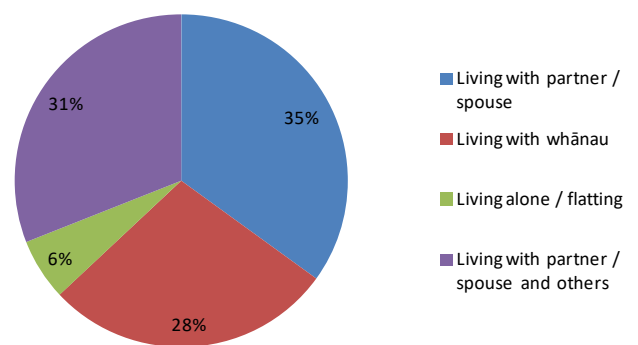

Figure 1: Living circumstances

The majority (97) of the women lived with other adults; 35 with their partner only (35%); and 31 (31%) lived in an extended household comprising their partners and either their whānau or

friends (Figure 1). Twenty-eight women stated that they lived with their whānau but not their partner (28%). The remaining six women (6%) either lived alone (3) or were flatting with other adults (3). Data were missing for one woman.

Cigarettes smoked by women at the commencement of the project

The number of cigarettes smoked by women varied from one to 40 per day. Approximately half of the women admitted to smoking between five and ten cigarettes daily, with 25 (24.6%) reporting smoking less than five cigarettes per day. Few women smoked more, with nine (8.9%) reporting smoking more than sixteen cigarettes per day, and two (1.9%) more than twenty cigarettes per day (Figure 2). The mean number of cigarettes smoked per day was nine.
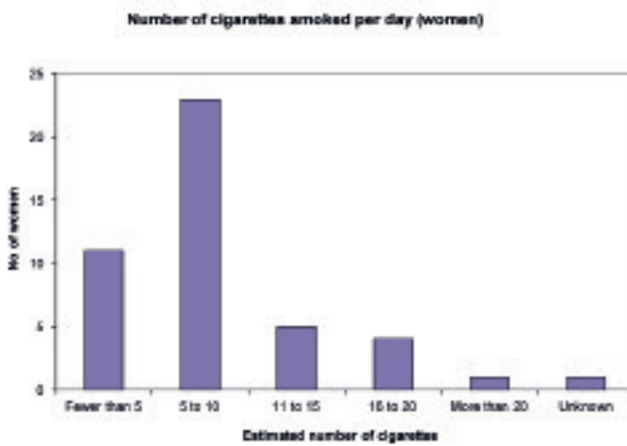

Figure 2: Number of cigarettes smoked by women at commencement of data collection

Partners / household members who smoked

Out of the 100 women for whom living circumstances data were recorded, 79 (79%) were living in a household with at least one other adult who smoked. This was either their partner, other adults, or a combination of their partner and other adults. The total number of other adults (who smoked with whom these 79 women lived) was 195 (50 partners and 145 other adults, either whānau or flatmates).

Out of the 65 women who lived with their partner, 50 of these partners also smoked and of the 18 women who described themselves as being in a stable committed relationship but not living with their partner, 15 of the partners smoked.

Only 21 (21%) of the women for whom living circumstances data were collected, lived in a household where there were no other smoking adults residing in the house, with three of these women living alone. The majority of the women either lived in a house where at least one other smoker also lived, or had a partner who smoked. Thus the women were living in an environment where smoking was normal amongst the adults who surrounded them. In general, partners and household members smoked a greater number of cigarettes per day than the women did. The average numbers of cigarettes smoked per day by the partners were 11 and by other adults in the household, 15.

Smoke-free environments

Eighty-seven (85.3%) homes were described as smoke-free at the beginning of the project, meaning all adults in the household who smoked did so outside of the home. Only 10 households reported household members smoking inside the house. However, the smoking incidence in cars, used by the women, was higher.

Eighty-eight women (87.1%) had a car or regular access to a car. In contrast to the high percentage of smoke-free homes, at the beginning of the data collection only 44 (50%) cars were smoke-free, 38 (43.2%) were not, with 7% of data about the smoke-free status of cars being incomplete.

Table 2: Characteristics of women who became smoke-free			
Demographics			
Ethnicity	**Ethnicity of women who became smoke-free**		
	Total N of women	**N who became smoke-free**	**% of total who became smoke-free**
NZ European	50	13	26
Māori	46	15	30
Pasifika	4	3	75
Asian	1	1	100
Total	**101**	**32**	
Age	**Age of women who became smoke-free**		
<20	30	13	43
20-24	41	8	19.5
25-29	18	6	33
>30	12	5	41
Total	**101**	**32**	
Parity	**Parity of women who became smoke-free**		
Nulliparous	49	20	41
Para One	34	9	26
Para Two +	18	3	17
Total	**101**	**32**	

ABC by midwives

Data on the frequency of the ABC interventions were collected for 85 (85%) women, with data missing for 16 women. The data were collected for varying lengths of time, depending on when the data collection commenced or ceased as a result of the project timeframes. Some women had ABC data collected throughout their entire pregnancy and postnatal care period, while others had data collected for only a portion of the time they were in the care of their midwives. Therefore, it is not possible to draw any conclusions linking frequency to the efficacy of ABC interventions for each woman.

Over the course of the project, the six midwives delivered a total of 1086 ABC interventions to the 101 women. This total is comprised of 438 reported incidences of asking about smoking behaviour, 358 incidences of offering brief advice and 290 incidences of offering referral to specialist cessation support to women. There was a considerable range in the number of times that the ABC was provided by the midwives to individual women, with some women having discussions about smoking with their midwife 15 times, and others once only. However, the number of times women were asked about smoking and offered brief advice or referral for cessation support is likely to reflect when data collection commenced and concluded in line with the project timeframe.

Sixteen women accepted referral to the dedicated pregnancy smoking cessation service—all of whom had a least one reported

contact with the provider. Partners and other adults in the household received fewer ABC interventions than did the women, as they were not present every time the midwife visited.

Thirty-two women became smoke-free during the course of the project following the midwives' intervention. Becoming smoke-free was defined as a deliberate decision not to smoke and, when asked, it was more than 48 hours since the last cigarette. This definition was agreed for the purposes of the study at the commencement of data collection. If, following a period of becoming smoke-free, a woman recommenced smoking, this was recorded as a relapse. The women who were successful in becoming smoke-free were more likely to be under the age of 20 or over the age of 30, and nulliparous. Women who identified as Pasifika or Asian were also more likely to become smoke-free, although the numbers were very small in these groups. Eighteen (66%) of the women who became smoke-free lived in extended households (i.e., with adults other than their defacto partner/spouse).

Women who became smoke-free required varying levels of support and ABC intervention. This did not appear to be directly related to initial numbers of cigarettes smoked. The number of ABC interventions provided by the midwives prior to women becoming smoke-free ranged from one to 10. The frequency of activation of the ABC intervention was similar for all women for whom data were collected, regardless of whether they became smoke-free or not. Unfortunately 16 (50%) of the 32 women who became smoke-free recommenced smoking, nine during pregnancy, and seven posnatally.

Ten partners (15%) became smoke-free following the LMC midwives' intervention; in five of these cases the woman also became smoke-free. Three other adults (2.7%) also became smoke-free and in two of these cases the woman herself also became smoke-free.

Smoke-free homes and smoke-free cars

The LMC midwives' intervention had a positive impact on the number of smoke-free homes and smoke-free cars, with an increase in both reported at the end of the project period. The number of smoke-free homes increased from 85% to 90% with the percentage of smoke-free cars increasing from 50% to 58%.

DISCUSSION

The overall rate of smoking for the women in this project was 50%, which reflects their demographic characteristics, with a predominance of young and Māori women within the LMC midwives' caseloads. It was encouraging to note that the women in this project with the highest rates of smoking (under 20-year-olds and nulliparous women) were more likely to become smoke-free. Interestingly, women over 30 were also more likely to become smoke-free; however, the number of women in this category was small.

A recently published New Zealand study analysed the smoking status of 81,821 women, who were pregnant during 2008 to 2010, on registration and at discharge with an LMC midwife, by ethnicity, age, and parity. (Andrews et al., 2014). This study found that groups with the highest prevalence of smoking (under 25 years of age and those who identified as Māori or Pasifika) also had the greatest reduction in smoking at completion of their midwifery care.

An important finding from this current project was that most of the women who smoked were living in extended households where the majority of other adults also smoked and this included the women's partners. Very few of these individuals living in close proximity to the pregnant women became smoke-free during the course of this project. This was so, even though they were exposed to the midwives' brief advice and offers of cessation support, either if present during the midwife's visit, or through information passed on from the woman or others living in the same home. This may indicate that the midwives' intervention, whilst well received, had little impact on the non-pregnant people who smoked.

> **These studies and the findings from this project highlight the importance of midwives' understanding a woman's wider social context and how this impacts on her ability to achieve a smoke-free pregnancy.**

In addition, the presence of others who smoked may have created an unsupportive environment for the pregnant woman if she decided to become smoke-free. The influence of family, friends and household members on the ability of a pregnant smoker to become smoke-free has been noted in other studies. A New Zealand study, using semi-structured, face-to-face interviews, of 60 pregnant smokers who identified as Māori, found that all of the women lived with at least one other smoker and over half socialised with people who smoked. These factors contributed to the low motivation amongst the pregnant smokers to become smoke-free (Glover & Kira, 2011). Similarly, a systematic review of seven qualitative studies noted that, although women were aware of the risks of continuing to smoke in pregnancy, the proximity of family and friends who continued to smoke was a barrier to pregnant smokers achieving smoke-free pregnancies (Ingall & Cropley, 2010). It concluded that there was at that time a shortage of qualitative studies that concentrate on the specific difficulties that pregnant women face when trying to quit smoking. A more recent systematic review identified that the woman's relationship with her partner was more likely to be a barrier to smoking cessation in pregnancy than a facilitator, as partners were also likely to smoke (Flemming, Graham, Heirs, Fox, & Sowden, 2013). These studies and the findings from this project highlight the importance of midwives' understanding of a woman's wider social context and how this impacts on her ability to achieve a smoke-free pregnancy.

Interventions to support pregnant smokers to become smoke-free have been assessed in numerous studies. These interventions include the use of NRT, smoking cessation counselling, online resources, financial or material incentives and a range of actions by health professionals working directly with pregnant women, such as integrating smoking cessation guidelines into practice (Bowden, Oag, Smith, & Miller, 2010; Chamberlain et al., 2013; Fendall et al., 2012; Greaves et al., 2011; Hill, Young, Carter, & Lang, 2013; McLeod, Benn, et al., 2003).

It is clear from these studies that cessation rates during pregnancy are often modest and no single approach has proven to be more effective than any other, though it has been estimated that 20–30% of pregnant women will become smoke-free for at least some of their pregnancy (Ebert & Fahy, 2007). Contextual factors, such as socio-economic status, age and environment as well as nicotine dependence, have been noted as influential on pregnant women's ability to become smoke-free (Greaves et al., 2011).

A particular challenge for pregnant smokers is that the motivation to become smoke-free is strongly linked to the experience of being pregnant and a desire to protect the unborn baby (Synovate, 2009). Once the baby is born, the motivation to remain smoke-

free can be lost and postnatal relapse is a common feature (Greaves et al., 2011; Synovate, 2009). The data from this project were consistent with these findings, with 16 (50%) of the 32 women who became smoke-free relapsing; nine during pregnancy and seven postnatally. Postnatal relapse rates have been estimated as being at least 50% of former smokers at six months resuming the habit and that this rises to 70% at 12 months postpartum (Ebert & Fahy, 2007).

It could be assumed that midwives effectively provide support for women to change smoking behaviour in pregnancy in the New Zealand maternity context, if the advice and support offered match the woman's readiness to change (McLeod, Pullon, et al., 2003). The ABC smoking cessation intervention in this project was offered by the midwives to pregnant women in their homes. It was also offered to their partners, household contacts and whānau as the opportunity arose. Despite offering ABC frequently, the midwives did not offer it at every single visit, but rather used their discretion to judge the most appropriate time to raise the topic of smoking, believing that this enabled more effective communication. Interestingly, only 16 women took up the offer of referral to the dedicated pregnancy smoking cessation service available in the region.

This particular midwifery practice had high numbers of word of mouth referrals for midwifery care which is likely to have influenced both the age and ethnicity of the women included in the project. The midwives' expertise with teenage women in particular, was well known and the fact that young women recommended them to their friends is a measure of the success of their approach and ability to build successful partnerships with these young women. This may be related to well-developed communication skills with the midwives able to engage in discussions about smoking targeted to the women's individual situations.

Providing predominately home-based care meant that the midwives were able to effectively communicate with the women and, opportunistically, with partners and household members. The value of home visits was found in a recent United Kingdom (UK) study which found cessation support offered in the home to a group of 79 pregnant women under 25 years of age, was acceptable to both the midwives and the women. It supported flexible, non-judgemental care and attention to the women's wider circumstances, including the influence of family and friends (Bryce, Butler, Gnich, Sheey, & Tappin, 2009). Given the focused nature of the midwives' practice and the strong relationships that they developed with the young and Māori women they cared for, it is surprising to note the moderate impact that they had on smoking cessation rates. This appears to illustrate the challenges for midwives when working with women within social contexts and home environments that do not support them to become smoke-free. Further, although the majority of the women in this project reported smoke-free homes, and over half had smoke-free cars, the midwives' intervention appeared to effect only a small increase in the number of smoke-free environments.

STRENGTHS AND LIMITATIONS

Although the population characteristics of the women in this project reflected the characteristics of pregnant smokers in New Zealand overall, the small number of women studied means that the results are not generalisable to the wider New Zealand population. Women who became smoke-free were more likely to be young and nulliparous and this finding is consistent with other New Zealand studies with larger samples. It is therefore likely that these women are more amenable to advice and support than pregnant smokers who may be older and who have smoked

through previous pregnancies. Although the frequency of ABC provided by the midwives did not seem to be related to whether women became smoke-free or not, it is not possible to know from this small sample whether this was significant. A further limitation was the timeframe of the project which meant that, for some of the women, data were collected about their smoking and the care provided by the midwives for a limited time, rather than for the full period of maternity care. A prospective study which follows each woman throughout her childbirth experience, rather than a time-limited study, may provide more insights into the usefulness of the ABC framework.

This is one of the very few New Zealand studies to consider the efficacy of the ABC intervention in the context of the LMC continuity of care model. New Zealand's maternity model is unique. International literature about midwifery practice with regard to smoking cessation interventions during pregnancy is often difficult to interpret in the local context as our continuity model of care and autonomous nature of midwifery practice do not have an equivalent in other countries. The women in this project reflected the demographic characteristics of pregnant smokers in New Zealand and thus, the challenges that the study midwives faced in supporting the women to achieve smoke-free pregnancies will be experienced by many other New Zealand midwives. Given the importance of social context on the influence to smoke for young women, and the apparent modest success of all cessation support methods for pregnant women (including NRT), further research on how to best support young pregnant women to become smoke-free is warranted. Moreover, given the small number of women (16) who accepted referral to a cessation provider, further research about the barriers to uptake of cessation support, and how midwives can overcome these, is also recommended. Given the relatively high number of women who became smoke-free and then relapsed, further research into the reasons behind relapsing leading to possible strategies to reduce relapse, particularly in the postnatal period, is worth considering.

CONCLUSION

The vast majority of women in New Zealand will receive most of their primary maternity care from a midwife, and midwives therefore have a significant role to play in supporting women to achieve smoke-free pregnancies. This project sought to better understand how midwives utilise the ABC smoking cessation framework within the context of their practice and the New Zealand model of maternity care. It is clear that midwives can have an impact, but it also appears that the woman's social context and home environment can be a significant barrier to success.

Midwives who work in the partnership model understand the importance of women's contexts. This project is a good illustration of the impact of the woman's environment and social context on her health and wellbeing. Although pregnancy can be both a catalyst for change and a time of high motivation for many women to make positive lifestyle choices, a number will face significant challenges in achieving smoke-free pregnancies.

Ultimately it is up to women themselves to choose to become smoke-free, and midwives have the opportunity to offer brief intervention and support to those who do make that choice. The current government has placed expectations on the health care sector to reduce smoking (Ministry of Health, 2015a); however, the evidence from this project and other research clearly demonstrates that smoking needs to be viewed in a broader context beyond the child-bearing woman/health care interface. A multi-layered approach is needed to reduce smoking if we are to achieve a Smoke-free Aotearoa by 2025. Broader strategies are needed to

address social influences, the impact of intergenerational tobacco use on whānau, and to ensure the effectiveness of current tobacco control policies specifically for pregnant women who smoke.

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HISTORICAL RESEARCH

Health guides for unattended births and aftercare in New Zealand and Australia, 1900-1950.

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ABSTRACT

Background: In the early twentieth century, most women in Australia and New Zealand gave birth at home. As in colonial times, women living in the isolated New Zealand backblocks or Australian bush without access to a midwife, nurse or doctor, or women in towns who could not afford their service, gave birth with only a neighbouring woman, husband or older child to help. Most households had a domestic health guide as a source of health information and support in caring for themselves and others. This guide might therefore be the only assistance available to women and their lay attendants during childbirth.

Aim: This research aimed to identify the information domestic health guides provided on childbirth, particularly if addressed to a person assisting the woman in the absence of a midwife, nurse or doctor, and to compare it with information midwives were expected to know.

Methods: Using historical methodology, the researchers analysed the childbirth information in a range of domestic health guides available in Australia and New Zealand, 1900-1950. The information was also compared with midwifery textbooks and considered within the context of the increasing professionalisation of midwifery to discover how it reflected boundaries between lay and professional knowledge and practice.

Findings: Some domestic health guides provided as detailed information as midwifery texts but without their scientific rationale that was a mark of professional knowledge and practice.

Conclusion: By providing clear information, domestic health guides could have been a significant part of the culture of self-reliance and mutual aid, and of the cultures of health in both rural and urban environments in New Zealand and Australia in this time period.

Key words: health guides; home birth; historical research; history of midwifery

INTRODUCTION

In the early twentieth century, the home was the primary setting for giving birth and for nursing the sick. The family member caring for someone in the home looked to their domestic health guide for essential information (Wood, 2013). In colonial Australia, guides written by doctors and lay people in Britain and Australia advised intending colonists and settlers on matters of health and first aid (Pearn, 2012). Many early guides were therefore written specifically for a European settler readership. Later guides also had a European focus, as evidenced by their examples and illustrations. Their use by indigenous populations is unknown.

Brookes (2003) noted that in early twentieth-century New Zealand, written sources gradually eroded the mother's role "as the prime source of information about health and bodily knowledge" (p.298). European people living in the isolated Australian bush or New Zealand backblocks, however, had always relied on their domestic health guide and, as Brookes indicated, this continued into the twentieth century. Even in 1927, Alice Basten of the Auckland Mayoress's War Memorial Library League hoped people would help her address the "very pathetic appeals from the backblocks for medical works suitable for the instruction of housewives, and also for books, etc., on the care and nursing of babies" ('Books Wanted', 1927, p.7). The possible use of domestic

health guides by indigenous communities was beyond the scope of this study. For the pregnant woman, domestic health guides gave information about pregnancy, childbirth and the care of infants. The guides helped them prepare for the forthcoming birth. As the 1900-1950 period progressed, legislative changes required that birth attendants be registered midwives and cultural changes led to a gradual shift to giving birth in hospital (Mein Smith, 1986). However, the untrained handywoman or neighbour might be the only attendant available to a woman if she could not afford to engage a registered midwife or if the midwife was suddenly unable to attend. Women living in isolated rural communities might not have access to midwifery services, so in many cases the husband, older child or neighbour might be the only person able to support the woman during birth.

Without a professional or experienced attendant, women and their supporters could turn to a domestic health guide for instruction. The writers of many guides anticipated this situation and provided a section specifically addressing a lay attendant. Analysing and interpreting this material therefore enables us to understand a significant aspect of maternity care at this time and the boundary, if any, between lay and professional knowledge and practice in a context of the increasing professionalisation of midwifery (e.g. Grehan, 2004).

AIM

The aim of this research was therefore to examine the kind of information about childbirth provided in domestic health guides, and to interpret the findings by comparing them with information contained in midwifery textbooks.

METHOD

Historical research may describe the historiography of the topic – what historians have already written about the subject and how they have approached it. This relates most closely to the literature review in reports of other research. In this case, however, no previous studies have examined this subject, so a historiography is not possible. In addition, historical research is not normally positioned within a conceptual or theoretical framework but considers its interpretation in relation to relevant contexts. In this case, the relevant contexts are the self-help and mutual aid expected in the bush (Raftery, 1999) and the "cultures of health" in early New Zealand and Australia (Coleborne & Godtschalk, 2013, p.404). Consideration of these contexts helps us to understand the breadth of health information and support available beyond professions such as midwifery.

Research design

Historical methodology has a widely accepted process (Tosh, 2015) and has been described for investigating nursing and midwifery history (Lewenson & Herrmann, 2007; Mortimer & McGann, 2005; Wood, 2011). It is the selection and analysis of historical primary sources – material created within the time period being considered – and their interpretation in the context of the time.

> ## Some of the selected domestic health guides were written by doctors in Britain or the USA but others were produced in Australia.

For this historical study, a range of domestic health guides available in Australia and New Zealand at different times for the period 1900-1950 was selected as the historical primary source material. Sections on "childbirth" or "labour" were analysed to identify the key features of the information provided to women to prepare them for childbirth or to instruct their lay attendants who were helping them at home in the absence of a midwife or doctor. This analysis included firstly examining the way the information was structured (for example, as a general description with little detail, or in clear sections relating to preparation for birth, stages of labour and aftercare) and secondly reviewing the level and nature of information provided (for example, brief reassurances with little information, or specific detailed instructions for a lay attendant). The findings were interpreted in the context of professional midwifery education in this time period by comparing them with information in midwifery textbooks, to determine any boundaries between lay and professional knowledge and practice. They were also considered in relation to secondary sources (literature written in the present day about the past) addressing midwifery education, regulation and practice and the social context of the time period.

Domestic health guides

Ten domestic health guides, as well as later editions for five of these guides, were selected for analysis. These were all accessed in Australia or New Zealand. Some did not specify the date of publication so this was gauged by considering other information, such as the clothing, hair styles and furnishings in photographs, the style of illustrations, mention of copyright legislation or date-related treatments such as penicillin. Consulting holdings in the Wellcome Library in London, which is the major international collection of historical medical texts, was also helpful in identifying likely publication dates. Successive publications by the same author were not always noted by a separate edition number.

FINDINGS

Some of the selected domestic health guides were written by doctors in Britain or the USA but others were produced in Australia. One guide written for the Australian and New Zealand setting was by Philip Muskett (1903), an Australian doctor. The second of his two large, heavy volumes contained detailed information on childbirth and the first volume had a "Profusely Pictured, Private and Separate, Section for Women" (title page), a booklet tucked into the rear cover.

As with this guide, others presented topics alphabetically, with labour appearing between knock-knee and laburnum poisoning, or childbirth between chilblains and children. From 1899, Edward Kirk (1904, 1930), a Scottish minister, updated his medical father's very popular books but these gave little advice on childbirth. The guide by George Black (n.d. c1910, n.d. c1940), a Scottish doctor, recognised that especially in rural places a baby could be born before professional help arrived. He therefore laid down "a few plain rules for the guidance of those who may at any time be thus awkwardly situated" (p.123). This book was later edited by Charles Hatrick (n.d. c1945), an English doctor, who reiterated the advice. George Somerville's (n.d. c1920s) health encyclopaedia and *The Illustrated Family Doctor* (by a General Practitioner) (1935), the final alphabetical guides in this study, gave extensive practical information.

Other domestic health guides grouped topics in sections. The Signs Publishing Company in Victoria, Australia, produced general guides by Frederick Rossiter (1910, 1913), containing practical information about childbirth. It also published guides specifically for women. One by Scottish doctors F.C. Richards and Eulalia Richards (n.d. c1910) carried a "pocket appendix" booklet of drawings of female anatomy, the baby's head emerging, and potential complications such as uterine prolapse. A later edition produced solely by Eulalia Richards (1945) included a "manikin", technically an anatomical fugitive sheet. This was a hinged assemblage of coloured cut-outs of body organs, skeleton and musculature of (in this case) a pregnant woman's body. Cut-outs could be lifted in turn to reveal ever-deepening layers of the body's interior and the organs' relative positions. These volumes carried a specific section addressing the person attending the woman in the absence of a doctor.

> ## 'emergencies are always occurring, and often the women folk who come to the assistance have no knowledge of what should be done'.

The guide by Howard James (1923, 1929), the medical superintendent of the Warburton Sanatorium in Victoria, Australia, which was associated with the Signs Publishing Company, similarly noted that "emergencies are always occurring, and often the women folk who come to the assistance have no knowledge of what should be done". As he believed that "every woman should have some knowledge of the management of a confinement case" (p.296), he gave practical instruction but noted that the attendant "must leave everything to nature" (p.298). A London publication, The Motherhood Book (n.d. c1920s) tried

to counter the "stray bits of information" and "unwise gossip of elders" that caused women's apprehension or "terrible dread" (p.106), by providing clear information and encouragement.

Advice on labour

The domestic health guide could be an invaluable source of information for the woman and her lay supporter, covering preparation for birth, each stage of labour and aftercare.

Preparation for birth

As most women were expecting to give birth at home, many of the guides provided considerable detail about the necessary preparations, including the room and equipment. A separate room was at this time to be used (perhaps idealistically) only for the birth and lying-in period. It needed a "thorough turn out" (*Motherhood Book*, n.d. c1920s, p.103), including sweeping the chimney, taking up and beating the carpet, washing the floor and woodwork with soap and water and the walls with a damp cloth, and removing superfluous furniture (e.g., *Illustrated Family Doctor*, 1935; James, 1923, 1929; Muskett, 1903). Muskett advocated the purchase of Max Arnold's Antiseptic Accouchement Outfit and advised where it could be obtained, while Richards (1945) gave a detailed description of sterile requirements and how to sterilise items at home if the local hospital was unable to offer this service.

Absolute cleanliness was required of the "mother and those about her" (Somerville, n.d. c1920s, p.146). The attendant needed scrupulously clean hands, with nails scrubbed and hands soaked in antiseptic (e.g., *Illustrated Family Doctor*; Muskett, 1903). The woman needed to "thoroughly cleanse the external parts" with antiseptic soap, in a backwards direction to prevent infection being carried from the bowel to vagina (Motherhood Book, p.107). The attendant should wash "the outside of the passage, as well as the hairy parts" with lysol or carbolic solution on cotton wool or linen (Muskett, p.35).

> An enema and vaginal douche were generally advised in the first stage of labour together with vaginal examinations performed by the doctor, or nurse if no doctor was attending.

Stages of labour

The majority of the domestic health guides gave quite detailed information about labour and how it should be managed. Nearly all described the three stages, identifying what was happening and the types of pains the woman would be experiencing at each stage. Only Kirk (1904), Black (n.d. c1910, n.d. c1940) and Hatrick (n.d. c1945) made no mention of stages of labour, nor offered any advice about management, but focused on different issues such as anaesthetics and complications.

First stage of labour

An enema and vaginal douche were generally advised in the first stage of labour (James, 1923, 1929; Muskett, 1903; Richards, 1945; Rossiter, 1910, 1913; Somerville, n.d. c1920s) together with vaginal examinations performed by the doctor (Richards, 1945), or nurse if no doctor was attending (Muskett, 1903). A shave was only advised in two of the guides (Motherhood Book, n.d. c1920s; Richards 1945).

Most of the guides advised the woman to stay up and about in the first stage of labour, and to eat a light diet and drink as desired but avoid alcohol. Once the second stage was reached, she was to go to bed where she would remain for 7-10 days following the birth. Keeping the bladder empty during labour was important to Rossiter (1910, 1913) and Richards (1945) and advised in the *Motherhood Book* (n.d. c1920s). Pain relief was infrequently addressed and often seen as the domain of the doctor, who might administer an anaesthetic (James, 1923, 1929; Kirk, 1904, 1930; Somerville, n.d. c1920s; Richards, 1945). Richards and Richards (n.d. c1910) suggested the use of hot packs and *The Motherhood Book* recommended that the nurse rub the woman's back or legs to relieve cramps. Rossiter had a list of 11 instructions for the obstetrical nurse who would be helping him, including making the bed early, attending to hygiene and elimination, and positioning the woman. The final instruction, "Do not get excited" (p.458), risked irking rather than amusing professional nurses.

> Most guides cautioned against pulling on the cord, and advocated waiting for pulsations to stop before tying it off.

Second stage of labour

Second stage of labour was identified by the beginning of the bearing down pains and rupture of the membranes. Only Muskett (1903) and Richards (1945) gave very detailed instructions on how to manage the birth itself but Richards noted these were only for use if the doctor was absent. Hatrick (n.d. c1945) and Muskett gave particular instructions for where the attendant should put her hands. *The Motherhood Book* (n.d. c1920s) suggested strategies for the nurse to help relieve the woman's pain and indicated the doctor would take over and administer an anaesthetic when birth was imminent.

Most guides suggested the woman should be in the left lateral position with her buttocks near the edge of the bed for the birth but Somerville (n.d. c1920s) advised that the woman could lie down or be upright, whichever she preferred. Muskett (1903) and Richards (1945) gave instructions for controlling the speed with which the head was born. Black (n.d. c1910, n.d. c1940), Hatrick (n.d. c1945), Richards and Muskett advised subsequently checking for a cord around the neck.

Third stage of labour

Muskett (1903) gave detailed instructions on how to manage the third stage of labour including advice if the placenta failed to deliver within 20 minutes. A number of guides were concerned with preventing haemorrhage. They advised grasping the womb at the time of birth and holding it until the doctor arrived (Black n.d c1910, n.d. c1940; Hatrick, n.d. c1945; *Motherhood Book*, n.d. c1920s; Muskett, 1903; Richards, 1945) or massaging the uterus (*Illustrated Family Doctor*, 1935; James, 1923, 1929) until the placenta was delivered. Most guides cautioned against pulling on the cord, and advocated waiting for pulsations to stop before tying it off (*Motherhood Book*; Richards; Richards & Richards, n.d. c1910; Rossiter, 1910, 1913).

Aftercare

Following the birth, most guides noted the woman was to be washed and made comfortable before settling for a sleep. Only Muskett (1903) and the *Illustrated Family Doctor* (1935) advised putting the baby to the breast. Muskett suggested regular vaginal douches yet Richards and Richards (n.d. c1910) believed they should only be administered on a physician's orders. Aperients or enemas could be administered on day three (James, 1923, 1929; Muskett; Richards & Richards; Rossiter, 1910, 1913) and

a catheter could be inserted if the woman experienced difficulty voiding (James; Rossiter; Somerville, n.d. c1920s).

The most frequently mentioned postnatal problem was postpartum haemorrhage but several other complications were identified. Muskett (1903) and Richards (1945) were concerned with infection and Richards and Richards (n.d. c1910) discussed breast abscess and sub-involution of the uterus but only Somerville (n.d. c1920s) mentioned "white leg", the development of thromboembolytic disease. If a postpartum haemorrhage occurred it was to be managed by giving a hot vaginal douche (Muskett; Rossiter, 1910, 1913).

DISCUSSION

Very few changes in the information offered by the domestic health guides were evident across this 1900-1950 period. Different editions of the same guide could carry precisely the same information. The two guides at either end of the period were the most detailed (Muskett, 1903; Richards, 1945). Muskett was deliberately including detailed information as he was writing particularly for settlers in the remote, isolated areas in both Australia and New Zealand where no other help might be available. Richards, however, made no distinction about the location of her readers so it is difficult to draw any conclusion about why this guide offered more detail than those in the intervening years. It might have reflected an increasing expectation for people to take responsibility for their health. Britain, where this text was written, was moving towards a National Health System and had a strong emphasis on public health and encouraging individuals to participate in sport, eat as well as possible in a time of continuing post-war rationing and live healthily (e.g. Macdonald, 2011).

> **Very few changes in the information offered by the domestic health guides were evident across this 1900-1950 period.**

The greatest difference is between the domestic health guides and midwifery textbooks. The education of midwives has been described for New Zealand (e.g. Gilkison, Giddings & Smythe, 2013; Pairman, 2005) and for Australia (e.g. Grehan, 2004) but these studies did not address midwifery textbooks. Two editions of two midwifery textbooks used in New Zealand in this time period (Corkill, 1940, 1946; Jellett, 1926, 1929) were selected to compare information in the domestic health guides with material that midwives were expected to know. There was little difference in the kind of information provided by several of the domestic health guides when compared with these textbooks, although the textbooks were generally more detailed. Two areas were selected for deeper analysis and comparison – the aseptic management of labour and the management of the third stage.

In their prefaces, both Jellett (1929) and Corkill (1940) emphasised the aseptic management of labour, likening it to surgical asepsis. Both covered this issue in detail in a separate chapter. The domestic health guides also addressed the issue but to a lesser extent, focusing mostly on the cleanliness and arrangement of the room. Four guides briefly addressed the attendant's personal cleanliness (*Illustrated Family Doctor*, 1935; *Motherhood Book*, n.d. c1920s; Muskett, 1903; Somerville, n.d. c1920s). On the other hand, this was given considerable attention in the two textbooks. Nurses were to have short nails and scrupulously clean hands, and wear gowns, gloves and masks, as for a surgical operation. They were also instructed in the bacteriological basis for this. Two

guides (James 1923, 1929; Somerville) briefly explained the risk of infection – blood-poisoning, puerperal sepsis or child-bed fever – and Somerville mentioned the cause as 'disease germs gaining entry to the mother's system through the womb, before, during or soon after labour' (p.146). Only one likened asepsis to surgery. "Although childbirth differs usually from a surgical operation in that it is a natural physiological process, it resembles the latter in exposing the patient to the risk of infection with microbes" (*Illustrated Family Doctor*, p.147).

> **The gradual shifting of the site of birth from homes to small private hospitals run by midwives or doctors and to large public hospitals in subsequent decades did not significantly affect this mortality rate.**

There was a political reason, too, for the textbooks to emphasise asepsis. Maternal mortality had received significant attention in both Australia and New Zealand from the early 1900s when the rates were compared with other countries. Proud boasts of being modernised societies were put at risk by what were perceived as poor birth outcomes, including maternal mortality. The maternal mortality rate in the early 1900s in New Zealand, for example, was 6/1000 live births. The gradual shifting of the site of birth from homes to small private hospitals run by midwives or doctors and to large public hospitals in subsequent decades did not significantly affect this mortality rate. Any anticipated increase in safety by giving birth in hospitals did not eventuate. In fact, puerperal sepsis increased, except in the state-run St Helens hospitals (Wood & Foureur, 2005, 2007). As a result, the Department of Health in New Zealand instituted a detailed regime for the aseptic management of birth (Mein Smith, 1986). This was reflected in the textbooks.

Most of the domestic health guides gave only brief information about the third stage of labour. Most mentioned waiting until the cord stopped pulsating before tying it off. Jellett (1929) referred to a former dispute about when to tie off the cord, clarifying that it had now been proven that waiting until the pulsations ceased resulted in "more vigorous" children who regained their original weight more rapidly (p.168). Jellett and Corkill (1940) differed in some aspects of third stage care. Jellett considered natural expulsion of the placenta a slow, "tedious process" (p.169). He advocated using the Dublin method of expressing the placenta once it had separated as it hastened the process, was "a most important mode of treatment, and a perfectly safe one" (p.170).

> **Most of the domestic health guides gave only brief information about the third stage of labour.**

Having explained how to recognise placental separation, he advised midwives to grasp the fundus during a pain and press it down and back towards the sacrum, thus driving the placenta into the vagina where it could be gently drawn out. Corkill described a (literally) hands-off approach. The midwife should not massage the uterus. The dangers resulting from the temptation to interfere,

he said, led some teachers to advise keeping hands away from the abdomen entirely, until separation occurred. However, there could be an advantage if the midwife merely placed a "controlling hand" to judge the condition of the uterus (p.111). In contrast, the domestic health guides recommended grasping and holding the uterus to prevent haemorrhage. Even James (1923, 1929), who had advised attendants to "leave everything to nature" (p.298), advocated massaging the uterus until the placenta was delivered.

Although the guides were catering for a lay readership, they frequently included detailed information and instruction.

Comparison of the guides and textbooks allows us to consider any boundary between lay and professional knowledge and practice. Although the guides were catering for a lay readership, they frequently included detailed information and instruction. This might suggest a blurred boundary between lay and professional spheres, as Wood (2013) noted for aspects of nursing care described by domestic health guides and nursing textbooks. The significant difference with the midwifery textbooks, however, was that they provided a rationale and scientific (including bacteriological) basis for their instructions. Professional knowledge and practice were therefore to be grounded in a clear articulation of science and reasoned argument.

The remaining problem, though, was the differentiation between midwifery and medicine. Midwifery in Australia gradually achieved professional recognition (for example, through state registration) during the early decades of this time period (Grehan, 2004). New Zealand midwifery had achieved state registration in 1904. The crux of registration was to mark a clear boundary between professional midwives and untrained handywomen. Midwifery textbooks, written by doctors, delineated the boundaries of midwives' professional knowledge. The irony was that they felt bound to provide more information than they might have wished in order to ensure the midwife could effectively assist them. Jellett (1929) described his textbook as offering information beyond the midwife's "everyday practice" for this reason. She should consequently take care that the knowledge did not "lead her to assume responsibilities which she is unable or forbidden to discharge". She should remember "her work in life is to be a good nurse and not a bad doctor" (p.vi). Midwifery textbooks, written by doctors, therefore attempted to strictly confine the midwife's role to one of support for the doctor attending the woman during childbirth. They assumed a professional hierarchy. Midwives, however, were able to practise independently and many did so, running their own "maternity homes" or hospitals, usually of two to six beds, or attending women in their homes.

He believed a 'knowledge of how to conduct a confinement case should be possessed by every woman, and possibly by every man'.

It is important to consider the place of domestic health guides within the social context of the time. Muskett's (1903) purpose in writing a guide was to provide a "vast fund of medical information" that would "occupy the position of guide and friend" to people "throughout the whole expanse of Australasia" (vol.1, p. xi). He believed a "knowledge of how to conduct a confinement case should be possessed by every woman, and possibly by every man" (p.33). Raftery (1999) described a parallel "lay tradition based on self-care and neighbourly co-operation" that ran alongside professional care (p.285). This is the context for the popularity of domestic health guides. The "volume of formal health advice that was publicly available' increased during the nineteenth century, including 'popular books and manuals of household hints and remedies (Raftery, 1999, p.286). We would argue that it continued into the twentieth century, as Brookes (2003) also noted. It was part of what Coleborne and Godtschalk (2013) described as "cultures of health", revealed in the way "communities organised informally to exchange knowledge and practical support for the purposes of health" in Australia and New Zealand (p. 404). Domestic health guides were part of the materiality of these cultures of health and provided important information to women about childbirth. A forthcoming birth created anxieties for women because of its perceived dangers. The risk of dying was widely recognised, as evidenced in women's letters, diaries and memoirs (Clarke, 2012). For women in remote areas, this anxiety about childbirth and its perceived dangers was heightened by lack of access to assistance. Specific instructions in domestic health guides would therefore have given them a degree of reassurance and practical help.

CONCLUSION

Information in domestic health guides was directed at two audiences – women who expected to have a trained attendant at the birth and those who did not. A trained attendant might be lacking because their services were not available in the woman's isolated district or because she could not afford to engage one. She therefore expected to manage with the help of a friend or relative. Sometimes the trained attendant, whether nurse or doctor, did not arrive in time. The domestic health guide could therefore be an invaluable source of information, covering preparation for birth, each stage of labour and aftercare.

Information in domestic health guides was directed at two audiences – women who expected to have a trained attendant at the birth and those who did not.

Some domestic health guides offered similar and as detailed information as midwifery textbooks at the time, but not their level of rationale and scientific basis. These features marked out the separate sphere of professional knowledge and practice. An issue for doctors was its delineation from the medical sphere. Even so, doctors were usually the writers of domestic health guides and offered lay readers considerable information to help them in times of need. This is the paradox – doctors were willing to assist women and lay attendants by providing information but were anxious about midwives' potentially inflated sense of responsibility and sphere of practice. This was addressed by stressing in both domestic health guides and midwifery textbooks the role of the doctor as the central professional.

Domestic health guides were a significant part of the cultures of health, self-help and mutual aid evident in the late colonial period and early twentieth century in both New Zealand and Australia. We need to understand the history of midwifery in relation to this social context. Examining domestic health guides is an important avenue for achieving this and for enriching our knowledge of midwifery's history.

The value in considering history relevant to health professions has already been demonstrated in arguments for its inclusion in professional education (e.g. Foureur & Hunter, 2010; Wood, 2014), and in using historical imagination to consider current professional issues (Wood, 2010). This analysis of information about childbirth in domestic health guides provides an historical example to support reflection on the role of the midwife in relation to lay carers and home birth, and to the place of accessible health information in women's understanding of the childbirth experience today.

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NEW ZEALAND RESEARCH

Evaluation of the learning components of a blended Bachelor of Midwifery programme: student perceptions of how these contributed to their learning and their readiness for practice.

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ABSTRACT

Background: New information technologies for communication and distance learning enable programmes of study to be delivered, wholly or partly, off campus increasing the choice and flexibility for students. In 2007, Otago Polytechnic (OP) and Christchurch Polytechnic Institution of Technology (CPIT) Schools of Midwifery began a collaborative curriculum development for a jointly owned Bachelor of Midwifery, using a blended learning model for students based in seven regional sites throughout the South Island of New Zealand.

Aim: The aim of this survey was to evaluate the effectiveness of this new model of curriculum design and students' perceptions of their readiness for practice.

Method: A non-experimental descriptive survey of a purposive sample was developed to capture student demographics, their experiences of the blended learning components, and their perceptions of their readiness for practice. Graduands in 2011, 2012 and 2013 were invited to complete the survey. Ethical approval was obtained from the Otago Polytechnic Ethics Committee following consultation with the Kaitohutohu (Māori Advisor).

Findings: A response rate of 93% (14/15) students was achieved in 2011 for a paper survey and 47% (16/34) in 2012 and 50% (20/40) in 2013 with an online survey. Overall, the students agreed or strongly agreed that the weekly face-to-face tutorials, intensive block courses, online learning modules and online tutorials had all contributed positively to their learning, while some disagreed or strongly disagreed that aspects of their ākonga (tutorial) group process, the number of peer group presentations in intensives, and the level of oversight for their practice portfolio facilitated their learning. Almost all (12/13 in 2011, 14/14 in 2012; 11/12 in 2013) participants agreed or strongly agreed about the value of clinical placements and perceived themselves well prepared for midwifery practice.

Conclusion: This survey was successful in identifying components of the blended delivery programme that students perceived enhanced their learning, and aspects of these that could be improved. Almost all who participated agreed that the programme had prepared them for beginning practice as a midwife.

Key words: blended learning; undergraduate midwifery education; programme evaluation

INTRODUCTION

Midwifery programmes in New Zealand have utilised new information technologies which increase the choice and flexibility for students by enabling programmes of study to be delivered, wholly or partly, off campus. In 2007, Otago Polytechnic (OP) and Christchurch Polytechnic Institute of Technology (CPIT) Schools of Midwifery programme began a collaborative curriculum development for a jointly owned Bachelor of Midwifery, with a blended learning curriculum, to students based in seven satellite locations throughout the South Island of New Zealand. The primary aim of this development was to provide access to midwifery education for students, many of whom are mature students keen to study/attracted to midwifery, while raising families, wherever they lived, enabling them to pursue their study and avoid the disruption of having to relocate families to the regional centres.

Students were enrolled into the programme in 2009. OP and CPIT developed a single set of shared online resources, using the same academic calendar and the same format to deliver the curriculum to their respective groups of students. At the time, students enrolled at OP were based in satellite sites in Southland, Central Otago and Dunedin/North Otago/South Otago. CPIT students were based in South Canterbury, Christchurch/North Canterbury and Nelson/Marlborough. In 2010, CPIT began a satellite group on the West Coast, and OP extended delivery to a further three satellite sites in the lower North Island: Wellington/Kapiti/Wairarapa region, Palmerston North and Whanganui.

The 480 credit (four year) programme is delivered over three years using 45 weeks of each year instead of the usual 28-34 week academic year. It uses a combination of e-learning, small and large group face-to-face teaching, group and individual study, virtual

classroom attendance and a wide variety of midwifery practice experiences. Over three years of the programme, midwifery students complete 2400 practice hours in primary, secondary and tertiary hospitals, in homes and other community settings. The hospital placements include experience in antenatal, labour and postnatal wards, acute assessment clinics and primary midwifery teams. In contrast, community experience is largely gained alongside Lead Maternity Carer (LMC) midwives, or caseloading midwives, and includes following women and their midwives throughout the maternity experience, whether the woman births at home or in hospital.

A blended learning model underpins the curriculum. Blended learning is defined as a combination of face-to-face and technologically mediated communications between the lecturers, students and learning resources (Bliuc, Goodyear, & Ellis, 2007) and is credited with providing both economic and social benefits for students and institutions (Derntl & Motschnig-Pitrik, 2005). OP and CPIT use a blended model which involves first and second year students meeting in groups of 4-8 each week; these meetings facilitated by midwife lecturers (kaiako) resident in the satellite sites. These ākonga (tutorial) groups provide opportunities for debriefing "follow through" on hospital and other clinical placement experiences, simulated midwifery skills practice, pastoral care plus discussion of theory content in the programme and its application to practice. To consolidate practice and theory learning, students build a midwifery portfolio over the three years, which includes skill sheets, records of clinical practice and reflections on their student midwifery practice.

Third year students are allocated a supervising lecturer who maintains regular contact with both the student and the midwife in each of their practice placements. This final year is largely devoted to midwifery practice alongside midwife LMCs (caseloading midwives) in a range of practice contexts and locations throughout New Zealand, with some students completing one elective placement overseas.

In addition to the weekly ākonga group meetings, OP students in years one and two come together four times a year, and third year students twice a year, at either the Dunedin (South Island) or Kapiti (North Island) campus for intensive blocks of clinical and theory content more suited to working in a larger group. These intensive blocks also provide opportunities for students to share practice experiences, and to socialise with the wider student group.

The face-to-face experiences are supported by learning course packages presented on the "Moodle" e-learning platform in modular form. Modules consist of a mix of text, illustrations, learning activities and hyperlinks to relevant literature, web sites or video clips. Courses are timetabled to run concurrently with one new module opened each week during the teaching year, supported with weekly, synchronous, online, virtual classroom tutorial sessions accessible by students from wherever they choose to log on.

Literature review

Questions have been asked about the adequacy of e-learning for preparing students for clinical practice (Muirhead, 2007) and the potential for social isolation (Motiwalla & Tello, 2000)—particularly amongst Māori (New Zealand indigenous people) learners (Porima, 2011). Research, however, supports the use of new media in education and Blum (1999) identified that e-learning appears to suit mature women with family responsibilities—a demographic profile similar to that of our students. However, Porima and Blum do not address "blended" delivery which in our curriculum model includes a mix of face-to-face learning

and practice placements in addition to the online learning components, thus mitigating the potential for student isolation. Further, this combination of face-to-face teaching and online self-directed resources has been shown to support the development of communities of learning (Wenger, McDermott, & Snyder, 2002).

Blended learning programmes have been used by other health education institutions and disciplines. Examples include postgraduate programmes for registered nurses in rural Australia (Harris, Connolly, & Feeney, 2009); online discussion and face-to-face workshops for Scottish midwives for perinatal mental health education (Forrest, 2005); interactive scenario-based online modules for medical students (Lewin, Singh, Bateman, & Glover, 2009); and the use of video clips for distance physiotherapy students to test their neurological assessment skills (Davies et al., 2011). Caution is urged with blended learning (Bozarth, Chapman, & LaMonica, 2004), as online course material is potentially introduced without attention to the different kind of thinking required for students using this mode of learning (Muirhead, 2007). While such formats have the potential to provide higher education to ever larger groups of students, the structure and content need to stimulate the development of the critical thinking required for effective decision making in practice settings.

A search of relevant peer reviewed literature in the EBSCO, CINAHL, ERIC, PubMed, and ProQuest databases showed a recent increase in interest in blended learning. Several studies included midwives in the abstract and text where nurses and midwives shared a curriculum (Beadle & Santy, 2008). In most studies there was limited evidence for guidance about blended learning, given the diverse range of courses and programmes reported (Harris, Connolly & Feeney, 2009). Most often a single course, or part of a curriculum, was trialled using a blended delivery mode and these were frequently post basic, Honours, or other postgraduate programmes (Moore, 2012; Sidebotham, Jomeen, & Gamble, 2014; Smyth, Houghton, Cooney, & Casey, 2011; Stewart, Inglis, Jardine, Koorts, & Davies, 2013; Young & Randall, 2014; Zolfaghari, Sarmadi, Negarandeh, Zandi, & Ahmadi, 2009).

A survey of first and second year midwifery students at another New Zealand midwifery school (Milne, Skinner, & Baird, 2014) was undertaken following the introduction of a blended learning model. This model included face-to-face teaching, online modules, and videoconferencing of lectures (the last of which is not included in Otago's and CPIT's blended learning model). The students in this study reported experiencing problems with technology and lecturers were challenged by the demands of delivering traditional lectures by videoconference.

Missing in much of the literature was research on the comprehensive design, development and delivery of blended curricula in undergraduate midwifery education. Thus, the aim of this research was to evaluate the effectiveness of a new model of curriculum design of a Bachelor of Midwifery programme at Otago Polytechnic with a view to describing the learning experiences and perceived readiness for practice of students in the programme.

METHOD

A survey was developed with the aim of capturing the experiences of three cohorts (2011, 2012 and 2013) of graduand students' experiences of the blend of learning components in the programme, and their perceptions of their readiness for practice at this point in their study. Ethical approval was obtained from the Otago Polytechnic Ethics Committee (OP Ethics #502) following consultation with the Kaitohutohu (Māori Advisor). For each

question respondents were asked to either tick a box, or circle a Likert scale response (strongly agree; agree; disagree; strongly disagree) to each statement. A text box at the end of each set of questions was available for students to add comments.

We were mindful that any research undertaken with students in a programme, by the managers and educators of that programme, had the potential to influence student responses. For instance, students might feel obliged to participate and provide agreeable responses to the questions. However, the third year students, at the time they completed the surveys, had all passed their coursework so would be less likely to be influenced by these constraints.

To reduce any perception of coercion, no identifying details were required on the questionnaire. Confidentiality was also maintained by using a non-teaching research assistant to administer and enter agreed codes to the paper survey in 2011, after which the anonymised data were entered into an Excel spread sheet. The electronic surveys in 2012 and 2013 were administered and collated by the organisational researcher responsible for OP-wide student and staff surveys with de-identified data returned to the researchers.

Completion of the paper questionnaire or online survey constituted consent. However, students could request to have their survey form or responses removed up until the time that analysis began and could request removal of any written comments prior to publication of the survey results.

FINDINGS

A response rate of 93% (14/15) students was achieved in 2011. The rates were lower with the online survey at 47% (16/34) in 2012 and 50% (20/40) in 2013. An initial loading problem with the 2013 survey resulted in seven students being unable to complete the survey, potentially accounting for the higher number of missing data in response to the statements about the learning components.

Descriptive statistics were calculated for each question and numbers, rather than percentages, were used because of the small number of participants. Responses to the statements about the learning components and readiness for practice are presented in Tables 1-8 with the strongly agree/agree, and the strongly disagree/disagree categories combined for reporting results. Student comments are included where these help to explain the results.

Demographics

All the respondents were female. One student in 2011 and another in 2012 identified as New Zealand Māori, the remainder identified as New Zealand/European/Pākehā (non-Māori). The age range, when starting the programme, was younger for the

2011 cohort and more evenly distributed in the other two cohorts. Twelve students reported being under 26 years of age, and 27 reported being between 26 to 50 years of age, when they started the programme. Eleven did not answer the question. Most had responsibility for dependent children during their programme, (8/14) in 2011, (14/16) in 2012 and (17/20) in 2013. In addition 36/50 students, who responded to the question, undertook part-time employment or voluntary work during their programme.

Across the three cohorts, 10 students lived in a rural area and 37 in an urban area and 32/46 who responded to this question indicated that they would not have been able to access the programme prior to the development of the blended/satellite curriculum model.

Twelve of 47 students had been enrolled previously in courses using a blended learning model; some of whom had completed the Certificate in Health—a bridging programme into the health degrees offered at Otago Polytechnic. With regard to their computer skills at the beginning of the programme, 45/49 who answered the question considered themselves to be adequately prepared for online learning.

Student experiences of the learning components in the new curriculum

Table 1 indicates that all students who responded (42/50) agreed/strongly agreed that the ākonga group was important to their learning. Comments included *"best part of the programme"*, *"fabulous leaders"* and *"great way to engage and discuss ideas"*, *"providing reflection, and learning opportunities"* and *"the group made my week"*. While the majority agreed/strongly agreed that the groups felt like a safe environment to discuss sensitive issues, some in each year: 2011 (n=6), 2012 (n=2) and 2013 (n= 4), disagreed/ strongly disagreed with the statement. Comments included *"strong personalities could dominate"*, *"…it did not feel like a safe place to discuss practice"* and *"some group dynamics were challenging"*.

Most students in 2011, 2012 and 2013 (11, 8, 12), agreed/ strongly agreed that time spent in intensive block courses was valuable, while a small number in each year (3, 7, 1) disagreed. The intensive block courses were seen *"as opportunities to revise practice skills and catch up"*. Some guest speakers were considered great while some students said they would have preferred spending the time on other areas of learning. Least popular with all three cohorts were the group presentations, with most students in each year (12, 9, 3) disagreeing or strongly disagreeing that group presentations enhanced their learning. Comments included that there were *"too many group presentations"*, these were *"hard to organise when [the students were] spread out"* and one expressed reluctance about *"having to carry some group members"*.

The majority in each year (8, 12, 11) agreed/strongly agreed

Table 1. Student responses to the statements regarding their ākonga group									
Ākonga student groups	Agreed/strongly agreed			Disagreed/ strongly disagreed			Missing data		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
My group was an important part of my learning experience	13	16	13	0	0	0	1	0	7
My group felt like a safe environment to discuss sensitive issues	8	13	8	6	2	4	0	1	8
Discussion and reflection within the group enhanced my learning	12	14	12	2	2	1	0	0	7
Learning and practising clinical skills in my group was beneficial to my learning	9	16	13	4	0	0	0	0	7

that the online Moodle resources enhanced their learning, while almost half (n=6) of the respondents in 2011 disagreed/strongly disagreed. Comments in relation to the Moodle content included *"some of it was text heavy"*, *"[it was] hard to navigate"* and *"some links didn't work"*; though one student wrote that she *"appreciated the opportunity to [refer] back to modules"* during the year.

The 2011 cohort were similarly divided about their ability to access IT support easily with 6 disagreeing that they could access IT support if needed. However, in the subsequent cohorts 9

was used to track their progress in the programme. Further, most students (10, 7, 6) did not agree that the portfolio enabled them to integrate their theoretical and practice experiences. Comments included that there was *"contradictory information about what was needed" "seemed to be an 'add on' and not integral to the programme"*. However, in each year most students (12, 11, 9) agreed or strongly agreed that they felt proud of their portfolio. One commented *"I took my portfolio to my job interview and felt proud as the interviewers skimmed it and read some of the material"*.

Table 2. Student responses to the statements about their intensive block courses									
Intensive block courses	Agreed/strongly agreed			Disagreed/ strongly disagreed			Missing data		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Time spent in intensives was valuable for my learning	11	8	12	3	7	1	0	1	7
The number of intensive blocks during the programme met my needs	9	9	11	5	5	2	0	2	7
The guest speakers at intensive blocks were valuable for my learning	9	11	10	5	3	1	0	2	9
Preparing and presenting in peer group presentations enhanced my learning	2	5	8	12	9	3	0	2	7

respondents in 2012 and 12 in 2013 agreed/strongly agreed that they could easily access IT support. No comments were made about the IT services in any of the comment boxes.

Table 4 shows that the majority of the students (11, 13, 12) in each year agreed or strongly agreed that they regularly attended the online tutorials; they (12, 14, 10) indicated that they listened

The midwifery facility practice placements were appreciated with almost all students in each year (13, 14, 11) agreeing or strongly agreeing that they were able to consolidate their practice skills and a similar number (9, 13, 10) agreed/strongly agreed that their midwifery practice opportunities complemented their theoretical learning, and that they felt welcome in the facilities.

Table 3. Student responses to the statements about the Moodle online modules									
Moodle online learning modules	Agreed/strongly agreed			Disagreed/ strongly disagreed			Missing data		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
The design of the Moodle online learning resources enhanced my learning	8	12	11	6	2	2	0	2	7
I regularly accessed and contributed to the online forum for each course	10	8	6	4	5	7	0	3	7
I was able to complete each online module in the expected time frame	10	10	9	4	5	7	0	3	7
The flexibility of being able to study in my own home/time was beneficial to me	9	13	12	4	1	0	1	2	8
I could easily access IT support if I needed it	7	9	12	6	3	1	1	4	7

to the recordings when unable to attend; and (9, 10, 12) found them useful for their learning. However, student comments reveal some aspects which challenged them. For example, one student commented that *"I don't like to speak online and wasn't able to overcome this"* and another that it was *"frustrating when other students claimed they had no microphone…"* and there were times *"when the technology wasn't working"*.

Table 5 indicates that students did not all agree that they understood the portfolio requirements and only a small number (1, 6, 5) in each year agreed or strongly agreed that the portfolio

While over half of the students in 2013 (8/12) agreed/strongly agreed that the facility midwifery staff appeared to understand their practice requirements; agreement was lower in 2011 and 2012 (6/14, 5/13). Comments relating to this response included *"some DHB staff midwives were unclear what they should be teaching" "[the midwife]…didn't know the [practice placement's] expectations"*. These comments were balanced by comments such as *"a fantastic range of placements"* and *"great practical experiences"* and *"being proactive"* identified by one student as the key to getting the best experience.

Table 4. Student responses to the statements about the online tutorials									
Online tutorials	**Agreed/strongly agreed**			**Disagreed/ strongly disagreed**			**Missing data**		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
I regularly attended the online tutorial	11	13	12	3	1	1	0	2	7
I found the learning environment of the online tutorials comfortable and supportive	8	9	11	5	0	2	0	2	8
The online tutorials supported the learning in the modules	9	14	10	5	0	2	0	2	8
I usually listened to the recordings of the tutorials that I was unable to attend	12	14	10	2	0	3	0	2	7
The tutorials were a useful component of my learning experience	9	10	12	5	1	1	0	5	7

Table 7 indicates that the majority of students (13, 14, 11) in each year agreed/strongly agreed that the community and LMC placements provided opportunities to consolidate their practice skills.

There was also agreement by most (12, 13, 11) regarding how their experiences complemented their theory learning and all,

teaching". However, while the majority agreed/strongly agreed that the midwifery staff/midwives appeared to understand their practice requirements, in each year some students did not agree with this (n=4, 2011) (n=6, 2012) and (n=2, 2013). One commented that she had difficulties contacting her supervising lecturer, *"[I] felt like I was flying solo"*.

Table 5. Student responses to the statements about the midwifery student portfolio									
Portfolio	**Agreed/strongly agreed**			**Disagreed/ strongly disagreed**			**Missing data**		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
The requirements for completing the portfolio were clear to me	11	5	9	2	8	4	1	3	7
My portfolio was used regularly by my lecturer/kaiako to assist me to track my progress in the programme	1	6	5	13	7	8	0	3	7
The midwifery portfolio enabled me to integrate my theoretical learning with my practice experiences	4	6	6	10	7	6	0	3	8
I feel pride in myself and my learning progress when I reflect on my portfolio	12	11	9	2	2	4	0	3	7

except two students in 2011, agreed that they felt welcomed and supported in their community placements.

Comments included *"awesome" "great experiences"* and *"huge kudos to the LMCs for all their efforts and all the coffees they buy", "… could not have gotten through this degree without their support and*

All the students who responded to the statement agreed or strongly agreed that they gained a strong theoretical basis for their practice. Just four students across the three cohorts did not agree that they had experienced care in all settings and one in 2013 felt unable to develop professional relationships across disciplines. Finally, all

Table 6. Student responses to the statements about their midwifery facility practice placements									
Midwifery facility practice placements	**Agreed/strongly agreed**			**Disagreed/ strongly disagreed**			**Missing data**		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
I had opportunities to consolidate my midwifery practice skills while on these placements	13	14	11	1	0	0	0	2	9
My midwifery practice experiences complemented my theoretical learning	12	14	10	1	0	1	1	2	9
I felt welcomed and supported by facility midwives and staff in my facility placements	9	13	10	5	1	1	0	2	9
The facility midwifery staff appeared to understand the practice requirements of my course	6	5	8	8	8	4	0	3	8

Table 7. Student responses to the statements about their community and LMC (case loading) midwifery placements									
Community midwife based placements	**Agreed/strongly agreed**			**Disagreed/ strongly disagreed**			**Missing data**		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
I had opportunities to consolidate my midwifery practice skills while on placements	13	14	11	1	0	1	0	2	8
My midwifery practice experiences complemented my theoretical learning	12	13	11	2	1	1	0	2	8
I felt welcomed and supported by community midwives and staff in my community based placements	12	14	12	2	0	0	0	2	8
The midwifery staff/midwives appeared to understand the practice requirements of my course	10	8	10	4	6	2	0	2	8

but one student in 2011, and one in 2012, felt well prepared for practice as a registered midwife.

One student commented that she had *"learnt a lot about herself in the process"* and another that she felt *"reasonably ready for autonomous practice"* with a final comment from another *"overall a fantastic, busy, challenging, inspiring three years thanks"*.

DISCUSSION

The graduand student survey responses and comments from the 2011, 2012 and 2013 cohorts in the Bachelor of Midwifery programme provided some insights into their experiences of the face-to-face, online and practice components of the programme

The face-to-face learning components

With the geographical spread of our students, the weekly ākonga group meetings in the satellite areas provided opportunities to meet face-to-face, to learn skills and to share practice experiences. Most students in all three cohorts agreed about the social and learning value of their ākonga group. Such groups have the potential to model a template for future midwifery team and group practice (Geraghty & Bayes, 2009) enabling critical problem solving skills and practice competence. However, not all the students felt safe to engage in discussion in their groups, citing personality differences and breaches of confidentiality regarding what was shared. This has prompted us to establish ground rules for clear and respectful communication early in each year, and for kaiako to make time

Table 8. Student responses to the statements about their readiness for practice									
Readiness for practice	**Agreed/strongly agreed**			**Disagreed/ strongly disagreed**			**Missing data**		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Overall, I gained a strong theoretical basis for my midwifery practice	13	14	12	0	0	0	1	2	8
Overall, I gained experience across the midwifery scope of practice	13	14	11	0	0	1	1	2	8
Overall, I experienced maternity care in all settings	12	13	10	1	1	2	1	2	8
I was able to develop professional relationships with practitioners from other disciplines and understand their roles in the maternity service	13	14	11	0	0	1	1	2	8
I feel well prepared for practice as a registered midwife	12	14	11	1	0	1	1	2	8

and captured their perceptions of their readiness for midwifery practice. The majority of respondents in this study were between 25 and 35 years of age, and consistent with women in this age range, most had childcare responsibilities and paid or voluntary work commitments; thus the blend of programme components enabled them to live in their home areas and fit family and work responsibilities around their study. While this flexibility is welcomed, the distinction between study and personal lives can become blurred (Johnson et al., 2010). Thus opportunities for face-to-face contact reduce isolation and enable students to collaborate and share their learning experiences with their peers.

for one-to-one interaction with each student so that individual learning needs can be addressed.

The student midwifery portfolio is also designed to support student learning. While the students who responded to the surveys were proud of their portfolios, almost half did not agree that their portfolios were used to track their progress over the year. In response to this feedback kaiako are meeting more frequently with students and reviewing their portfolios regularly. This has resulted in more consistency in both their use and content. For the future the aim is to move to an electronic version to enable more portability and easier navigation and to enable students to continue to build their portfolio into the future.

Face-to-face contact also occurs four times a year in the intensive block courses held on the two campuses. While most agreed the intensives were valuable for their learning, the students did not agree about the number or value of the peer group presentations required during these times. Moving from the classroom to a blend of learning modes entails a cultural change for all parties, and offers the opportunity to experiment with creative, interactive and collaborative learning in course work and assessment (Gray & Tobin, 2010). Alternatives to peer group presentations might include teacher assisted small group projects, which Johnson et al. (2010) suggest work well for "serialistic" (bottom up) and "holistic" (top down) learners with the learning fulfilling either formative or summative assessment tasks (Pask, 1976).

Nonetheless, group presentations, if well aligned with long term learning and aspects of problem solving, have value and ideally would involve students in setting the criteria and rating scales for at least some of these assessments (Falchikov & Magin, 1997). By introducing a narrative, students could begin with a practice issue and build the presentation with their own investigation, supported by the lecturer (Gilkison, 2013). Learning environments where there is authentic collaboration on such a project have the potential to foster active and engaged learners and scaffold lifelong learning (Boud & Falchikov, 2006).

Potentially, the presentation could incorporate a broader range of tasks including material from several courses or joint projects with students from other disciplines. The latter could help set the scene for future collaborative practice and problem solving, designing broader assessments to evaluate complex tasks involving cooperative approaches and shared learning (Rolheiser & Ross, 2011). Such changes to assessment practices require clear and unambiguous feedback on student work (Rust, 2002), with alignment between the desired outcomes, assessment tasks, and course content (Wyllie, 2011), and may present opportunities for peer marking (Rovai & Barnum, 2003). These assessment skills developed at undergraduate level can help build capability for the future when they assess midwifery students themselves.

The online learning components

The online Moodle modules are accessible over the year. More participants agreed than disagreed about the value of these resources, although there were comments about the amount of text included and problems with navigating the links in some. DiCarlo (2009) suggests that online materials often provide too much content, some of which may be obsolete or erroneous, promoting rote learning which is quickly lost following examination. Video clips can be helpful but important practice principles may be missed, should students focus on particular aspects of the content (Bloomfield & Jones, 2013). Thus, moving to online modules from traditional teaching methods means taking a fresh look at how the material is presented, but even the best presented modules require the guidance of the teacher.

The emphasis of online learning, according to Laurillard (2002) should be about learning how to think rather than what to think, thus avoiding just knowledge transmission. Further, a "conversational framework" (p.143) with collaborative investigative activities can change the nature of the teaching and focus on a sound understanding of the underlying practice principles (Beadle & Santy, 2008). Engagement might be fostered with the use of a WIKI, a movie and devices such as "photovoice" (Kitson-Reynolds, 2009) or a "virtual town" (Pask, 1976), which include "real world" scenarios (Knowles, 2004).

Similarly, strategies that work in online modules could also be used in the synchronous online tutorials. In the current surveys students

differed as to how they engaged online. For example, one student was reluctant to speak, whereas another was frustrated when other students claimed not to have a microphone. According to Blum (1999), gender differences, adult learning styles and communication patterns affect how students learn and engage online. For example, female students place greater emphasis on relationships in online courses and prefer collaborative learning modes (Blum, 1999). Thus, online strategies that enable collaboration and discussion not only suit women's communication patterns, but also meet some of the lifestyle realities of women in this age range.

It takes practice to manage the challenge of the "unseen class" for lecturers new to facilitating online tutorials. To assist, Myers et al., & Lee (2011) advocate innovative teaching strategies and transparent processes, with the lecturer adopting a "guide on the side", rather than "sage on the stage", teaching style (p.4). Reversing roles, using virtual breakout rooms, quick anonymous quizzes, or class interaction on a shared whiteboard (Milne, Skinner & Baird, 2014) could provide new insights and learning for both groups (Harris, Connolly & Feeney, 2009). Whatever strategies are used, the communication with the lecturer remains critical (Motiwalla & Tello, 2000). A warm, helpful and facilitative approach is needed, with clear explanations of the learning content and objectives for the session (Blum, 1999; Phipps & Merisotis, 2000; Rovai & Barnum, 2003), which models student enthusiasm for learning (Beadle & Santy, 2008).

Vital, however, for any online teaching, is readily accessible technical assistance for both students and lecturers (TEACHONLINE, 2015). In the current study the students assessed themselves as having adequate computer skills but, for those with poor internet connections, frustration was experienced during online tutorials. These findings around the technological challenges, and the cultural change required in lectures, resonate with those found by Milne, Skinner and Baird (2014). In response to these challenges, IT support has been strengthened at OP with a quick response to students struggling to join their online class. Advice for current and prospective students on how to adapt their IT service to enable full participation is now part of our introductory student package.

Preparing midwifery students for practice

Whatever course components or simulation are provided, it is in the practice setting that this learning comes together and builds the foundation for future midwifery practice. In the current study the practice experiences with midwives and other health professionals, in both the facility and community settings, were highly valued by the students. Of concern, however, was the perception that the objectives and expectations of the placements were not always well understood by the midwives in the practice settings.

This challenge for midwives in assessing students was described by James (2013). The midwives were "anxious to get [the assessment] right" (p.16), particularly when there were aspects of the student's performance that did not meet the standard for safe and appropriate care. James reported that frustration increased when the school provided "text heavy" information (p.16) and they found the time taken to fulfil the preceptor role took longer than anticipated. Similarly, where midwife preceptors are under pressure to complete their work, it is thought that the students slow them down (Raisler, O'Grady, & Lori, 2003). Adding to this is the pressure for students to facilitate births which can come at the cost of consolidation in other areas of their practice (Licqurish & Seibold, 2013).

Communication about expectations for students in their practice placements needs to be clear, collaborative and respectful, acknowledging the place of each actor or agent in the successful

achievement of student practice competence. At times this will require discussions with the midwives in practice to facilitate understanding of their assessment responsibilities and to manage any student performance issues (Geraghty & Bayes, 2009). Such collaborations will help bridge any perceived divide between school and practice and help students learn to manage complex workplace relationships.

Whatever challenges the students in the three cohorts faced during their programme, they were almost unanimous in agreeing to the statements about their practice readiness. This included their practice and theoretical bases, their range of midwifery scope experiences and their opportunity to develop professional relationships across disciplines. These perceptions appear to support the blend of learning components in the programme and this confidence is supported by improving student success and retention statistics in the OP quality performance indicators.

LIMITATIONS

This was a small study designed to capture student experiences of the learning components in the programme and their perception of their readiness for practice which highlighted some trends over the three years, although the number of missing data from the 2013 survey is regrettable. Further, as the study progressed over the three years, changes were already being made in line with the early findings from the survey, our own reflections on the programme, and in response to other school and organisational evaluation processes. A repeat of a similar survey with successive groups of graduands may indicate if these changes continue to be effective. Alternatively, focus groups, held by skilled facilitators, may provide a richer understanding of the key findings from the surveys. Further studies could include re-surveying practitioners after one year in practice, interviews with midwives in practice settings who have supervised our students during the programme, and a study to describe lecturer experiences and insights from teaching in the blended programme.

CONCLUSION

This three-year graduand study was completed by 50 (56%) of a possible 89 final year students in the Otago Polytechnic bachelor of midwifery programme. The survey data were successful in identifying some trends across the three years and the survey respondents agreed that the blend of learning components contributed to their learning, while highlighting areas for improvement and innovation. The results from these surveys and those from our institutional quality evaluations suggest that the model is adaptable, transparent and sustainable and, importantly, that the graduands feel well prepared for beginning midwifery practice.

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RESEARCH CRITIQUE

A midwifery critical analysis of: A retrospective cohort study of the association between midwifery experience and perinatal mortality (Lawton et al., 2015)

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ABSTRACT

Background: New Zealand has a unique model of maternity care, with midwives as the predominant carers. A recently published retrospective cohort study sought to compare the experience levels of Lead Maternity Carer midwives with rates of perinatal mortality. The paper claimed that an association was found between first year of practice midwives and increased perinatal mortality. However, the study design was seriously flawed and the data do not support the conclusions that were drawn.

Aim: To systematically critique the study using the principles of epidemiological research.

Methods: The study design and methodology were critically analysed in terms of the three potential sources of error that occur in observational studies: bias (measurement error), confounding and chance. The potential impacts on results were considered.

Findings: Four areas of misclassification bias were identified, which introduced error to the data from the design stage. Important confounders were not distinguished and therefore neither excluded in the design stage nor adjusted for in the analysis. These flaws invalidate the results. The hypothesis test for the outcome of interest indicated an extremely high likelihood that the apparent association between midwives in their first year of practice and increased perinatal mortality was due to chance.

Conclusion: Because of the major methodological flaws in this research, no conclusions can be drawn from the results. This paper highlights the importance of involving members of the profession being studied in the research team to improve quality by providing crucial insight into the sector and identifying potential sources of error.

Key words: midwives' experience, first year of practice, perinatal mortality, critical analysis

INTRODUCTION & BACKGROUND

The education and experience levels of midwives have been criticised in a recently published study by Lawton, Filoche, Geller, Garrett, and Stanley (2015). This paper claims that there is an association between increased perinatal mortality and Lead Maternity Carer (LMC) midwives who had less than one year's experience and did not have a previous nursing qualification (Lawton et al., 2015). The aim of our paper is to provide a comprehensive critical analysis of the study.

The hypothesis was that *"pregnancies cared for by early career midwives would be associated with increased perinatal mortality compared with those cared for by midwives with 5-9 years of post-midwifery qualification experience"* (p.2). The methodology used to test this hypothesis was a retrospective cohort study looking at routinely collected historical data linked to the Midwifery Council of New Zealand's (MCNZ) register of midwives to identify the year of midwifery registration, which was used as an indication of the experience level of the midwife providing care. The paper concludes that *"pregnancies cared for by first year midwife-only LMCs were associated with a 33% increase in perinatal mortality"* (p.6). Although the study stipulates that this is an association and causality cannot be claimed, it goes on to suggest a causal association between caregiver and perinatal mortality by stating

"The additional training that nurse-midwives receive could contribute to improved outcomes" (p.6).

Midwifery, as an autonomous health profession, welcomes robust and reliable research which can provide evidence to support and direct practice. Scientific research is a way of increasing knowledge through systematic inquiry, which commences with an hypothesis and then tests that conjecture using rigorous and reliable methods to answer questions related to the hypothesis (theoretical position) (Gavin, 2008). A study is designed to test the hypothesis against the null hypothesis, and whether the null hypothesis can be falsified (disproved), in other words, whether results indicating an association are more likely to be due to the hypothesis, than due to chance.

While this study presents a valid question, there are numerous flaws in the design and methodology used to test the hypothesis, which had the potential to influence the findings. The majority of the findings did not reach statistical significance, meaning that chance cannot be excluded. Using and linking large existing databases provides an inexpensive research method but can lead to the identification of statistical significance even when no association exists (Grimes, 2015). Hence caution is needed when interpreting results and any factors that may influence the results should be carefully considered. Instead of a cautious discussion

about the data, its limitations and the uncertainty of the result, this study claims an association was found.

THE METHODOLOGY OF THE PAPER

The retrospective cohort study used record linkage to link routinely collected data on perinatal mortality rates with data on midwifery registration from the MCNZ register of midwives. The study included 233,215 births over the years 2005 to 2009. The New Zealand Ministry of Health Information Group (MoHIG) provided the anonymised dataset of midwife registrations with identifiers of month/year of registration to the researchers. The researchers were able to map perinatal mortality outcomes to the LMC midwife with whom the woman booked during pregnancy. The primary outcome was perinatal mortality, including fetal deaths from 20 weeks gestation to neonatal deaths up to 27 days after birth. The exposure was years "of experience" (measured as years since registration: the significance of this distinction is outlined in the section on bias) according to eight categories, with each of the first five years as individual categories, followed by 5-9 years, 10-19 years and 20 years or more. Midwives were further stratified to "midwife-only", defined as midwives who did not have a prior nursing qualification, or "nurse-midwife", defined as midwives who had a prior nursing qualification. Women were analysed in two groups; "high risk" was defined as age <21 years or >39 years at the time of birth, multiple pregnancy, or parity of 4 or more; all other women were defined as "low risk". "High risk" women were excluded from the main analysis on this basis. Although data were presented on socioeconomic status/ deprivation quintile, ethnicity and mode of birth, these variables were not included in the analysis of perinatal mortality. The reference group was midwives with 5-9 years of experience, to which all other categories were compared.

CRITIQUE OF THE METHODOLOGY

When a researcher is setting up a research project,the methodology and research design need to be carefully considered so that any potential for bias or confounding is identified and measures are taken to minimise error and reduce the influence of confounders on the outcome of interest (Kirkwood & Sterne, 2003).

Misclassification bias

Misclassification bias is a type of measurement error that epidemiologists usually aim to identify and minimise through good study design, as it cannot be controlled for in the analysis. It occurs when random and/or systematic errors occur in the way that people or groups are categorised. Our review found four areas in which misclassification bias occurred, which fundamentally flaws the research from the outset due to inherent errors in the data, thus nullifying the findings.

Firstly, the use of the MCNZ register of midwives to determine the experience levels of the midwife will have resulted in misclassification of midwives who qualified overseas. The register of midwives indicates the date of registration in New Zealand, not the date at which midwifery registration occurred in the country of origin. For example, a midwife who gained her nursing qualification in the United Kingdom in 1991 and her midwifery qualification in the United Kingdom in 1994, but arrived in New Zealand and registered as a midwife here in 2004 will be listed on the MCNZ website as registering with both qualifications in 2004. This midwife would appear to be a midwife in her second year of practice in the study in 2005 but, in fact, she has had 11 years of experience in midwifery practice.

During the time period of this study there was a midwifery shortage so an overseas recruitment drive led to between 100 and 200 midwives each year coming to New Zealand to practise. Overseas

qualified midwives made up 36.6% of the midwifery workforce in 2009 (Ministry of Health, 2014). This means that more than a third of midwives in the cohort were potentially categorised into the wrong experience bracket.

Secondly, the MCNZ states that since 2004 they have not always recorded previous health qualifications of registered midwives (MCNZ, private correspondence, 2015), meaning that an unknown number of midwives with a previous nursing qualification will have been misclassified as "midwife-only LMCs" in the study.

Thirdly, New Zealand-educated midwives will have been misclassified: where they have registered with the MCNZ on graduation from their undergraduate midwifery degree but not taken up their annual practising certificate in the first year after qualifying. When they later enter the profession with a bridging course, the data collection method would have them categorised in a more experienced group when in fact, they have less than one year of experience.

The fourth area in which misclassification has occurred is in the carer at the time of perinatal mortality – the study assumes this is the same midwife who registered the woman at the start of pregnancy care but this is often not the case. In practice, care is often transferred to specialist hospital services and the original LMC midwife may cease involvement in the woman's care when new risk factors for perinatal mortality arise. The Section 88 Guidelines for Consultation with Obstetric and Related Medical Services (Ministry of Health, 2012) provides a comprehensive set of indications where referral to a specialist and hand-over of clinical responsibility are indicated. The rates of transfer have been investigated by the Perinatal and Maternal Mortality Review Committee (2015)(PMMRC). Their analysis of the LMC midwife at registration in pregnancy, compared with the LMC at birth, for all stillbirths and neonatal deaths, showed that in 2013, of 427 registrations, 320 were with a self-employed midwife. Of these 320, only 145 were still under the care of a self-employed midwife at the time of birth, while 171, or 53.4% (more than half) had been transferred to hospital care. The PMMRC report states that *"The changes in caregiver from registration to birth in this context are likely to represent appropriate transfer of at-risk mothers for secondary or tertiary care" (p.79).* The care provider is only one of a potential range of influences on maternity outcome.

This misclassification of the midwives' experience levels, and misclassification of caregiver at the time of birth, introduces error to the study from the design stage with an unpredictable impact on results that cannot be adjusted for at the analysis stage. This sort of measurement error results in erroneous conclusions due to erroneous data, also known colloquially as *"garbage in, garbage out"* (Grimes, 2015, p.2).

There were further issues in the study related to how women were stratified based on their risk status and the lack of adjustment for confounding.

Risk Stratification

The criteria for excluding "high-risk" cases were inadequate. This study only had four criteria for "high risk" classification: age <21 years at time of birth, age >39 years at the time of birth, multiple pregnancy, or parity of 4 or more. All other women were defined as "low risk". These criteria are arbitrary and do not represent accepted best practice within the sector. Most definitions of "low risk" will ensure the exclusion of a long list of pre-existing medical conditions as well as issues that may occur during pregnancy, such as gestational diabetes or pre-eclampsia. These conditions, among others, have not been distinguished.

Lack of adjustment for confounding

Within maternity there are known confounders which need to be controlled for when considering perinatal mortality. The PMMRC (2015) has identified that congenital abnormality and prematurity are the leading causes of perinatal mortality, as well as other obstetric antecedents. If the study's aim was to identify whether the experience of the carer impacted on perinatal mortality, then eligibility criteria would be required, with exclusion of fetal and congenital abnormality, late termination of pregnancy and prematurity. This was not done – all perinatal mortalities were included in the dataset with no attempt made to adjust for, or exclude, non-viable pregnancies. Furthermore, maternal comorbidities and risk factors should have been adjusted for as potential confounders. These are identified by the PMMRC (2015) as:

- Body mass index greater than 25
- Nulliparity
- Antenatal smoking
- Late registration with an LMC
- Living in areas of high socioeconomic deprivation
- Specific ethnicity

Having several risk factors compounds the risk.

In their first year of practice LMC midwives may be more likely to have higher rates of women with the above risk factors. They are building their caseload and will have availability to take a much higher proportion of women who register later in pregnancy. Early antenatal care may be protective against perinatal mortality due to timely screening and lifestyle advice (Dixon et al., 2014). Women who register later in pregnancy are more likely to be living with other risk factors for perinatal mortality. Multiparous women may be more likely to return to a prior LMC, and so early-career midwives may have higher rates of nulliparous clients, who are at higher risk of perinatal mortality (PMMRC, 2015). This study fails to distinguish these variables, and, in fact, classes nulliparous women as low risk.

Each of these variables may be independently associated with the exposure (experience of midwives) and the outcome (perinatal mortality), and are not on the causal pathway between the exposure and outcome. Results are therefore highly likely to be confounded, falsely elevating the rate ratio for midwives in their first year of practice.

RESULTS

When an apparent association is found in a study, we need to consider whether the results could have occurred because of alternative explanations, namely bias, confounding or chance. Because the study failed to address the first two of these sources of uncertainty, we may disregard the results on these grounds alone. For completeness, however, we now consider whether the results could have been due to chance as well.

Hypothesis testing

Results are generally considered statistically significant if the P value is less than 0.05, indicating a less than 5% probability that an effect is due to chance. The hypothesis test for trend according to years of experience resulted in a P value of 0.031, a statistically significant finding which would have inferred a need for more exploration *if* the results had been reliable.

However, the outcome of interest that was highlighted and discussed by the authors featured an extremely high P value, from which no firm conclusions should have been drawn. The rate ratio 1.33 for direct-entry midwives in their first year of practice compared to the reference group resulted in a P value of 0.329, indicating an extremely high likelihood that the apparent association between exposure and outcome is due to chance. Furthermore, in such a large study the p-value may be considered more relevant than in a smaller study. The null hypothesis of no association cannot be ruled out; in other words the data do not support the hypothesis that experience levels of midwives are associated with increased perinatal mortality.

Assessing the probability that any apparent association could be due to chance is a fundamental tenet of epidemiological research, so it is surprising that the authors have disregarded what their analysis has clearly shown. They have identified the possibility of type I error (that an effect is not present) yet rejected it. We contend that type 1 error is highly likely to be present and that this study has not found a relationship between early career midwives and increased rates of perinatal mortality.

Internal validity

The internal validity is "the degree to which the results of a particular study are free from bias and confounding" (Webb & Bain, 2011). As we have shown there are four major areas of misclassification bias which means that the outcome of interest is not analysed according to accurate exposure data, thus invalidating the results. Confounding is highly likely to be present, with none of the accepted risk factors for perinatal mortality controlled for in the design or adjusted for in the analysis. The internal validity of the study is therefore highly compromised and no conclusions can be drawn about associations between the exposure and outcome of interest.

External validity

External validity is the extent to which the results of a study can be generalised to the population. The data used in this research were a snapshot of an historical period relating to outcomes for 2005 to 2009 and as such do not represent the current system of midwifery education and graduate requirements. The discussion did not situate the study period in its historical context nor include information about the subsequent changes to undergraduate education and the significant amount of recent work that has been undertaken to strengthen the support for midwifery graduates. The study, therefore, has no external validity, meaning that it cannot be generalised to the current maternity system in New Zealand, as the system has changed since the study took place.

DISCUSSION

Observational studies are always subject to bias and confounding to a certain extent – these issues can only be completely avoided through randomisation and blinding. However, where this is not possible, observational studies are an important source of evidence when they are well designed and conducted. Robust research identifies potential sources of bias and ensures the study is designed appropriately to minimise these. Potential confounders are identified and either excluded from selection or adjusted for in the analysis. These clear steps were not taken in this study.

High quality research requires a careful and cautious desire to determine the truth based on all the available information (Litman, 2007). It requires judgement and honesty and a careful evaluation of the data, possible errors, limitations and contradictory evidence. Uncertainties need to be identified and caution should be used when drawing conclusions with avoidance of exaggerated claims and assumption of causation based on one type of evidence. Most researchers recommend further exploration of their theory so that there are multiple types of evidence to provide sufficient foundation for building that theory. When researchers use the wrong techniques, misclassify, misinterpret their results, report

selective results and draw unjustified conclusions then this can be considered to be poor research (Altman, 1994). Poor research may be done purposely or through ignorance; either way Altman (1994) argues that it can be considered unethical, misleading and ultimately causes harm.

Ioannidis (2005) suggests most research claims are more likely to be false than true and that many are measures of existing or prevailing bias. He defines bias as: *the combination of various design, data, analysis, and presentation factors that tend to produce research findings when they should not be produced* (Ioannidis, 2005, p.3). Ways of addressing this bias are to support high standards and identify and curtail prejudice, and to interpret findings with caution.

> **To achieve robust, high quality research there is a need to involve midwives as one of the key maternity health professionals on any multi-disciplinary research group exploring women's health and maternity care.**

Perinatal mortality is an area of great importance and justifiable public concern. Publicly funded research in this area could lead to improved outcomes if it is well designed and conducted. However this study has not contributed to the evidence base, and has not even been able to test the original hypothesis due to the flaws in the study design that we have outlined here.

This study illustrates the need for engagement with the profession being studied for their crucial insight into potential sources of error, which may not be obvious to researchers if they are not working clinically within the sector. There is an increasing number of New Zealand midwives who have masters and doctoral degrees. As such they have a comprehensive understanding of research methodology and a working knowledge and insight into maternity care provision. To achieve robust, high quality research there is a need to involve midwives as one of the key maternity health professionals on any multi-disciplinary research group exploring women's health and maternity care. Midwives can provide important insights into maternity care provision which can support clarity and reduce or avoid bias and miscomprehensions.

CONCLUSION

Essentially our analysis of this paper has revealed that no correlation was found between the exposure and outcome of interest. The hypothesis test indicated a high likelihood that any association was due to chance. Furthermore, there are several major flaws in the methodology, including misclassification bias and confounding that has not been controlled for. Finally, the authors suggest that their findings can be generalised to the present day; however the historical dataset was taken from a period that bears little resemblance to the present system. All of these factors indicate that both the internal and external validity of the study are compromised. Unfortunately, the discussion and conclusion of the paper in question claimed an association confirming the original hypothesis when the data did not indicate that it existed.

As evidence-based practitioners, midwives welcome research that is robust and contributes to our knowledge base. When evidence of benefit builds we adjust practice to ensure high quality maternity care for mothers and babies. This study does not provide evidence of association as claimed. It was poorly designed and lacks research credibility.

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