



NEW ZEALAND
COLLEGE OF
MIDWIVES (INC)

JOURNAL

Survey results of first and second year
New Zealand midwifery students' level
of engagement in a flexible delivery
programme

Place of birth and outcomes for a cohort
of low risk women in New Zealand: A
comparison with Birthplace England

Midwives' wellbeing following adverse
events – what does the research indicate?

New Zealand LMC midwives' approaches
to discussing nutrition, activity and weight
gain during pregnancy

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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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- 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.

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Nga Haerenga – The Journeys

Ruth Martis
Sub-Editor
NZ College of Midwives Journal



My husband and I have become keen mountain bikers. He has developed this amazing ability to seemingly effortless cruise to the mountain top on his bicycle, whereas I struggle and frequently feel like giving up before I get there. Partnership in this context became even more meaningful to me. He rides behind me and coaches me forward; change your gear down now, watch for the ditch in front, pedal faster, change up a gear, we are nearly there and don't give up now, you are doing so well. This reminded me of the diverse aspects of the partnership midwives

develop with women. Through continuity of care midwives in New Zealand have the privilege of getting to know the woman and her family/whanau. This means, midwives can help when the going gets tough, by knowing what the individual woman in her context needs to get through labour, transition and birthing her baby. While partnership is about determining together what steps to take, at challenging points it may mean the midwife can take the lead in coaching the woman how to negotiate her next step. For example, when the contractions seem too strong, take a deep breath, have a drink, go to the toilet, change position, encouraging words when transition is looming and maybe even sharing she is nearly there as the baby's head is descending. This would not be an appropriate time to ask what she wants (quite apart from the hormonal orchestrations that are interrupted by questions), but a time to coach her to 'get to the top' and meet her baby.

Currently in New Zealand we have a national project that aims to build a world class network of cycle trails connecting the whole country. The project is known as 'Nga Haerenga' - 'the journeys', meaning journeying both in a physical and spiritual sense. Imagine riding through the cool of the New Zealand bush, dense with fern, dappled with light and the only sound is the call of native birds loud above the hum of the bicycle or imagine a trail that rounds a wide sweeping bend to a view that simply takes your breath away – stunning snow-capped peaks mirrored in a deep, still lake. But of course these wonderful journeys also include falling off the bicycle, getting punctures and getting lost. All those challenges add memories and experiences encouraging personal growth, developing life wisdom and refining skills that in turn can be shared with people embarking on their journey for the first time.

The journey from penning the first word for an article through to seeing it published can take many hours and often needs support not only from the editors but also from friends who can provide support or encouraging words when needed, especially when it feels that the article is 'never' going to be published. Currently the journey to have an article published in the NZCOM journal takes anything between six to 18 months and often requires several re-submissions following editorial feedback. This is a normal publication process and happens with other journal publications globally, but can be difficult to journey through, when it is a first time experience. Just like biking up a steep mountain arriving at the point of nearly giving up, so too authors need appropriate support and direction. It takes courage, determination, endurance and commitment. I would like to acknowledge and thank all the authors who have submitted articles and are currently going through this process. A special thank you and

congratulations to the authors who completed their journey to share their knowledge for this journal issue.

The editorial board have been working towards streamlining the journal processes with one of the steps being an annual print edition. It has only been six months since our last printed publication (Issue 48 & 49) but the reason for printing this issue now is so that we can establish December as the annual publication month. This will support clearer referencing with all articles in future annual issues published within that calendar year. We will continue to publish and disseminate articles electronically once they have been accepted for publication as an 'issue in progress' (the feedback has been overwhelmingly positive). As usual the article will then be available on our NZCOM website within 3 months of dissemination to our members.

This issue provides a wide range of subjects and perspectives, demonstrating the depth and breadth of midwifery knowledge and research. In the first article authors Milne, Skinner and Baird share the results of their research survey regarding how midwifery students engage their learning journey through face-to-face teaching, videoconferencing and other on-line activities. These flexible modes of teaching in midwifery education can enhance the learning for midwifery students, especially those studying remotely. This is only possible through appropriate support and continuing training and education for both staff and students.

For practising midwives, birthing women and their families the decision of where to give birth can be challenging. In the second article authors Dixon, Prilezsky, Guilliland, Miller and Anderson provide New Zealand data on place of birth and compare to the demographic and outcome data from the Birth Place England study. They found that a greater proportion of indigenous New Zealand women planned to birth at home or in a primary unit during the time period and that fewer women were transferred in labour in New Zealand. The results reinforce the evidence that women, who plan to birth at home or in a primary unit in New Zealand, do not significantly increase the adverse outcomes for their babies.

A different midwifery journey is explored in Austin, Smythe and Jull's article, which presents the current influences and expectations in relation to adverse events in New Zealand's maternity setting and the affect these have on midwives. Adverse events in midwifery are often related to unexpected outcomes and even when midwives are providing safe and competent care an adverse event can still occur. The authors provide an overview of the national and international literature and highlight the effects an adverse event may have on midwives. They indicate that current tools or support measures may be limited in their effectiveness.

The last article by authors Pan, Dixon, Paterson and Campbell present the results of a nationwide survey about New Zealand LMC midwives' approaches to discussing nutrition, activity and weight gain during pregnancy. This can be a challenge for all involved as we know that being overweight or obese during pregnancy increases the risk for the mother and her baby. Excessive weight gain during pregnancy can lead to increased retention of weight postpartum and the risk of becoming overweight or obese later in life. The results identify that although midwives in New Zealand effectively discuss nutrition activity and weight gain during pregnancy with women through contextualised care, changing established lifestyles requires a wider societal approach. Midwives cannot be everything to everyone.

So, haere mai, welcome, to this 50th issue of the New Zealand College of Midwives Journal. I hope you enjoy reading the articles and reflecting on the knowledge that has been shared and the challenges presented. Sharing, exploring and reflecting on practice are all part of our journey to providing effective midwifery care and often requires courage, determination, endurance and commitment.

Survey results of first and second year New Zealand midwifery students' level of engagement in a flexible delivery programme

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ABSTRACT

Objective: This paper describes the survey results of first and second year New Zealand (NZ) midwifery students' level of engagement while being taught in face-to-face, videoconference (VC) and online activities as part of a fully flexible delivery curriculum.

Methods: First and second year undergraduate midwifery students (n = 104) from one New Zealand midwifery education provider were invited to participate and complete an online survey. Students were recruited from the main city campus learning hub and three smaller regional learning hubs (RLH).

Measurements: The survey asked for: demographic information, skills, experience and confidence with modes of flexible learning, information technology, online student learning platforms, and engagement with learning. Data were analysed using descriptive statistics including minimum and maximum scores, means, ranges and weighted averages.

Results: 52 % (n = 54) of students provided feedback. 40 % (n = 21) of respondents considered they had minimal experience with online learning platforms and 48 % (n = 49) indicated a lack of confidence to participate in learning sessions delivered via VC. 66 % (n = 67) of respondents rated their involvement in learning much higher in face-to-

face sessions than with VC. Respondents felt more engaged with their peers from their own regional learning hub (RLH) and less with the teaching, clinical and administration teams.

Conclusion: Students need to be orientated and educated to use technology adequately for their learning. Although flexible modes of delivery in midwifery education enhance student access, the quality of learning requires reliable technology with good capacity, and pedagogy that fosters a high level of interaction. Rural and remote students rated engagement with face-to-face teaching highly. Support and continuing training and education for both faculty and students need to be offered to maximise the potential of flexible delivery modes. This was a small survey with students from one NZ midwifery education provider. Results need to be interpreted with this in mind.

KEY WORDS

Midwifery education, students, distance learning, flexible delivery, e-technology, e-learning

INTRODUCTION

There is growing interest in the advantages and disadvantages of distance education, flexible delivery, e-technology and student engagement (Australian Council for Educational Research, 2010; Greenberg, 2004; Ministry of Education, 2002; Normand & Littlejohn, 2006; Ramage, 2002; U.S. Department of Education, 2009). Engaged adult learners are more likely to be academically challenged, active in their learning, interact with faculty, have an enriched learning experience and be more able to integrate their learning and work experiences (Winnie, 2010).

E-learning offers and potentially enables a more collaborative approach to midwifery students' learning and future practice. According to Clarke (2009), web-based technologies in health care have led to the establishment of new partnerships between midwives and other health practitioners, as well as with the women accessing services. More maternity consumers are now actively participating in e-technology for their own research about childbirth (Clarke, 2009). Developing midwifery students' technological skills, may foster their ability to actively participate 'with women' on an e-level in the future (Clarke, 2009).

Student engagement can be enhanced through robust flexible delivery of teaching (Australian Council for Educational Research, 2010). The successful provision of a blended curriculum, of which e-learning is a component, requires appropriate support and development of teacher and student skills. Both students and faculty can struggle in the transition to learning and teaching using different modes of delivery (O'Neill, Singh & O' Donoghue, 2004). Previous research has

predominantly examined the impact of flexible delivery in postgraduate programmes or single courses within undergraduate programmes. There has been relatively little evaluation on the impact of a fully flexible midwifery undergraduate programme. This paper describes undergraduate midwifery students' level of engagement in a flexible delivery programme.

MIDWIFERY EDUCATION IN NEW ZEALAND

The historical path of midwifery education in New Zealand, like many other Commonwealth countries, has been one of cyclic change. The first endeavour to regulate midwifery education in 1904 aimed to provide a framework and increase the safety of maternity services (Pairman & Donnellan-Fernandez, 2010). Over the last two decades midwifery education shifted from apprentice-style hospital based learning, to education within technical institutes and universities. Between 1904 and the mid 1950s midwifery training took place in one of seven maternity hospitals known as St Helens Hospitals. Other state owned hospitals offered a mix of training options including direct entry midwifery, and additional midwifery training following nursing training. In 1956 direct entry midwifery education was slowly phased out with midwifery integrated into general nursing and maternity nurse training. Increasing pressure from NZ Nurses Organisation to replace the midwife with a nurse who had a post registration and maternity nursing specialty resulted in a short lived course for would-be midwives – one year's study in a polytechnic alongside other nurses seeking other speciality *nursing* qualifications. This effectively radically reduced the number of those pursuing a midwifery qualification within their own country. However, the dire threat to the profession politicised both midwives and consumers (Pairman, 2005; Stojanovic, 2010). There was little change to midwifery education over the next 20 years until the 1980s. Strong maternity consumer pressure from groups such as the Home Birth Association and Parents Centre together with determined political lobbying by NZ midwives via the Midwives and Maternity Nurses' Special interest Groups of NZ Nurses Organisation saw legislative change which led to the passing of the Nurses Amendment Act 1990, midwifery autonomy of practice and separate midwifery education programs (Pairman & Donnellan-Fernandez, 2010, Stojanovic, 2010).

Having been subsumed as a post registration qualification of nursing for many years, midwifery in New Zealand became a stand-alone profession. In 1992, two direct entry midwifery pilot programmes commenced. After extensive review of these programmes, a further three institutes gained approval (Pairman, 2006). Now in New Zealand midwifery education is only offered as a direct entry undergraduate four year (equivalent) degree. The profession is regulated by the Midwifery Council of New Zealand (MCNZ) (MCNZ, 2007) and has a professional college, the New Zealand College of Midwives (NZCOM) (Guilliland & Pairman, 2010).

The current midwifery programme accreditation standards in New Zealand have a strong focus on student centred learning and partnership between teachers and learners (MCNZ, 2007). This approach reflects the New Zealand midwifery philosophy that commits to partnership with women, women centred care, and autonomous practice (Guilliland & Pairman, 2010). Development of midwifery curricula saw a shift to more flexible modes of delivery. This was evidenced by moves from the traditional classroom style of teaching to more distributed styles of learning. Many midwifery students in New Zealand attend some teaching sessions by distance learning (MCNZ, 2007, Ministry of Education 2010).

This impetus for change in midwifery education delivery was legislative and industry driven to address a number of issues such as midwifery workforce shortages especially in remote rural areas, and a projected shortfall of midwives due to the aging midwifery workforce. Flexible

Development of a well-supported flexible delivery BMid programme would be accessible to a diverse cohort of midwifery students, and minimise the need for students and their families to relocate for their study.

delivery of programmes also had the potential to enable and encourage more Māori into midwifery, and support different teaching and learning formats to meet individual students' learning styles (Health Workforce New Zealand, 2008; MCNZ, 2010; Ministry of Education, 2010).

In New Zealand, four metropolitan institutions (two in each of the North and South Islands) are accredited by the MCNZ to offer a Bachelor of Midwifery (BMid). Development of a well-supported flexible delivery BMid programme would be accessible to a diverse cohort of midwifery students, and minimise the need for students and their families to relocate for their study. The midwifery education provider, where the survey was held, addressed this issue by offering students the opportunity to stay in their home towns, attend lectures by videoconference (VC), to participate in online activities, and gain clinical experience in their area.

CONTEXT FOR THIS STUDY

In 2010, after gaining MCNZ accreditation, the midwifery department where this research was conducted, began teaching a new undergraduate midwifery curriculum to 75 first year students. Continuing students in Years Two and Three completed the previous curriculum. The new midwifery program was offered by flexible delivery. This included a blend of methods, face-to-face, video conferencing (VC) and online learning. The flexible delivery of the curriculum aimed to address the national issues of rural recruitment, retention of the midwifery workforce and open access to midwifery education (Health Workforce NZ, 2008; MCNZ, 2010; Ministry of Education, 2010).

Around 30 % of students were located in rural/remote areas and participated by distance learning. To support this distributed student cohort, four learning hubs were established: the central and host site for videoconferencing based at the main city campus (MCH); and three other sites established at regional polytechnics and called regional learning hubs (RLHs). The MCNZ required students to attend one third of their academic teaching at the main campus, to enable face-to-face teaching, clinical skills learning and tutorials with their student cohort (School of Nursing and Midwifery, 2009). The remaining teaching sessions were delivered by videoconference or online learning. Students

at the host site continued to experience face-to-face teaching in a classroom, in real time with the lecturer present. The teaching session was simultaneously video conferenced to distributed students attending the RLHs. Tutorial sessions were also online for distributed students and face-to-face for students on the main campus. The midwifery curriculum was the first flexibly delivered curriculum at this institute.

After the first year of offering the programme, faculty expressed concerns about VC. Initially, there were technical failures, inadequate technology support at the RLHs, and a higher than expected attrition especially from one regional area with more Māori students. Faculty reported that students with less face-to-face contact seemed less engaged and this may have contributed to student attrition.

Success in the use of flexible modes of delivery requires an adherence to very specific instructional and design ideologies, as well as a lot of luck (Carter & Heale, 2010). For example, difficulties using videoconferencing, especially system capabilities and poor sound and picture quality, are commonly reported (Carter & Heale, 2010). However, flexible delivery modes can also be hindered by the limited capabilities of educators. Professional development and ongoing e-technology upskilling of educators are imperative (Carter & Heale, 2010). Successful flexible delivery requires organisational commitment, good technological management and resources, skilled faculty, and thorough pedagogical planning by faculty.

Videoconferencing can be a highly effective method of instruction if used in a truly interactive and collaborative style, but is not ideal or effective for lecture style teaching of large numbers or for lengthy sessions (Greenberg, 2004). Using VC effectively requires faculty to adapt content and their teaching approach to a highly interactive pedagogical situation (Greenberg, 2004). In the current context, faculty were also concerned that writing and planning effective online lesson plans took a considerable amount of time, and this was compounded by the roll-out of the new curriculum, so both method of teaching and content were new.

The main purpose of the current research was to gain an understanding of the impact of flexible delivery on student engagement. Specifically, the study sought to gauge midwifery students' skills and knowledge of e-learning technology, their experience of flexible delivery, and their engagement with learning activities, their peers and faculty.

RESEARCH DESIGN

The research approach was descriptive. A survey was developed and adopted the style and structure of the Australasian Survey of Student

Engagement (AUSSE) (Australian Council for Educational Research, 2010). The AUSSE tool has been used to survey over 450,000 Bachelor degree students across Australia and New Zealand (Australian Council for Educational Research, 2010). The tool focuses on student learning and outcomes and was therefore considered valid for use in the current study. The student engagement questionnaire in AUSSE measures one hundred different aspects of engagement which apply to six engagement themes. Three of these themes were applied to the BMid survey: active learning, student and staff interaction, and supportive learning environment.

Other sections of the survey also used a Likert response scale under thematic questions and asked students about their demographic characteristics, place of learning, and the nature of their learning experiences. For example, question 13:

Question 13: Prior to entry into the BMid programme how would you rate your skills with the following types of flexible delivery/learning? Give yourself a rating between 1 -10

(1 being minimal, 5 moderate and 10 advanced)

<i>Moodle</i>	1__2__3__4__5__6__7__8__9__10
<i>Videoconference</i>	1__2__3__4__5__6__7__8__9__10
<i>On-line learning activities</i>	1__2__3__4__5__6__7__8__9__10
<i>On-line forums</i>	1__2__3__4__5__6__7__8__9__10

This section of the survey aimed to provide some insight into the level of student engagement and sense of belonging with the BMid programme.

PARTICIPANTS AND RECRUITMENT

All 104 enrolled midwifery students in Year 1 and 2 of the [new curriculum] BMid pre-registration programme from one New Zealand midwifery education provider were invited to participate. A link to the survey website was sent via the institution's student email system and to the student Meta communication website, providing details of the URL link and password required to activate the survey. This was a global populated email list of all enrolled students.

DATA COLLECTION AND ANALYSIS

Data from the survey were collected via the Victoria University of Wellington, NZ, Qualtrics system. Each response was de-identified by an independent survey administrator and coded with a response number to protect the anonymity of all respondents.

Data from this survey were described by using the following formats: minimum and maximum scores, averages, ranges, weighted averages and the mean. Owing to the small sample and scope of the research project, inferential statistical analysis was not undertaken. Similar to analysis of the AUSSE tool, numbers and percentages were analysed including weighted and un-weighted numbers and percentages. Tables and graphs were used to demonstrate the gathered information.

ETHICS

Ethical approval was provided by both the Victoria University of Wellington's Human Research Ethics Committee, (Faculty of Humanities and Social Sciences) and the local ethics committee of the research department. Consent from participants was implied by completion of questionnaires, which were anonymous. Access to the research data was restricted to the research investigator and their

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supervisor. Some respondents were known to the researcher therefore consideration was given to the collection of demographic data; for example, gender was omitted from the data collection as there was only one male in the programme. Participants were not asked to provide their name and contact details. The raw data were collated by the survey web programme Qualtrics and had no identifying features; respondents were assigned a number based on the timing of their participation.

RESULTS

54 completed surveys were received from students in Year 1 and 2 of the new BMid programme giving a 52 % response rate. The majority of respondents (71 %, $n = 37$) attended the MCH and 29 % ($n = 15$) were from the RLHs.

SKILL WITH FLEXIBLE LEARNING

Participants were asked to rate their ability and confidence with different modes of flexible delivery of learning prior to entry into the programme and at the time of survey completion. Given the number of students who stated they had post-secondary school qualifications, it was surprising that 40 % ($n = 21$) considered they had minimal experience with both the online learning platform called Modular Object-Oriented Dynamic Learning Environment (MOODLE), and VC. Nearly half of respondents (48 %, $n = 25$) stated having minimal skill with VC. When respondents were asked the same question regarding their skill with these modes of flexible learning at the present point in the programme, only one student reported having minimal skills with Moodle and 13 % ($n = 7$) with VC (Figure 1).

Respondents were also asked to rate their confidence to participate in class with different modes of flexible delivery of learning. The majority of respondents (88 %, $n = 85$) strongly agreed or agreed with being confident to participate in online learning activities. However, when respondents were asked about their confidence to participate during the VC sessions, only 11.5 % ($n = 6$) strongly agreed they were confident to participate. Nearly half the cohort (48 %, $n = 25$) indicated a lack of confidence to participate in learning sessions when delivered via VC.

LEARNING EXPERIENCES

66 % ($n = 67$) of respondents rated their involvement in learning much higher in face-to-face sessions than with VC (Figure 2). The mean response score for involvement in learning from face-to-face sessions was 7.22 out of a possible 10, with a standard deviation of 1.84. The mean score for involvement in learning during VC was 5.02 with a standard deviation of 2.11. 71 % ($n = 37$) of respondents stated their involvement was towards the maximum level of involvement (scoring seven through to 10) when in face-to-face sessions compared to 25 % ($n = 13$) in VC sessions. 6 % ($n = 3$) rated their involvement level as below moderate to none in the face-to-face sessions compared with 38 % ($n = 20$) rating their involvement below moderate for VC sessions.

When comparing the experiences of students enrolled at RLH to those attending at the MCH with face-to-face learning sessions, it was discovered that respondents from the RLHs indicated a higher level of involvement, learning and participation than their MCH counterparts. All RLH respondents (100 %, $n = 29$) indicated maximum learning from face-to-face sessions compared with 81 % ($n = 30$) of respondents from the MCH. The results suggest that RLH respondents make the most of their learning experiences with face-to-face sessions when they attend block courses (intensives) at the MCH.

ENGAGEMENT

Most respondents rated their engagement in learning much higher for face-to-face sessions compared to VC. With 71 % ($n = 37$) of respondents scoring seven through to 10 for engagement in face-to-

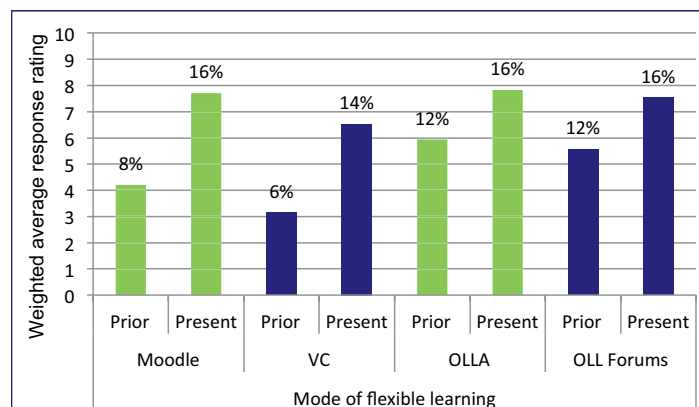


Figure 1: Weighted averages of participant responses to Skills with Modes of Flexible learning (Online Learning Activities (OLLA) Online Learning Forums (OLL Forums) prior to entry into BMid and at time of survey participation

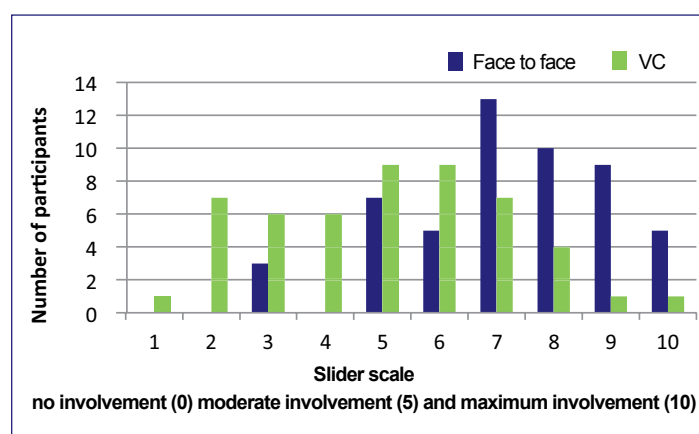


Figure 2: Comparing level of involvement between face-to-face and videoconferencing

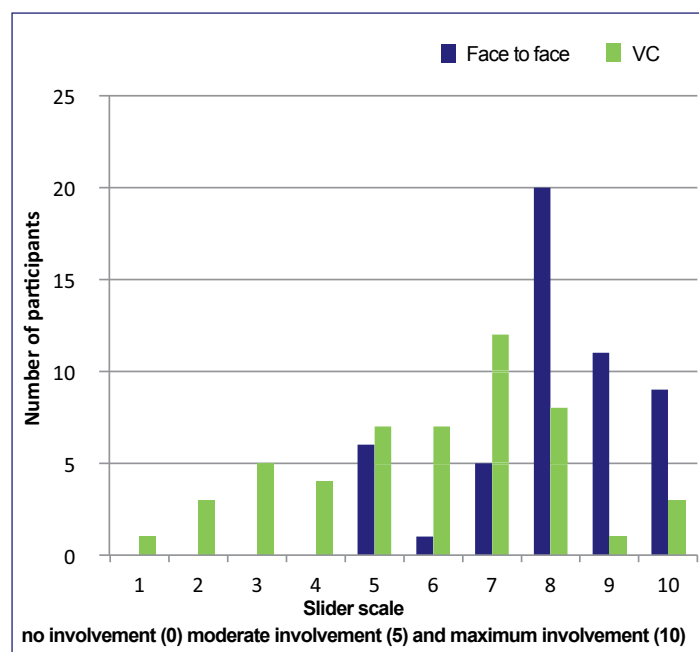


Figure 3: Respondents' perceived level of learning from tutors, comparing face-to-face and videoconference sessions

While challenges to learning for students were identified, they commented positively on the advantages of staying in their home towns for study.

face sessions compared to only 25 % (n = 13) of students who rated engagement in VC sessions highly (as outlined in Figure 3).

When VC and face-to-face modes of delivery were compared respondents consistently favoured face-to-face sessions across all the hubs. Reasons for this preference included: problems with technology; lack of confidence to participate; perceptions of poor teacher delivery experience; lack of student experience, and lack of uniform awareness of proper VC etiquette. For example, it was important that only one student spoke at any one time, as well as RLH students being given time to respond owing to the time lag. Respondents felt more engaged with their peers from their regional learning hub (RLH) and less with the teaching, clinical and administration teams.

DISCUSSION

This research investigated the impact of flexible delivery of teaching on student engagement. The research arose out of concerns amongst the midwifery teaching faculty about the technical components of flexible delivery and impact on student retention, especially for those with less face-to-face contact. There was a higher than expected attrition rate of students (especially Māori students) amongst those learning from a distance. The reasons for this were not revealed in this research. Further research into retention and support for indigenous students is required.

The challenges of unreliable technology seemed to develop from inadequate support from the technical support teams and lack of preparation of faculty, especially those at the RLHs. Furthermore, some of the equipment was not appropriate for the demands required when using VC interactively. Neither staff nor students had been given the opportunity to develop their skills and practise learning and teaching 'via the screen'.

The original sessions for the BMid programme were timetabled for a more traditional style of teaching with a mix of face-to-face lectures and smaller tutorial type sessions that could be either face-to-face or via an online platform. However, with the change in mode of delivery to large blocks of VC sessions, there was little time for the teaching team to make adaptations to lessons such as incorporating either interactivity or the collaborative style that is specifically recommended for VC sessions (Clarke, 2009).

This research sought to assess student engagement with different modes of learning and teaching. While challenges to learning for students were identified, they commented positively on the advantages of staying in their home towns for study. Certainly, Greenberg (2004) noted that VC as means of delivery of teaching, can be just as effective as the traditional

face-to-face classroom setting. Nevertheless the key component for successful learning is being interactive. Twice as many respondents stated they had maximum involvement with sessions when face-to-face compared with VC sessions. Students reported being more engaged and felt confident to ask questions and participate in discussions during face-to-face interactions compared with VC sessions. This supports Greenberg's (2004) suggestion that a number of instructional strategies and support for faculty must be considered to create interactive VC sessions. There is a need for ongoing development of instructional strategies for maximising VC based learning sessions at the institutional level and for faculty (Carroll, Booth, Papaioannou, Sutton, & Wong, 2009; USA Department of Education, 2009).

It was hypothesised that students from the RLHs would be less engaged and find VC more challenging than those attending the MCH. Students located in rural and remote areas clearly reported their appreciation of face-to-face sessions when attending the main campus every trimester. Most respondents from the RLH rated their involvement with face-to-face sessions at a maximum level, compared with MCH respondents. Few reported high engagement with VC activities.

Many educational experts agree that instructional design has considerable influence on a students' ability to engage or succeed rather than mode of delivery (Carter & Heale, 2010; Chickering & Gamson, 1987; Greenberg, 2004; Kirpatrick, 2001; Kuh, Kinzie, Schuh, & Whitt, 2005). Clearly, courses and programmes must be creative and effectual to meet the needs of different learners and learning styles. With time, it is anticipated that e-learning infrastructure will improve and faculty will be able to use technology to greater effect.

With the ongoing rapid growth in e-technologies for learning, faculty need to be supported to enhance their own learning. Institutions need to develop strategies that support the transition of faculty to delivery of flexible modes of learning. Boettcher (2011) suggests "just as learners are very individual, so too are faculty, therefore course designs need to be flexible so that faculty can shape designs to their skills and capabilities within a range of program requirements" (p. 11-12).

LIMITATIONS

This small descriptive study was undertaken at one multi-campus university in New Zealand. The experiences of this cohort of students may differ from other midwifery students learning in different contexts and cultures. The study achieved only a 52 % (54 out of 104) response rate. It could be that students who did not participate were less engaged in the programme. But also the results of the study may, therefore, be an under-estimation of students' perceptions of flexible delivery modes.

Students reported being more engaged and felt confident to ask questions and participate in discussions during face to face interactions.

Although a standardised tool was adapted for the survey, it could be that the items did not adequately measure key issues. Given the descriptive nature of the study, the inclusion of a qualitative component may have provided a richer insight into students' experiences. Future research should also attempt to engage students who have exited a programme. These students are likely to be more disaffected than students who continue, and valuable information could be gained from their feedback enabling the BMid teaching team to develop support strategies to better meet the needs of future indigenous and remote students.

Further research could compare the learning experiences of students across other BMid programs in New Zealand using different forms of flexible delivery. Additional development of the survey that incorporates more of the tested engagement scales from the AUSSE tool would be valuable to midwifery education. A qualitative research approach, particularly with Māori learners, would be valuable as there is a need to consider whether Māori students are more at ease with, and would consider small interactive face-to-face contact more culturally appropriate, as opposed to the predominance of e-technology.

Giving a voice to the midwifery faculty, acknowledging their experiences of flexible delivery of learning, would also help to identify any further gaps in the capacity of faculty to work within the context of e-learning. Having such data will lead to a clearer and better-integrated pedagogical framework for BMid programmes in New Zealand.

CONCLUSION

This paper described findings from a survey, which explored the impact of flexible delivery of teaching on first and second year midwifery students' ability to engage in a BMid programme. Findings support some earlier research that student's value teaching that is interactive and synchronous. Students and faculty need access to, and support for, ongoing training and education with the many modes of e-learning.

The New Zealand Government's Tertiary Strategy endorses teaching and learning that provide a learner-centred approach. This approach supports a vision, which will "reflect New Zealand's unique cultures and the special strengths of its teacher and educators" (Ministry of Education, 2002, p. 21). In a flexible learning environment that is student-centred, students' learning needs guide the process. This was a small survey with students from one NZ midwifery education provider. Results need to be interpreted with this in mind.

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Place of birth and outcomes for a cohort of low risk women in New Zealand: A comparison with Birthplace England

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ABSTRACT

Background: Choice, safety and availability of different birth settings are important issues for women and midwives in New Zealand (NZ). In England, the Birthplace England Research Study (BPE) has provided detailed information on outcomes for low risk women related to place of birth. These outcomes cannot be generalised to New Zealand owing to differences in context, culture and models of maternity care. **Aim:** This observational study has used retrospective data to determine demographic differences between planned birth place setting, neonatal outcomes and transfer rates for a cohort of low risk New Zealand women and compared these findings where possible with those of the Birthplace England research. **Method:** Data from the New Zealand College of Midwives Clinical Outcomes Research (NZCOMCORD) database were analysed for the years 2006 to 2010 inclusive for low risk women. Comparisons have been made between place of birth (home, primary unit) and parity, ethnicity, age, body mass index, transfer rates, and neonatal outcomes (Apgars, NICU admission, perinatal mortality). **Results:** There were 61,072 women considered low risk, of whom 8% had planned a home birth and 16.6% a primary unit birth. Women who planned to birth at home in New Zealand were older and more likely to be multiparous. These were similar findings to those of the Birthplace England study. The

rates of transfer from home (16.9%) or primary unit (12.6%) to hospital were lower than the Birthplace England cohort (21%). There was a higher proportion of nulliparous women (35%) in the planned homebirth group who transferred although this was significantly lower than the Birthplace England cohort (45%) ($P < 0.002$). NZ Māori are the indigenous ethnicity of New Zealand, and a greater proportion of Māori planned birth in a primary unit (27.2%) than a secondary unit (23.2%), home (17.4%) or tertiary hospital (11.1%). The actual number of perinatal mortality outcomes was low across all settings for low risk women in New Zealand and differences in birthplace were not statistically significant ($p < 0.14$).

Conclusion: A greater proportion of indigenous New Zealand women planned to birth at home or in a primary unit. Fewer women were transferred in labour in the NZ study. This research further refines our understanding of who plans to birth where, and reinforces the evidence that, where a low risk woman plans to birth in NZ, does not significantly increase adverse outcomes for her baby.

KEY WORDS

Home birth, primary unit birth, transfer rates, neonatal outcome

INTRODUCTION

The place of birth and, in particular, the option of and provision for homebirth continues to be a highly debated issue for women and midwives in many fully resourced countries. Even with the evidence supporting good outcomes for homebirth it continues to be viewed as an alternative to the mainstream. The debate reflects differences in philosophy and ideology with a wide gulf between opposing sides (Declercq, 2012). The decision to birth at home is culturally and socially driven and is often considered challenging when the default place of birth is a hospital setting. The provision of homebirth as a choice of birth setting requires both that women have autonomy and rights over their bodies and that midwives have autonomy to advocate for women and support homebirth.

Pregnant women in New Zealand have the right to choose where they give birth with a range of options available to most of them such as home, in a primary maternity unit (midwifery-led birthing unit) or in a secondary or tertiary obstetric hospital (Health and Disability Commissioner). The availability of some of these options (such as a primary birthing unit) can be dependent on the region/area in which the woman lives although choice may also be driven by the woman's own personal philosophy and expectations.

An issue for midwives and women is the lack of quality evidence relating to all place of birth settings. The feasibility of undertaking a randomised controlled trial (to aim to provide evidence at that level) comparing place of birth was considered in the Netherlands where there is a high rate of home births (Hendrix et al., 2009). Researchers found that many women declined enrolment because they were unwilling to be assigned to a particular birth setting. Thus the only available evidence

providing information on safety of birth place setting has come from observational studies.

The majority of observational studies published to date have demonstrated benefits for low risk women who give birth at home or in midwifery-led primary units (Birthplace in England Collaborative Group, 2011; Davis et al., 2011; de Jonge et al., 2009; Janssen et al., 2009; Overgaard, A Moller, Fenger-Gron, Knudsen, & Sandall, 2011). However, there have also been a few studies that have suggested poorer outcomes for babies (Evers et al., 2010; Kennare, Keirse, Tucker, & Chan, 2009). Observational studies have inherent methodological challenges which are frequently used to find fault and subsequently dismiss the findings. Variations in methodology, geography and model of maternity care provision increase the potential for conflicting differences in findings.

One large, well-structured, prospective, observational study, comparing planned place of birth for healthy women with low risk pregnancies in England, has provided a large volume of data about birth place outcomes (Birthplace in England Collaborative Group, 2011). The study reviewed place of birth and outcomes for 64,538 women and their babies and compared outcomes for each birth place setting: home, a free standing midwifery-led unit, an alongside midwifery-led unit (see below) or an obstetrics-led unit. The findings revealed healthy women with no risk factors who planned to birth at home or in midwifery-led units had fewer labour interventions and operative births than such women who planned to birth in an obstetric unit, and that adverse perinatal outcomes were low in all birth settings. Perinatal mortality was a rare occurrence for this low risk group, so the study used both morbidity and perinatal mortality and reported them together as a composite outcome. Morbidity was defined as one of the following conditions: neonatal encephalopathy, meconium aspiration syndrome, brachial plexus injury, fractured humerus or fractured clavicle. Using this composite measure, the study found an increased incidence for nulliparous women who planned a homebirth (OR 1.75, (95% CI 1.07 – 2.86). A secondary finding was that the rate of transfer for nulliparous women planning a homebirth was 45%, which included transfers before and following the birth. The main reasons for transfer were delay in labour progress, fetal distress or meconium stained liquor.

These data from the Birthplace England (BPE) study cannot be generalised to New Zealand owing to differences in context, culture and models of maternity care. An aim of this study was to describe and compare the demographic characteristics, planned birth place setting, transfer rates and neonatal outcomes for a cohort of low risk NZ women with those of the BPE low risk cohort. Low risk women were defined as having a singleton pregnancy at term and without confounding medical or obstetric risk factors. By replicating the criteria used in the BPE study and applying them to the NZ midwifery dataset, we have been able to explore some of the similarities and differences between the two countries more fully.

DIFFERENCES AND SIMILARITIES BETWEEN THE ENGLISH AND NEW ZEALAND MODELS OF MATERNITY CARE

England and New Zealand have many similarities in the structure of maternity care, with primary maternity care mostly provided by midwives and clear referral guidelines for secondary care and obstetric input. Additionally, many areas of England offer homebirth and birth in midwifery-led primary settings. These latter are described as free-standing midwifery-led units (not part of an obstetric hospital)(FMLU) or alongside midwifery-led units (which are sited next to, or are part of, an obstetric hospital)(AMLU). New Zealand has a large number of primary units (none of which is sited next to, or is part of, an obstetric hospital) providing midwifery-led care. Obstetric hospitals are classed as either secondary or tertiary units dependent on the level of services they provide. Perhaps the biggest difference, though, is the model of maternity care. In New Zealand, women are able to access continuity of care from a midwife Lead Maternity Carer (LMC) which is standard care for the majority of women (Ministry of Health, 2012). This means that

The frameworks that support midwifery care highlight the importance of continuity, partnership and the pregnant woman's right to be fully involved and informed in decision making.

the same midwife will commonly provide the pregnancy, intrapartum and post-partum care. Additionally, the frameworks that support midwifery care highlight the importance of continuity, partnership and the pregnant woman's right to be fully involved and informed in decision making (Guilliand & Pairman, 2010; Health and Disability Commissioner; Ministry of Health, 2007; NZCOM, 2008).

METHOD

The study used a retrospective observational design which examined data from the New Zealand College of Midwives Clinical Outcomes Research Database (COMCORD) for the years 2006 – 2010. The Health and Disability Commission Upper South Island Ethics Committee reviewed the research proposal in 2011 and considered that formal ethical approval was not required.

The New Zealand College of Midwives Clinical Outcomes Research Database

The COMCORD uses data collected from Lead Maternity Carer (LMC) midwives who are members of the NZ College of Midwives and the Midwifery and Maternity Provider Organisation (MMPO). Whilst not all LMC midwives belong to the MMPO, those who do, provide care to women throughout New Zealand. The LMC midwife provides data collected contemporaneously via a standardised set of maternity notes or through an electronic connection to the MMPO. Information about the woman's clinical care is entered into the database, from early pregnancy through to the birth and the six weeks following the birth. Summary data are entered onto an electronic system which supports payment claims for the maternity services provided by the LMC midwife. This is a practice management system which supports a quality assurance mechanism where the midwife can access reports relating to the outcomes for her clients. These reports contribute to the midwife's preparation for her biennial Midwifery Standards Review requirements.

The COMCORD is drawn directly from the MMPO database containing partially de-identified aggregated data. It is a subset of the full maternity dataset which is collected by the Ministry of Health and reported on annually (Ministry of Health, 2012). The proportions of women whose outcome data are entered into the MMPO database has increased each year from 30% in 2006 to 47% in 2010 (New Zealand College of Midwives & Midwifery and Maternity Providers Organisation, 2006, 2010). Data management and reporting frameworks are in place to ensure confidence in the reliability of data. This involves regular audit to ensure accuracy of data as well as individual midwives' or midwifery group reports. Additionally, the data are screened and cleaned

as part of the process of providing an annual report for midwives (New Zealand College of Midwives & Midwifery and Maternity Providers Organisation, 2010).

Sample

For this study the sample consisted of a low risk cohort of women who met the inclusion and exclusion criteria and had data in the COMCORD between the years 2006 and 2010. The planned place of birth setting was recorded at the onset of labour and included settings such as home, a primary unit, a secondary hospital or a tertiary hospital. The same inclusion and exclusion criteria were applied as for the BPE study. These were:

Inclusion criteria:

All women in the database who gave birth between 2006 and 2010 and who:

- Had a singleton pregnancy
- Had a cephalic presentation
- Were at term (at or more than 37 weeks 0 days)

Exclusion criteria:

All women who:

- Had not registered with a midwife LMC at the start of labour
- Had an elective caesarean section
- Had an unplanned homebirth
- Had a body mass index of more than 35
- Had a confounding medical or obstetric risk factor (as per BPE study)

Analysis was undertaken with comparisons made to BPE cohort which involved the key demographic characteristics of age, parity, ethnicity, gestation at birth and body mass index (BMI) along with transfer from home/primary unit to hospital rates. Differences between the two cohort groups were assessed using an online Z test calculator for 2 population proportions using Vassar Stats (<http://www.vassarstats.net/index.html>).

Neonatal outcomes, including perinatal death, admission to a neonatal intensive care unit, and Apgar score at five minutes, were examined but direct comparison across all parameters with BPE was not possible owing to their use of composite data for analysis.

FINDINGS

There were 107,216 women with a singleton pregnancy at term in the COMCORD of whom 61,072 (57%) met the inclusion criteria and were categorised as low risk. The majority of women planned to birth in a secondary or tertiary hospital (47.5% and 27.8% respectively) with 8% planning to birth at home and 16.6% in a primary unit (Table 1).

This differed from the BPE cohort, in that their prospective design enabled recruitment to continue until there were comparable numbers in each birth setting group, allowing statistical analysis for difference in outcomes. As such the planned place of homebirth was 26.1% with 43% planning to birth in a midwifery-led environment (FMLU or ALMU) and 30.5% in an obstetric hospital.

Table 1: Planned birth place settings – comparison between NZ COMCORD and BPE

	Nulliparous	Multiparous	Total Cohorts
NZ COMCORD	n (%)	n (%)	n (%)
Home	1286 (26.1)	3635 (73.9)	4921 (8.0)
Primary unit	3781 (37.2)	6377 (62.8)	10158 (16.6)
Secondary Unit	13915 (47.9)	15112 (52.1)	29027 (47.5)
Tertiary Unit	9509 (56.0)	7457 (43.9)	16966 (27.8)
Total	28491 (45.6)	32581 (53.3)	61072 (100)
Birthplace England *	n (%)	n (%)	n (%)
Home	4568 (27.1)	12256 (72.8)	16840 (26.1)
Free standing midwifery led unit	5187 (46.0)	6078 (53.9)	11282 (17.5)
Alongside midwifery led unit	8350 (50.0)	8360 (50.0)	16710 (25.9)
Obstetric hospital	10626 (53.9)	9049 (45.9)	19706 (30.5)
Total	28731 (44.5)	35743 (55.4)	64538 (100)

*Small volume of missing parity data in BPE cohort

In the COMCORD cohort
a greater proportion of
women who planned to
birth in a primary maternity
unit or a secondary unit
identified as Māori.

The ratio of nulliparous women to multiparous women was similar overall between the two cohorts (COMCORD 45.6% nulliparous, 53.3% multiparous, BPE 44.5% nulliparous, 55.4% multiparous).

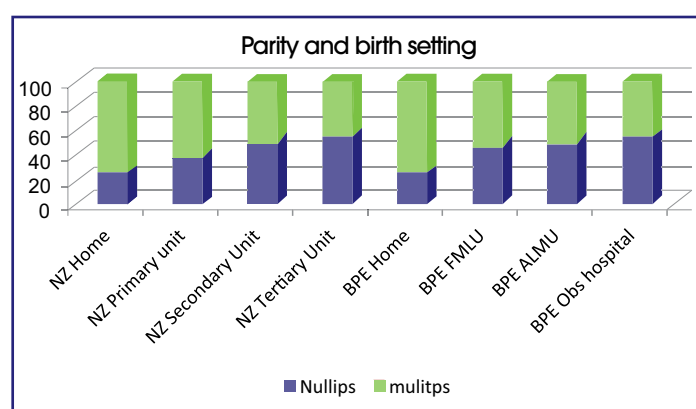


Figure 1: Birth setting and parity

The nulliparous/multiparous ratio differed dependent on birth place setting in both countries (figure 1). For women planning to birth at home the ratio of nulliparous to multiparous women was lower across both countries (COMCORD 26.1% nulliparous, 73.9% multiparous and BPE 27.2% nulliparous, 72.8% multiparous). This pattern continued with fewer nulliparous than multiparous women planning birth in a New Zealand primary unit (nulliparous 37.2%, multiparous 62.8%) or an English free standing maternity unit (FMLU) (nulliparous 46%, multiparous 53.9%). For women planning a hospital birth in both countries there was a higher percentage of nulliparous women compared to multiparous for obstetric hospitals (BPE 53.9% nulliparous, 45.9% multiparous) and tertiary maternity units (COMCORD 56% nulliparous, 43.9% multiparous) but not in the NZ secondary maternity units (47.9% nulliparous, 52.1% multiparous).

In the following analyses comparisons have been made between primary units (NZ) and free standing midwifery-led units (England) but we have excluded the alongside midwifery-led unit (England) because there are no primary units in New Zealand which sit alongside an obstetric hospital. The comparison with the obstetric unit has compared both secondary and tertiary hospital outcomes in the cohort to that of the obstetric unit in the BPE cohort.

ETHNICITY

Ethnicity profiles differ markedly between England and New Zealand. Whilst both countries have a degree of ethnic variation, the heterogeneity and proportional totals of the ethnic groups are greater in the NZ cohort (Table 2). In the New Zealand COMCORD cohort there were 63.9% of women identifying as NZ European, 20% as Māori (indigenous people of NZ), 5.2% as Pasifika and 7.1% as Asian. This compares to 97% categorised as 'white' and less than 3% for ethnicity other than 'white', in the BPE cohort.

Table 2: Ethnicity comparisons by planned place of birth between NZ COMCORD and BPE

NZ Ethnicity	Home	Primary unit	Secondary hospital	Tertiary hospital	Total
	n (%)	n (%)	n (%)	n (%)	n (%)
NZ European	3645 (74.1)	6308 (62.1)	17753 (61.2)	11313 (66.7)	39019 (63.9)
Māori	855 (17.4)	2764 (27.2)	6728 (23.2)	1882 (11.1)	12229 (20)
Pasifika	132 (2.7)	461 (4.5)	1509 (5.2)	1076 (6.3)	3178 (5.2)
Asian	132 (2.7)	400 (3.9)	2065 (7.1)	1764 (10.4)	4361 (7.1)
Other	135 (2.7)	205 (2.0)	880 (3.0)	849 (5.0)	2069 (3.4)
Not stated	22 (0.4)	20 (0.2)	92 (0.3)	82 (0.5)	216 (0.4)
Total	4921 (100)	10158 (100)	29027 (100)	16966 (100)	61072 (100)
Ethnicity Birthplace England	Home	Free standing midwifery-led unit	Obstetric Hospital		Total
	n (%)	n (%)	n (%)		n (%)
White	15937 (94.8)	10329 (91.6)	16068 (81.7)		42334 (88.5)
Indian	67 (0.4)	87 (0.8)	477 (2.4)		631 (1.3)
Pakistani	41 (0.2)	164 (1.5)	636 (3.2)		841 (1.7)
Bangladeshi	14 (0.1)	147 (1.3)	297 (1.5)		458 (0.9)
Black Caribbean	127 (0.8)	48 (0.4)	265 (1.3)		440 (0.9)
Black African	112 (0.7)	94 (0.8)	670 (3.4)		876 (1.8)
Mixed	280 (1.7)	124 (1.1)	328 (1.7)		732 (1.5)
Other	241 (1.4)	284 (2.5)	938 (4.8)		1463 (3.0)
Missing	21 (0.1)	5 (0.04)	27 (0.1)		53 (0.1)
Total	16840 (100)	11282 (100)	19706 (100)		47828 (100)

Table 3: Comparison of demographic characteristics by planned place of birth between COMCORD and Birthplace England

	NZ COMCORD		Birthplace England	
	Planned home birth	Planned primary unit birth	Planned home birth	Planned FMLU birth
Age	n (%)	n (%)	n (%)	n (%)
<20	145 (2.9)	1059 (10.4)	218 (1.3)	677 (6.0)
20-24	640 (13.0)	2220 (21.9)	1706 (10.1)	2132 (18.9)
25-29	1291 (26.2)	2695 (26.5)	4346 (25.8)	3267 (29.0)
30-34	1663 (33.8)	2636 (25.9)	5848 (34.7)	3248 (28.8)
35-39	987 (20.1)	1321 (13.0)	4017 (23.9)	1690 (15.0)
40+	195 (4.0)	227 (2.2)	671 (4.0)	254 (2.3)
Missing	0 (0.0)	0 (0.0)	34 (0.2)	14 (0.1)
<i>Total</i>	4921 (100)	10158 (100)	16840 (100)	11282 (100)
BMI	n (%)	n (%)	n (%)	n (%)
<18.5	109 (2.2)	231 (2.3)	321 (1.9)	234 (2.1)
18.5 - 24.9	2572 (52.3)	4938 (48.6)	8155 (48.4)	5605 (49.7)
25.0 - 29.9	902 (18.3)	2307 (22.7)	3776 (22.4)	2653 (23.5)
30.0 - 35.0	296 (6.0)	1075 (10.6)	1226 (7.3)	912 (8.1)
Missing	1042 (21.2)	1607 (15.8)	3362 (20.0)	1878 (16.6)
Total	4921 (100)	10158 (100)	16840 (100.3)	11282 (100.2)

*FMLU = Free standing midwifery-led unit

In the COMCORD cohort a greater proportion (27.2%) of women who planned to birth in a primary maternity unit or a secondary unit identified as Māori, (23.2%). In contrast more women who identified as Asian (10.4%) or Pasifika (6.3%) planned to give birth in a tertiary hospital. A higher proportion of women who identified as NZ European planned to birth at home (74.1%).

In the BPE cohort the obstetric hospital had the greatest range of ethnic variation when compared to the other birth place settings. The majority of women who planned a homebirth in the BPE study were white (94.8%) with only small proportions from other ethnicities.

Other Demographic Comparisons

The key demographics of age and body mass index for women planning to birth at home or in a primary unit were compared (Table 3).

Women who planned to birth in a primary unit or an FMLU had a relatively wide age range with more NZ women (32.3%) under the age of 25 years planning primary unit birth when compared to the BPE study (24.9%). From the COMCORD data 15.9% of women under the age of 25 year gave birth in a secondary unit and 23% in a tertiary unit compared to 29.2% of the BPE cohort who planned birth in an obstetric hospital.

Women who planned a homebirth in both countries were older, with more women in the over 35 years age group in both homebirth groups. However, the NZ cohort had a lower proportion of women over 35 years of age when compared to BPE (COMCORD homebirth 24.0% and BPE homebirth 27.8%, Z = -5.31, P <0.002).

In both cohorts a greater proportion of women with a BMI between 18.5 and 24.9 (normal range) planned a home or primary unit birth (52.3% COMCORD to 48.4% BPE). There was a comparable volume of missing BMI data across both datasets. There were significantly fewer women with a BMI over 24.9 who planned to birth at home in the New Zealand data when compared to BPE data (COMCORD 24.3%, BPE 29.7%, P <0.002). A higher proportion of women with a BMI that placed them in the obese category planned a primary unit birth in the NZ dataset (COMCORD 10.6%, BPE 8.1%, P <0.001).

Transfer rates

The transfer rates for NZ women who planned a homebirth or a primary unit birth are presented in Table 4 with comparison to the BPE cohort. In the COMCORD cohort there was a significant difference between the transfer rates of women who planned to birth at home compared to in a primary unit (16.9% home, 12.6% primary, P <0.001). Both transfer rates were also significantly lower than the BPE cohort where 21% of women who had planned a homebirth or a free standing midwifery led unit birth were transferred (p<0.001).

Transfer rates for nulliparous women who planned a primary unit birth were also significantly lower in New Zealand.

When comparing parity the Birthplace England study demonstrated high transfer rates for nulliparous women planning to birth at home (45%). In New Zealand nulliparous women who planned to birth at home also had a higher rate of transfer (compared to multiparous women) but at 35.8% the rate was significantly lower than in the BPE study (P< 0.001). Transfer rates for nulliparous women who planned a primary unit birth were also significantly lower in New Zealand (25.4%) when compared to the rates for women who planned to birth in a free standing midwifery-led unit in the BPE cohort (36.3%) (P< 0.001).

Neonatal outcomes

This section describes the neonatal outcomes in the New Zealand cohort. A direct comparison of neonatal outcomes with the Birthplace England study was not possible owing to some specific English variables not captured in the New Zealand data source (such as shoulder dystocia and fractured clavicle).

The incidence of adverse outcomes, such as Apgar score less than seven at five minutes, admission to a neonatal unit and perinatal mortality for the New Zealand cohort, is presented in Table 5.

The actual number of perinatal mortality outcomes was low across all settings in New Zealand and differences were not statistically significant (p< 0.14). We were unable to discern whether the perinatal death occurred before or after the commencement of labour in the dataset or whether mortality was due to lethal congenital anomaly. A significantly higher proportion of babies had Apgar scores of less than seven, and/or were transferred to a neonatal unit when the planned place of birth was a secondary or tertiary hospital (p=0.0001).

Table 4: Transfer rates comparison NZ COMCORD & Birthplace England

	Homebirth N=4921			Primary unit N=10158		
	Actual	Transfer	Total	Actual	Transfer	Total
NZ COMCORD	N (%)	N (%)		N (%)	N (%)	
All women	4088 (83.1)	833 (16.9)	4921	8877 (87.4)	1281 (12.6)	10158
Nulliparous women	825 (64.2)	461 (35.8)	1286	2819 (74.6)	962 (25.4)	3781
Multiparous women	3263 (89.8)	372 (10.2)	3635	6058 (95.0)	319 (5.0)	6377
Birthplace England	Homebirth N=16840		Total	Free standing Midwifery-led unit N=11282		Total
Homebirth N=16840	Total	Free standing				
Midwifery-led unit N=11282	Total					
	Actual	Transfer	Total	Actual	Transfer	Total
All women	13310 (79.0)	3530 (21.0)	16840	8814 (78.1)	2468 (21.9)	11282
Nulliparous women	2511 (55.0)	2057 (45.0)	4568	3303 (63.7)	1884 (36.3)	5187
Multiparous women	10784 (88.0)	1472 (12.0)	12256	5505 (90.6)	573 (9.4)	6078

Table 5: COMCORD Neonatal outcomes by planned place of birth

	HOME	PRIMARY UNIT	SECONDARY HOSPITAL	TERTIARY HOSPITAL	Total	Chi Square
	n (%)	n (%)	n (%)	n (%)	n (%)	P=
<i>Apgars at 5 min</i>						
<7	73 (1.5)	177 (1.7)	664 (2.3)	473 (2.8)	1387 (2.3)	<0.0001
>7	4845 (98.5)	9972 (98.2)	28330 (97.6)	16478 (97.1)	59625 (97.6)	
Missing	3 (0.06)	9 (0.09)	33 (0.1)	15 (0.05)	60 (0.09)	
Total	4921 (100)	10158 (100)	29027 (100)	16966 (100)	61072 (100)	
<i>Transfer to NNU</i>						
Transfer No	4829 (98.1)	9933 (97.8)	28139 (96.9)	16315 (96.2)	59216 (96.9)	
Transfer Yes	92 (1.8)	225 (2.2)	888 (3.1)	651 (3.8)	1856 (3.1)	<0.0001
Total	4921 (100)	10158 (100)	29027 (100)	16966 (100)	61072 (100)	
<i>Perinatal mortality per 1000 births</i>						
Live birth	4911 (99.8)	10139 (99.8)	28945 (99.7)	16911 (99.7)	60906 (99.7)	
Perinatal death	10 (0.2)	19 (0.19)	82 (0.3)	55 (0.3)	166 (0.3)	<0.14
Total	4921 (100)	10158 (100)	29027 (100)	16966 (100)	61072 (100)	

One of the key findings of the BPE study was the increased risk of an adverse neonatal outcome for nulliparous women who planned a homebirth. Owing to the smaller sample size in the New Zealand homebirth group and the rarity of the adverse outcome, we considered it inappropriate to explore the differences between nulliparous and multiparous women. However, we were able to examine the differences in perinatal outcomes dependent on actual place of birth or transfer following the onset of labour (Table 6).

While all adverse outcomes were rare, our data show that rates of Apgar score <7 at five minutes, neonatal unit admission and perinatal mortality were significantly higher for babies born to women who transferred from home or a primary unit after labour had commenced. The women who gave birth in the planned place of birth had lower levels of perinatal mortality (0.07% home, 0.1% primary units) than

women who were transferred from home or a primary unit (0.8% and 0.6% respectively).

DISCUSSION

This review of New Zealand place of birth data has found both similarities and differences in demographics to those of the Birthplace England cohort. Women from the NZ cohort who planned to birth at home were more likely to be multiparous, older and with a lower BMI when compared to those women planning to birth in other settings. This replicates findings from the BPE cohort and several other observational studies (Birthplace in England Collaborative Group, 2011; Hildingsson, Lindgren, Haglund, & Radestad, 2006; MacDorman, Declercq, & Matthews, 2011; Nove, Berrington, & Matthews, 2011). In these developed countries (Sweden, America, UK), it would appear that women who plan to give birth at home are more likely to be

Table 6: Neonatal outcomes by actual place of birth (home and primary units): Women at terms with a singleton pregnancy and no confounding risk factors

	HOME			PRIMARY UNIT			TOTAL
	Actual	Transferred	Chi square	Actual	Transferred	Chi square	n (%)
	n (%)	n (%)	P=	n (%)	n (%)	P=	
Apgars >7 at 5 min	4048 (99)	797 (95.7)		8750 (98.6)	1222 (95.4)		14817 (98.3)
Apgars <7 at 5 min	38 (0.9)	35 (4.2)	<0.0001	119 (1.3)	58 (4.5)	<0.0001	250 (1.7)
Missing data	2 (0.05)	1 (0.1)		8 (0.09)	1 (0.07)		12 (0.08)
No Transfer to NICU	4029 (98.6)	800 (96)		8700 (98)	1233 (96.3)		14762 (97.9)
Transferred to NICU	59 (1.4)	33 (4.0)	<0.0001	177 (2.0)	48 (3.7)	<0.0001	317 (2.1)
Live birth	4085 (99.9)	826 (99.2)		8866 (99.9)	1273 (99.4)		15050 (99.8)
Perinatal mortality	3 (0.07)	7 (0.8)	*	11 (0.1)	8 (0.6)	<0.0001	29 (0.2)
Total	4088 (100)	833 (100)		8877 (100)	1281 (100)		15079 (100)
*numbers too small for statistical test							

multiparous, with a maternal age between 30 and 35 years of age, a high level of education, married or with a partner, and Caucasian or white. In addition, low BMI, non-smoking status and geographical location have been associated with women who birth at home. Even the Netherlands which has a very strong culture of homebirth has found that multiparous women were more likely to have a homebirth than nulliparous women (Anthony, Buitendijk, Offerhaus, Dommelen, & Bruin, 2005).

A major difference in the New Zealand cohort is the ethnic diversity of the maternity population and the high proportion of women planning to birth either in a primary unit or at home who identified as Māori. This finding indicates that options and choice of maternity setting are being provided for low risk women. Whilst we acknowledge that women who opt for homebirth are self-selecting, of note is the high proportion of Māori women who make this choice. We cannot be sure, but surmise that our partnership model of care, which enables the woman to be central to decision-making, is attractive to our indigenous population who value the opportunity to be supported in birthing practices which are culturally safe and which may be more easily honoured in homebirth/primary unit settings.

Transfer rates

Transfer rates for women planning homebirth and primary unit birth in New Zealand were lower than that of the BPE cohort but comparable to several other international research studies that have reported this outcome. A Swiss study of 489 women in matched pairs comparing home and hospital birth reported a transfer rate of 15.9% for the homebirth group following onset of labour with a higher transfer rate (25%) for primiparous women (Ackermann-Lieblich et al., 1996). A Canadian study comparing outcomes for a cohort of 6692 low risk women who planned homebirths reported a combined intrapartum and postpartum transfer rate of 14.3% (Hutton, Reitsma, & Kaufman, 2009). A study from the Netherlands involving 37,735 babies reported referral during labour for 14.6% of the homebirth cohort with a higher referral rate of 22.9% for nulliparous women (Evers et al., 2010). Finally, a study involving 15,574 women who planned to birth in a birth centre in the United States of America (USA) reported a transfer rate of 12.4% for women admitted once labour had started (Stapleton, Osborne, & Illuzzi, 2013). Of this group 81.6% were nulliparous. The main reason for transfer was most commonly prolonged labour or labour arrest with only a small proportion requiring transfer for emergency reasons such as a fetal distress.

Of interest are the differing demographics of the New Zealand women who choose to birth in a primary unit as opposed to home. The primary unit group had a greater diversity of age, parity and BMI, yet the transfer rate for this group (which could be argued to be at greater risk) was lower than for women who planned to birth at home. To uncover the reasons for this difference would require further research.

Neonatal outcomes

Perinatal mortality in our cohort ranged from between 0.19% to 0.3% dependent on the planned birth setting at the commencement of labour but differences were not statistically significant. We were unable to exclude from our sample babies born with lethal congenital anomalies or women whose babies may have died prior to labour. This may have resulted in a higher perinatal mortality rate when compared to studies where these mortalities have been excluded such as Birthplace England. In New Zealand the overall perinatal mortality rate in 2012 was 6.8 per 1000 babies (using the UK definition) with a neonatal mortality rate of 2.9 per 1000 (of which 30% were due to congenital abnormality) (Perinatal and Maternal Mortality Review Committee, 2014). Māori and Pasifika babies have higher neonatal mortality rates than other ethnicities (Perinatal and Maternal Mortality Review Committee, 2014). Given that the perinatal mortality numbers in this study were low it was not possible to make comparisons by ethnicity.

International comparisons of perinatal mortality are difficult to make owing to differences in definitions and inclusion criteria. De Jonge and colleagues (2009) reported an intrapartum and neonatal death rate (0

– 7 days) of 0.06% for homebirth babies and 0.07% for hospital birth, although their method excluded women who had a known intrauterine death before labour and lethal abnormalities. Studies which have not excluded stillbirth prior to labour and congenital abnormalities have reported mortality rates ranging from 0.17 to 0.2% for women giving birth at home (Hutton et al., 2009; Johnson & Daviss, 2005; Lindgren, Radestad, Christensson, & Hildingsson, 2008).

An important finding was the increased incidence of the adverse perinatal outcomes of admission to NICU, low Apgar or perinatal mortality for the babies of women who were transferred from home or primary unit to hospital. This is a similar finding to that of Evers et al. (2010) in the Netherlands who reported higher rates of mortality (without congenital malformations) for women who were referred to secondary care during labour (1.05% compared to 0.96%). This finding could be interpreted as appropriate transfer to hospital of women or babies who need referral owing to complications arising during labour. Until we are able to exclude antenatal fetal mortality and/or lethal congenital abnormalities, it is difficult to ascertain whether this is a true difference and what may be contributing to the difference.

Strengths and limitations of this study

The fact that we have used retrospective data has meant there was a need to apply multiple exclusions to obtain a sample of low risk women and although exclusions were carefully and consistently applied there may still be confounding variables that could have an influence on outcome and which have not been accounted for. Additionally, we were unable to analyse confounding social factors such as socio-economic status.

The inclusion of women who transferred is appropriate for this study as our research question focused on the intended place of birth. Women who transferred remained in the sample group in which they began. Initial care provider (LMC midwife) was constant in all settings. A number of women in the homebirth and primary unit birth groups did transfer in labour but the research team were unable to determine impact of transfer of care (responsibility for care) to obstetrician or core (hospital employed) midwife. It would be useful to conduct further research focused on women who transfer from their planned place of birth, and whether continuity of care was maintained or not, to determine the impact of this on maternal and neonatal outcomes.

Exclusion of high risk women (e.g., multiple pregnancy, preterm labour and unplanned or unattended homebirth) across all samples in all four settings was a useful way of reducing the risk of including perinatal deaths that would have occurred regardless of place of birth. Unfortunately it was not possible to exclude antenatal stillbirths for the study sample as the timing of fetal demise was not available in the COMCORD dataset. Similarly we were unable to exclude congenital abnormality as a cause of mortality. Now that these issues have been identified, changes to the MMPO notes and database will ensure that future studies (from 2012 onwards) will include this important information. It is possible that the inclusion of antenatal stillbirths will have inflated the perinatal deaths in all groups and particularly in the secondary and tertiary hospital groups as the majority of women affected by an antenatal stillbirth would plan to birth at a secondary or tertiary hospital.

There is a growing body of evidence demonstrating that maternal outcomes (increased likelihood of normal birth and fewer interventions during labour) are improved for women who, when considered to be low risk, plan to birth at home or in a midwifery-led facility instead of in an obstetric hospital (secondary or tertiary hospital) setting (Birthplace in England Collaborative Group, 2011; Davis et al., 2011; Lindgren et al., 2008; Janssen et al., 2009). Our findings demonstrate that adverse neonatal outcomes are low and comparable between birth place settings for women who are classed as low risk.

CONCLUSION

Midwives need to be able to provide information about the benefits and contraindications for each birth place setting to aid women in their

decision making. This study provides information that is context specific for New Zealand about the outcomes for homebirth and primary unit births. Collecting and publishing data in this way are important as they enable informed decision making and support midwives and women to assess the individual relationship of the pregnancy with risk.

The demographic characteristics of this cohort of women planning a homebirth in New Zealand show similarities with the BPE with women who plan to birth at home in both countries more likely to be older and multiparous. A major difference is the ethnic diversity of New Zealand which is reflected in the birth place setting data with indigenous Māori women accessing both home and primary (midwifery led) maternity facility care in significant numbers. Fewer nulliparous women planned homebirth and for those that did, more than a third were likely to transfer to an obstetric hospital. Women who planned to birth in primary units were younger than women planning homebirth, had a greater range of BMI and parity and a larger proportion were Māori. Despite this the intrapartum transfer rate was lower than for women planning to give birth at home. Perinatal mortality was a rare event with the majority of women achieving a live born baby with good Apgar scores and no need for admission to NICU. The comparison of data with the Birthplace England study has demonstrated some similarities in that adverse outcomes are rare, but also some differences between the cohorts which may be attributed to differences in context and culture.

Changes to the collection of NZ data (maternity notes) have been made to ensure that in future lethal congenital abnormality and pre-labour mortality can be identified and excluded. This will improve our ability to compare New Zealand data to other datasets. Further research is needed focused on women who transfer during labour and whether continuity of care continues or not, to determine the potential impact this may have on maternal and neonatal outcomes.

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Midwives' wellbeing following adverse events – what does the research indicate?

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ABSTRACT

This paper explores the current influences and expectations in relation to adverse events in New Zealand's maternity setting and the affect these have on midwives. Midwives, like other health professionals, have the potential to become the second victim, a term used to encompass the health professional's feelings of despair following an adverse event. Insights from international research and reports are related back to midwifery and a growing number of New Zealand qualitative studies that identify the effect of adverse effects on midwives are highlighted. The evidence indicates that the current tools or support measures that are implemented at the individual or group level may be limited in their effectiveness. Common principles emerge from the literature that could facilitate a midwife's safe journey through the emotional distress when there is an adverse event. These are: understanding the nature of midwifery practice, the midwife's own emotional well-being, providing safe environments, seeking and receiving professional reassurance, and a willingness to learn from the adverse event. An action research study is planned by the primary author to work with midwives about their experiences of successfully navigating adverse events with the aim of facilitating accessible support to reduce the trauma of adverse events. For midwives to be able to support women and their families they too need to be supported.

KEY WORDS

Adverse Event, Emotional Impact, Support, Second Victim, Midwife

INTRODUCTION

When a midwife is involved in an adverse event, how does she deal with the emotions and consequences? How well is she supported? This paper will explore the international literature related to adverse events, asking, "how does this research relate to midwifery practice in New Zealand?" Much of the literature directly related to New Zealand focuses on a wider group of health professionals. The insights from such research and reports will be related back to midwifery. For example, the concept of health professionals being the 'second victim' will be explored for the purpose of thinking through strategies that might help midwives reduce the emotional trauma implied above, that some sustain. There is a growing body of qualitative research by New Zealand midwives which affirms the emotional impact of adverse events on practice. While qualitative studies by their nature have small numbers of participants, the echo of emotional distress that is revealed in these studies draws attention to the stress experienced by these midwives in both caseload and hospital based midwifery practice. The paper concludes by describing the next steps planned in this action research project towards enacting helpful strategies and tools to support midwives who find themselves involved in an adverse event.

The paper starts with a reflection from the primary author that provided the initial impetus for her proposal to embark on an action research project:

When I returned to midwifery practice several years ago, I was scared. What if I made a mistake? Having previously worked in Quality Improvement I was aware of the many safety processes and best practices to prevent harm but sometimes I ran out of time or was distracted and 'forgot' to do them. I found myself taking the less than ideal moments of the day home, to replay, to wonder if I was good enough to still be a midwife. I thought I would have grown out of this behaviour by now, but I haven't. The dread of something I've done (or left undone) stays with me. As I open up this conversation with others, I find they too are scared. They too struggle to make peace with memories of moments that others label as 'adverse events'. (Diana, primary author)

An adverse event can be described as "an incident which results in harm to a consumer" (Health Quality and Safety Commission, 2013b, p. 4). An adverse event may or may not be preventable. If preventable it can be considered as a result of an individual or a systems error. In New Zealand, in 1998, the rate of hospital admissions, where a preventable in-hospital adverse event occurred during the admission, was 5%. This was determined following a comprehensive chart review (Davis, Lay-Yee, Briant, & Scott, 2003). A more recent, smaller study, undertaken during 2010 – 2011 by Auckland District Health Board, found that 48% of severe maternal morbidity was preventable (Sadler et al., 2013). In a review of maternal deaths in New Zealand 35% were identified as potentially avoidable by an expert panel (Farquhar, Sadler, Masson, Bohm, & Haslam, 2011). The New Zealand Health Quality & Safety Commission reported 437 serious adverse events (including maternity cases) from District Health Boards and 52 from other healthcare providers across New Zealand during 2012-2013 (Health Quality and Safety Commission, 2013a). Serious events were defined as "those

which have resulted in serious harm or death to consumers of health and disability services (Health Quality and Safety Commission, 2013a, p. 5). This number is the result of voluntary reporting and is predominately healthcare facility based; therefore may not be representative of the actual number of adverse events in New Zealand. It is important to note that the number of complaints upheld against midwives is small; however they may have been involved in the care and thus affected by the event (Health and Disability Commissioner, 2009a).

When midwives are involved in the care of women and there is an adverse event midwives live with these memories and can become the second victim, a term used to describe the feelings and experiences of healthcare professionals following an adverse event (Scott et al., 2009). The term 'second victim' was introduced by Wu (2000) in relation to doctors but is applicable to other health professionals, with the patient being the first victim and the health professional the second. The term encompasses the health professional's feelings (which have been described as despair) and relates to a realisation that they were involved in an error, a consequent feeling of isolation and exposure to the often unsupportive response by colleagues and the health system.

WHAT DOES SOCIETY EXPECT OF MIDWIVES?

For the woman and her baby, any adverse event is personal, and she may consider that the health practitioner has failed to deliver the outcome the woman expected when they entered the healthcare relationship. The woman and her family want the issue addressed from their perspective. For example, following the lifting of name suppression in the high profile New Zealand Barlow case (Health and Disability Commissioner, 2013), it was acknowledged that public identification of the practitioner(s) involved would be challenging for that person(s) but, according to a lay reporter, "experiencing the consequences of one's actions is natural justice in action" (Jachin, 2011, para 2). Several recent events from the broader New Zealand health sector also highlight the expectation that name suppression will be lifted. For example, a father, whose son died of meningitis following several presentations to Whangarei Hospital, had a concern that the individuals responsible had not been held accountable, despite an external review being done and recommendations implemented. His reaction is summed up in this quote: "It's unbelievable the HDC [Health and Disability Commissioner's office] don't take them to task. The way the HDC have dealt with the hospital is all pretty soft really" (Johnston, 2012, para 4). Midwives need to be aware that not only will the media name them but there is a growing impetus for mistakes/misinterpretations of practice to be dealt with in more punitive ways.

In another case of meningitis, where a medical student died, the family won the battle in court to have the health professionals, involved in the care, publically named despite the death being identified as a systems issue. The family stated that naming of health professionals involved was "a victory for open justice and freedom of speech" (Johnston, 2013b, para 3). Ron Paterson, New Zealand's former Health and Disability Commissioner, acknowledged the benefit of openness but identified its incongruence with a no-blame, systems approach to improvement, "...it's a tick for transparency and open justice, it raises a question mark for accountability ... and it has the potential to slow our progress in quality improvement and patient safety" (Johnston, 2013a, para 2). A court ruling sets precedents. What happens in practice is shaped by such consequences. Will midwives feel safe in acknowledging mistakes when there is a societal expectation that they will be publically named?

Only months later, with the launch of the National Patient Safety Campaign *Open for Better Care*, New Zealand health care workers are being challenged by the Associate Health Minister, "to be open to acknowledging mistakes and learning from them, open to working closely with patients and consumers, and open to change, improvement and innovation" (Goodhew, 2013, May 17, para 2). Midwives, along with other health professionals, are caught in this tension. It is conceivable that when practice is examined and causes identified that the learning from this

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could lead to safer care for families. However, we also know that there are differing interpretations of optimal practice and that retrospective analysis can identify issues that are not easily identified at the time. Additionally, there are many situations when midwives have provided optimal care but an adverse outcome has eventuated. But is there a danger that, despite that conclusion, those exonerated individuals are named and shamed in the process? Could it lead to performance management by an employer, appearing before a disciplinary body, or even a loss of employment? The tension between honest openness towards change and secretive avoidance of public disclosure is likely to be at the heart of many practice encounters. Practitioners may already carry a burden of guilt or blame when they are involved in an unexpected outcome or an adverse event. A study of over 700 Australian and New Zealand midwives identified that, for 24% of the respondents, what they feared most was "missing something that caused harm and being blamed for it" (Dahlen & Caplice, 2011, p. s9).

Disclosing adverse events to women and their families is a requirement in New Zealand; however, reporting them within the health system is only mandated if they relate to particular situations such as perinatal and maternal mortality (Health Quality & Safety Commission, 2011). The New Zealand policy on reportable events defines open disclosure or open communication as, "the timely and transparent approach to communicating with, engaging with and supporting consumers, their families and whanau when things go wrong" (Health Quality and Safety Commission, 2013b, p. 5). Disclosing adverse events to women and their families is strongly promoted by the Health and Disability Commission as the ethical and right thing to do (Health and Disability Commissioner, 2009b).

In recent years the serious and sentinel events have been made public in a national report which lists events by District Health Boards. All events that meet the criteria for the report are required to be forwarded for inclusion; however the practice of voluntary reporting varies (Health Quality and Safety Commission, 2013a). Despite health professionals emphasising that a high rate of incidents may reflect the accuracy of reporting the media continue to interpret it differently. Following the 2012 report release Prof Alan Merry was reported as saying, "in some tragic cases errors resulted in serious injury or death. Each event has a name, a face and a family, and we should view these incidents through their eyes" (Cooke, 2012, October 21, para 7). New Zealand research confirms midwives and other health professionals do view these events in relation to the effect they have on the individual woman and relive the events, mostly internally, emotions buried while they continue with their work, hoping that they will not be faced with further adverse events (Jones, 2012; Young, 2011).

THE EMOTIONAL IMPACT OF ADVERSE EVENTS ON MIDWIVES

Midwifery is focused on facilitating the arrival of new life, not morbidity or death. A study of 12 National Health Service UK (NHS) midwives' experiences, of caring for women and their families following stillbirth, identified that all found the events deeply disturbing, "resulting in them experiencing highly negative emotions and, in some instances, deep unjustified feelings of culpability" (Kenworthy & Kirkham, 2011, p. 17). A small British study concluded that the midwife's experience of a maternal death was comparable with that of "emergency personnel attending large-scale disasters" (Mander, 2001, p. 248). Intense responses to traumatic events were identified in a New Zealand study of 16 midwives, with emotional stress causing illnesses such as anxiety and post-traumatic stress disorder (Calvert, 2011).

Cox and Smythe (2011), in a New Zealand study exploring why midwives leave self-employed midwifery practice, describe midwives as having a feeling of being excessively responsible for outcomes and that impacts their practice. Young's (2011) qualitative study, of the experience of 12 midwives and of the partners of four of those midwives, revealed burnout was often following an adverse event such as being in a situation where the midwife thought the baby would die, that took its toll, ultimately resulting in burnout. Jones's (2012) study on a midwife's first experience of a stillbirth again reflects the deep angst that follows such an episode of practice. "When a baby dies, there is always the question of what could have been done differently. Was the risk already there, or was this unsafe practice (Smythe, 2003). Midwives agonise over such questions in relation to their own involvement, and also in terms of how others may perceive the standard of care. The worry pervades" (p. 20).

The international literature is more extensive for other health professional groups in relation to adverse events. A study involving semi-structured interviews of 20 surgeons in Canada demonstrated the effect of adverse events on a professional group who are perceived as emotionally strong. Surgeons interviewed, who acknowledged emotional trauma following an adverse event, described themselves as "more sensitive and more affected than most surgeons" unlike other surgeons who are "absolute rocks" (Luu et al., 2012, p. 1182). The researchers then interviewed these 'rocks' and discovered they had similar, significant reactions with one stating, "You didn't think this bothered me as much as it did right? And there may

be a tendency for men to look or appear to be more aloof and not be bothered" (Luu et al., 2012, p. 1182). This was further confirmed by the female interviewees, claiming to be harder on themselves than the male surgeons in the study. Another study involving 7905 surgeons reported that 501 (6.3%) of participants had suicidal ideation during the previous 12 months related to an error (Shanafelt et al., 2011; Varjavand, Nair, & Gracely, 2012). A survey of health professionals in America found that about one in seven staff (175/1160) had anxiety, depression or concerns about being able to perform their job following a patient safety incident and this was irrespective of the type of health professional. Of concern is that "68% of these reported they did not receive institutional support to assist with this stress" (Scott et al., 2009, p. 325). The evidence appears to indicate strongly that all health professionals, including midwives, are affected by something going wrong and can be considered to suffer as the second victim.

The lack of attention to the wellbeing of the health professional has been identified as a missing response in the management of adverse events in countries such as America, United Kingdom and Sweden (Conway, Federico, Stewart, & Campbell, 2011; Mander, 2001; Seys et al., 2013; Ullström, Andreen Sachs, Hansson, Ovreteit, & Brommels, 2014). Although the data from New Zealand are limited, a survey of thirteen paediatric emergency departments across Australia and New Zealand indicated that they had no policy or programme to provide debriefing despite it being viewed as important for support and learning (Theophilos, Magyar, & Babl, 2009). Calvert's (2011) New Zealand narrative inquiry study, drawing on data from 16 midwives, highlighted that, not only did midwives interviewed fail to be supported after a traumatic or adverse event, but there was evidence of behaviour by other health professionals and organisations involved that exacerbated the trauma. Some participants of the study reported being ostracised by midwifery colleagues with inferences of incompetence. In Calvert's analysis, informed by the sociological writing of Bourdieu, she states: "The form of symbolic violence instigated a breach of relational trust for the midwife arousing emotional effects that created harm for the practitioner, destroying relationships and disrupting lives" (Calvert, 2011, p. 201). In Young's (2011) phenomenological study of 16 participants, there was one instance where a midwife, who was involved with a woman who became life-threateningly ill, was offered formal support, but still she felt misunderstood and chose not to continue with what she experienced as an unsupportive strategy. In another New Zealand phenomenological study (Jones, 2012), there are examples from the five midwives, interviewed about their first experience of dealing with the aftermath of a stillbirth, of both exemplary support and of feeling alone and abandoned. Support mechanisms are variable, with some midwives needing to establish their own network of safe, trusted colleagues to turn to for an opportunity to debrief.

PROMOTING MIDWIVES' WELLBEING

Strategies currently utilised in healthcare in response to adverse events include: debriefing or Critical Incident Stress Management (CISM), peer support, supervision, referral to Employment Assistance Programme (EAP), professional counselling, and support of a colleague. The College of Midwives booklet, 'Unexpected outcome' also provides guidance on support strategies for midwives (New Zealand College of Midwives, 2008). There is a lack of research that has assessed these tools as effective support strategies for midwives, although there is some research within other disciplines indicating that the current strategies of debriefing may cause potential harm (Dufresne, 2007; Rose, Bisson, Churchill, & Wessely, 2002). From reviewing this literature common principles emerge that could facilitate a midwife's safe journey through the emotional distress when there is an adverse event. These are: understanding the nature of midwifery practice, the midwife's own emotional well-being, providing safe environments, seeking and receiving professional reassurance, and a willingness to learn from the adverse event (Devilly, Varker, Hansen, & Gist, 2007; Scott et al., 2009; Smythe, 2003; Ullström et al., 2014).

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Understanding the nature of midwifery practice

It is important that midwives recognise the complex nature of healthcare. A New Zealand hermeneutic study of 19 participants explored the meaning of being safe in practice among midwives, women and medical staff. It revealed “a world of practice that is often disordered, where the practitioner is caught up, trapped, and can only do what is possible at the time” (Smythe, 2003, p. 203). During a busy duty the midwife can still only be in one place at one time, even though she knows other women may need her (Fergusson, 2009). Amidst this dynamic flux, woman, midwife, and other practitioners are all caught up in the ‘thrownness’ of what comes, to circumstance beyond control, being able to neither control feelings nor the configuration of the situation (Wrathall, 2005). Thus, while the midwife may have a commitment to bring a “spirit of safe practice” (Smythe, 2003, p.198), the midwife never carries a guarantee that the outcomes of her practice will be, and remain, safe. The nature of practice is such that even when the midwife and her colleagues are providing safe, competent care, there can still be an adverse event.

Midwife’s own emotional wellbeing

Midwives and other health professionals identify a need to talk about a traumatic event, to be listened to and shown empathy (Calvert, 2011; Ullström et al., 2014). It is acknowledged however that despite such a need there are barriers. A midwife’s previous, unresolved feelings of grief may lead to an inability to provide effective support to others. The studies by Calvert (2011), Young (2011) and Jones (2012) provide New Zealand examples of avoidance of unpleasant situations by midwifery colleagues when the support was most required. An individual needs to assess their own unresolved traumatic responses. The findings of Smythe’s study (2003, p. 202) suggest “that each practitioner needs to monitor the state of their own spirit of safe practice, and to make others aware when they feel the possibility of indifference or neglect is likely to affect their ‘being safe’”.

Providing safe environments

A further barrier to speaking openly to others, in any setting about an adverse event, is the fear of being stigmatised and judgement that may follow (Ullström et al., 2014). In an American study which interviewed 31 clinicians of varying professional groups a common concern raised was “not knowing who was a ‘safe’ person to confide in” resulting in a third of participants turning to family members (Scott et al., 2009, p. 328). Speaking up in group situations can also feel unsafe. A study by Devilly et al. (2007) found that misinformation overheard in a debriefing session was later likely to be considered as their eye witness account and used as evidence. Midwives need to provide safe environments where colleagues can talk freely. If, for whatever reason, a midwife is unable to be provided with such collegial support, then referral to an appropriate person, as fitting to the circumstances, is essential to avoid aloneness and suffering in silence (Ullström et al., 2014).

Professional reassurance

‘Should I still be a midwife?’ Following an adverse event a midwife may question her ability to still be a midwife or whether to continue with the ongoing emotional strain of the trauma. As revealed in all three studies—the study of New Zealand midwives leaving self-employed midwifery (Cox & Smythe, 2011), Young’s (2011) study on midwives’ experience of burnout, and Calvert’s study on midwives’ experience of trauma (2011)—it may be that some experienced midwives feel like they have no other option but to leave. Fergusson’s (2009) phenomenological study of the experience of five charge midwives in three different New Zealand delivery suites indicated that core midwives are also at risk of facing adverse events and choosing to resign. Professional insecurity can also occur with events where the outcome is good but there is still fear about what could have happened and the midwives can’t help but question their own judgement (Ullström et al., 2014). The “what if?” lingers. After an event midwives need to hear of their continuing professional worth as a midwife. They need to know they are still trusted. Or, perhaps more importantly, they need to still have trust in their own skills and integrity of practice.

Need to learn

Reflecting on practice—what happened, why, and what can be done differently—is integral to New Zealand midwifery practice. The New Zealand College of Midwives provides the opportunity for a special review to allow reflection on a specific case if required (New Zealand College of Midwives, 2008). Following an adverse event midwives’ need the opportunity to be able to reflect on the actions that seemed sensible at the time, either in their own quiet space or with the safe company of others. Formal review processes aimed at identifying systems for improvement provide an avenue for learning if conducted in a manner that does not add to the emotional trauma (Calvert, 2011). Anecdotal evidence shows midwives and other health professionals can be excluded from the review team and subsequently wait months for feedback, if at all. To avoid the emotional anxiety that grows amidst such silence, those in leadership positions are encouraged to facilitate communication channels to keep the involved midwives informed of the facts rather than allowing needless speculation.

CONCLUSION

So why are we scared? Because we know it only takes a moment’s inattention, a lapse into forgetfulness, a distraction, for something to go wrong. We already carry the scars of the past. Do we trust ourselves, our colleagues or the system to get us through the ‘adverse event’ still to come? What does it take to keep us safe in the aftermath of our all too human lapse? Or to help us see that there was nothing we could have done to change the outcome? Perhaps it is the memories of the times when others gathered around us; listened; understood; helped us to re-find our courage (Diana, primary author).

The significant effect of adverse events on midwives needs to be acknowledged. Midwives can be affected by the fear of adverse events occurring, fear of being blamed for an event and this may be more profound if there is a subsequent lack of support (Calvert, 2011; Cox & Smythe, 2011; Dahlen & Caplice, 2011; Young, 2011). There are a variety of tools or support measures that may be implemented at the individual or group level but none may be successful in easing the emotional distress of the second victim. The next step in this action research journey is to interview midwives about their experiences of successfully navigating adverse events. What helped? What steps did they initiate themselves? How did others support them in a way that helped them to come to a realistic understanding of what happened? What worked in terms of calming the emotional anxiety and relieving the stress? It is anticipated that the phase of the research following the interviews will be to work with stakeholders identifying and developing accessible, helpful strategies to minimise the impact upon the second victims. Having support structures, tools and strategies that prevent or minimise the impact of emotional trauma following involvement in adverse events, is to the benefit of quality care for women and their families, and will help sustain midwives’ commitment to practice.

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New Zealand LMC midwives' approaches to discussing nutrition, activity and weight gain during pregnancy

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ABSTRACT

Background: Excessive weight gain during pregnancy can lead to increased retention of weight postpartum and the risk of becoming overweight or obese later in life. Obesity is an increasing problem within New Zealand society and being overweight or obese during pregnancy increases risks for both the mother and the baby. In New Zealand, primary maternity care is largely provided by midwives in the role of Lead Maternity Carer (LMC). These midwives provide continuity of maternity care and information to women to support informed decision making and healthy lifestyles choices. **Aim:** To explore how LMC midwives discuss nutrition, activity and weight gain when providing primary maternity health care to pregnant women in New Zealand. **Method:** A nationwide survey was undertaken with a cohort of LMC midwives in New Zealand to identify what advice and information were being provided to pregnant women about nutrition, activity and weight gain. An electronically administered survey was distributed to eligible midwives through the New Zealand College of Midwives membership database. Descriptive statistics were used to describe survey responses; the large volume of free text data were analysed using a qualitative inductive approach. **Results:** A total of 428 LMC midwives responded, giving a response rate of 42.9%. Nearly all these midwives discussed nutrition (97.6%) and activity (94.3%) with women during pregnancy. The majority of midwives (70%) calculated the woman's body mass index (BMI) at pregnancy registration. Recommendations for weight gain varied dependent on the woman's BMI; the respondents in this study generally recommended lower weight gain targets than the updated Institute of Medicine (IOM) (2009) published guidelines. Free text data

themes identified that midwives customized their care to the individual woman. Midwives discussed weight gain and obesity as a sensitive issue which needed an individualised approach. Obesity was considered to be a wider societal issue that requires a broader national response. **Conclusion:** Midwives in New Zealand are discussing nutrition, activity and weight gain during pregnancy with women. Changing established lifestyles requires a wider societal approach.

KEY WORDS

Obesity, midwifery care, gestational weight gain, nutrition, exercise.

INTRODUCTION

Obesity is a growing problem in New Zealand with a third of adults being obese (Ministry of Health [MOH], 2008). Maternal overweight and obesity are associated with increased risks of adverse pregnancy outcomes such as increased risk of miscarriage, hypertensive disorders of pregnancy including pre-eclampsia, gestational diabetes and maternal mortality (Catalano & Ehrenberg, 2006; HAPO Study Cooperative Research Group, 2010; Dodd, Grivell, Nguyem, Chan & Robinson, 2011). There is also an increased risk of induction of labour and caesarean birth for the mother whilst the risks for the baby include macrosomia, adiposity and hyperinsulinaemia even after adjustment for maternal glycaemia, increased need for resuscitation and increased incidence of congenital abnormality (HAPO group, 2010; Catalano & Ehrenberg, 2006; Dodd et al., 2011).

Excessive weight gain during pregnancy has been shown to be related to high postpartum weight retention and the development of obesity later in life (Phelan, 2010). The woman's beliefs about appropriate gestational weight gain appear to be related to her pre-conception weight and can influence the actual weight gain in pregnancy (Stotland et al., 2005); with international studies finding that a woman's actual pregnancy weight gain has been strongly associated with the advice given by her health provider (Stotland et al., 2005). Despite this finding, a third of women were given incorrect advice and between 27-33% of women were given no advice about gestational weight gain in pregnancy by their health provider (Cogswell, Scanlon, Bein & Schieve, 1999; Stotland et al., 2005). Body Mass Index (BMI) is a widely used assessment measure of relative weight which is based on an individual's weight and height. Women with higher BMI designated higher target weight gains than women who weighed less (Stotland et al., 2005; Phelan et al., 2010).

Phelan (2010) suggests that pregnancy is a "teachable moment" for the promotion of healthy eating and physical activity behaviours among women. The label "teachable moment" has been used to describe naturally occurring life transitions or health events that are thought to motivate individuals to spontaneously adopt risk-reducing health behaviours (McBride, Emmons, & Lipkus, 2003). Pregnancy is a time when many women are concerned about the wellbeing of their babies and are potentially more open to consider adopting a healthier lifestyle. It is also a time when they have frequent contact with a healthcare provider. By providing information

and appropriate advice about optimal nutrition, exercise and appropriate gestational weight gain, healthcare providers have the potential to influence women to make longer term lifestyle choices. This could potentially reduce weight gain during pregnancy, and the incidence of obesity in women and their children (Phelan, 2010; Ministry of Health [MOH], 2006).

New Zealand maternity care is different from many other countries in the world (Rowland, McLeod, & Forese-Burns, 2012). The majority of primary maternity care is provided by registered midwives in the role of LMCs. These midwives provide continuity of care from early pregnancy, through the labour and birth and up to six weeks postpartum. For women with risk factors LMC midwives work in collaboration with specialists such as obstetricians and paediatricians guided by a referral process agreed through a multidisciplinary process (MOH, 2011). This model of maternity care means that the LMC midwife is able to build a close relationship with a woman during her pregnancy, developing trust and preparing the woman for the labour, birth and becoming a parent. Thus LMC midwives have an opportunity to tap into that “teachable moment” and potentially effect change to support healthy lifestyles and better outcomes for both the woman and her family.

In 1990, the United States Institute of Medicine (IOM) published guidelines on recommended ranges of gestational weight gain based on maternal BMI to optimise fetal growth and maternal / infant outcomes (IOM, 1990). However a large Swedish population study subsequently showed that there was a decreased risk of adverse maternal and neonatal outcomes associated with lower pregnancy weight gain limits than the IOM recommendations, particularly in women who were obese (Cedegren, 2007). In 2009, the United States IOM revised their recommendations for ranges of weight gain in pregnancy to include a specific range of weight gain for obese women (IOM, 2009). In 2010, in the United Kingdom, the Royal College of Obstetricians and Gynaecologist (RCOG, UK) in conjunction with the Centre for Maternal and Child Enquiries committee published a guideline for Management of Women with Obesity in Pregnancy which used the 2009 IOM guidelines (CMACE/RCOG, 2010). In New Zealand, the Ministry of Health (2006) Food and Nutrition Guidelines for Healthy Pregnant and Breastfeeding women incorporated the IOM 1990 gestational weight gain ranges and were used to guide practice. These guidelines have subsequently been updated to incorporate the updated 2009 IOM guidelines for weight gain during pregnancy (MOH, 2014). Although the MOH guidelines have been in place since 2006, little is known about midwives’ actual practice in relation to the advice they give women about weight gain, nutrition and activity in pregnancy.

The aim of this study was to establish an understanding of the practice and knowledge of midwifery Lead Maternity Carers in New Zealand concerning nutrition, activity and weight gain advice during pregnancy.

METHODS

This was a nationwide cohort survey of midwife Lead Maternity Carers in New Zealand concerning obesity in pregnancy using an electronic survey.

Survey tool development

A questionnaire was developed based around the recommendations within the Management of Women with Obesity in Pregnancy guideline published by CMACE/RCOG (2010). The survey was initially trialled with 10 midwives working within a single regional hospital in New Zealand. Superfluous questions were removed and where required wording was changed to aid clarity. A further pilot survey was sent out electronically to 10 randomly selected midwives who were identified as LMCs with the New Zealand College of Midwives (NZCOM). No changes were made to the questionnaire following the second pilot study.

The final questionnaire included a section to obtain participant demographic data including area of work, years of experience, age group and ethnicity. Sections included advice given to pregnant women regarding diet, exercise and weight gain, and questions to elicit usual practice to obtain height and weight measurements. A final section included questions

regarding the LMC’s knowledge of published guidelines for gestational weight gain and what they would recommend for weight gain in pregnancy. For the majority of the questions, the response options were: never, usually not, sometimes, almost always, and all the time.

An overview of the study and a link to the survey website were sent to all eligible midwives within the NZ College of Midwives membership database by the Survey Monkey administrator (www.surveymonkey.com). Midwives, who were members of the College, identified as being self-employed (and therefore working as a LMC) and had an available email address, were approached to participate in the study. Each survey was uniquely tied to the email address to ensure that responses were not duplicated, with confidentiality and anonymity maintained. The initial survey was followed up with 3 further reminders over a five month period between November 2012 and April 2013. Analysis and descriptive statistics were undertaken using Microsoft Excel. For clarity, the denominator used was the number of participants answering each question. There was a large volume of free text responses provided by the midwives when responding to the survey. These qualitative data were analysed separately by two of the investigators (AP & LD) using a general inductive approach to develop themes (Thomas, 2006).

Ethical approval was obtained from the New Zealand Ministry of Health Multi Region Ethics Committee. Study reference number: MEC/11/EXP/126.

RESULTS

A total of 1067 midwives were identified as self-employed on the NZCOM database. Of these, 32 did not have an available email address and 39 email addresses were invalid; therefore the 996 midwives with valid email addresses were sent an invitation to participate in the study. Seventeen respondents identified that they did not want to participate in the survey and therefore opted out of the study.

A total of 428 responses were obtained, including three responses from the electronic pilot. This gives a response rate of 42.9% (428/996). Not all questions were fully completed; 389 participants completed all the questions in the survey (Figure 1).

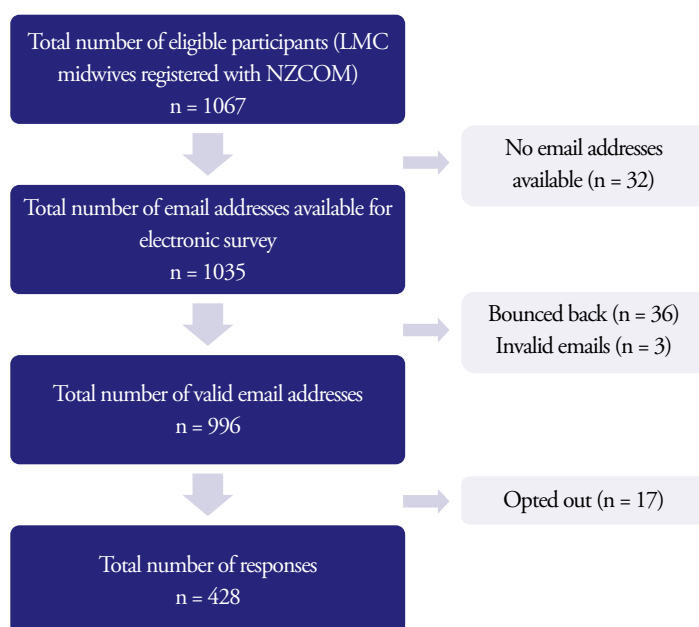


Figure 1: Flow diagram of participant recruitment and responses

Participants were asked about their main area of work (Table 1). Of the 423 midwives who responded to this question, 201 (47.5%) worked in an urban setting, 93 (22%) were based rurally and 129 (30%) worked between urban and rural areas. Half the respondents had over 10 years in practice. The majority of midwives who responded were aged between 40-59 years.

In 2009 the IOM revised their recommendations for ranges of weight gain in pregnancy to include a specific range of weight gain for obese women.

The main ethnic group was NZ European with minorities of Māori, British, Chinese, Indian, (other) European, and 'other'.

Table 1: Demographic data of participants

Demographic information		n (%)
Main area of work	Urban	201 (47.5)
	Rural	93 (22.0)
	Both	129 (30.5)
	Total	423 (100)
Number of years in practice	1-3	72 (16.9)
	4-5	40 (9.4)
	6-10	86 (20.2)
	>10	227 (53.4)
	Total	425 (100)
Age group	< 25 years	12 (2.8)
	25-29 years	17 (4.0)
	30-39 years	61 (14.4)
	40-49 years	157 (37.1)
	50-59 years	142 (33.6)
	> 60 years	34 (8.0)
	Total	423 (100)
Ethnicity	NZ European	319 (74.7)
	Māori	24 (5.6)
	Cook Island Māori	2 (0.5)
	Chinese	7 (1.6)
	Indian	3 (0.7)
	British/English	22 (5.2)
	European	8 (1.9)
	Other	42 (9.8)
	Total	427 (100)

ADVICE TO CLIENTS

Midwives were asked if they gave advice regarding nutrition and exercise in pregnancy (Table 2). There were 419 responses to this question. Nearly all the respondents discussed nutrition in pregnancy with their clients (97.6%). Seventy percent of these midwives would discuss protein,

carbohydrate, fruit and vegetable intake. Nearly half of respondents would discuss portion sizes. The majority of midwives (94.3%) gave advice around exercise in pregnancy.

Table 2: Question regarding advice given to clients

Question	Never	Usually not	Sometimes	Almost always	All the time	Response count
Do you discuss nutrition in pregnancy?	0	0	10 (2.4%)	114 (27.2%)	295 (70.4%)	419
If yes, do you discuss eating 5 servings of fruit & vegetables a day?	5 (1.2%)	22 (1.2%)	86 (20.5%)	135 (32.2%)	171 (40.8%)	419
Do you discuss protein & carbohydrate intake?	6 (1.4%)	26 (6.2%)	92 (22%)	136 (32.5%)	159 (37.9%)	419
Do you discuss portion sizes?	8 (1.9%)	72 (17.2%)	146 (34.8%)	93 (22.2%)	100 (23.9%)	419
Do you discuss exercise in pregnancy?	0	2 (0.5)	22 (5.3)	127 (30.3)	268 (64%)	419

Most respondents would recommend exercise to women when the BMI was above normal. (Table 3). Of the 358 responses to a question exploring frequency of exercise, 60% would recommend 30 minutes of exercise at least three times weekly, the remainder recommended exercise for 30 minutes daily. (data not shown)

Table 3: Exercise recommendation in pregnancy to the women with raised BMI

	Never	Usually not	Sometimes	Almost always	All the time	Response Count
BMI 25-29.9 (Overweight)	0	5 (1.2%)	22 (5.4%)	107 (26.0%)	277 (67.4%)	411
BMI 30-34.9 (Obese)	0	2 (0.5%)	19 (4.6%)	105 (25.5%)	285 (69.3%)	411
BMI 35-39.9 (Moderately obese)	0	6 (1.5%)	19 (4.6%)	102 (24.8%)	284 (69.1%)	411
BMI ≥ 40 (Morbidly obese)	2	8 (0.5%)	25 (1.9%)	101 (6.1%)	275 (24.6%)	411 (66.9%)

USUAL PRACTICE REGARDING HEIGHT AND WEIGHT MEASUREMENTS

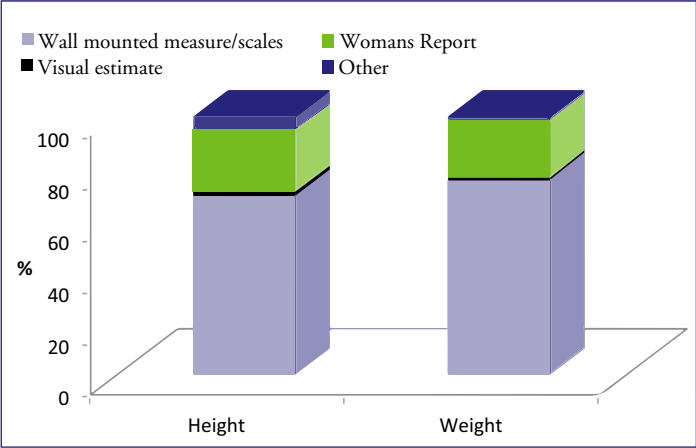
The midwives were asked about their usual practice regarding measurement of height and weight for their clients at registration (Table 4). Nearly 70% (286/415) of the midwives who responded reported calculating the BMI at registration all the time, with 12% (n=51) who would do so almost always. Nearly 10% (n=37) would never or usually not do this. More than half the respondents usually don't weigh or never weigh a woman at each antenatal visit.

Table 4: Usual practice regarding height and weight measurements

	Never	Usually not	Sometimes	Almost always	All the time	Response count
Do you establish a woman's height at registration?	0 (0.2%)	1 (0.2%)	1 (6.5%)	27 (93.0%)	388	417
Do you establish a woman's weight at registration?	0 (0.5%)	2 (0.7%)	3 (8.4%)	35 (90.4%)	377	417
Do you calculate BMI at registration?	8 (1.9%)	29 (7.0%)	41 (9.9%)	51 (12.3%)	286	415
Do you weigh at every antenatal visit?	84 (20.2%)	146 (35.1%)	70 (16.8%)	48 (11.5%)	68	416
Do you weigh at any other time?	86 (21.3%)	131 (32.4%)	160 (39.6%)	17 (4.2%)	10 (2.5%)	404

Midwives were asked how they established height with 69% (n=289) reporting they used a wall mounted measuring tape, 23.7% (n=99) using a woman's report of her height, and 1.4% (n=6) a visual estimate (Figure 2). For weight, 377 of 417 respondents (90.4%) established the weight of their client at booking all the time, using weighing scales in 314 of 417 responses (75.3%). A further 22.5% (n=94) used the woman's own estimate/report.

Figure 2: Chart showing how height/weight is established



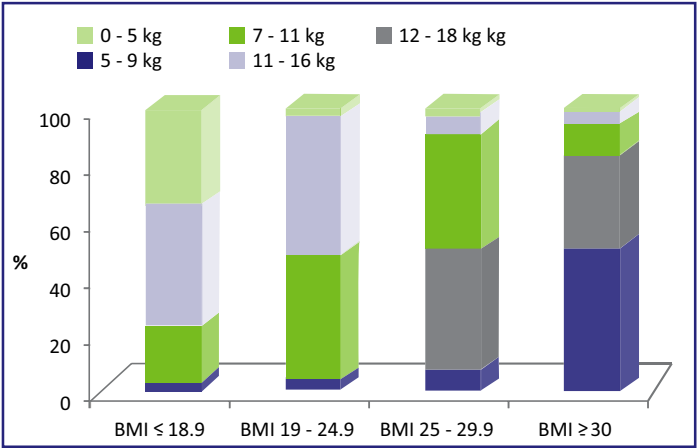
The majority of midwives who responded to the survey reported that they established a BMI and that they would alter their pregnancy care discussions based on the woman's BMI.

KNOWLEDGE REGARDING OPTIMAL WEIGHT GAIN DURING PREGNANCY

Respondents were asked if they knew of guidelines regarding weight gain in pregnancy. Of the 386 responses to this question, 53.4% (n=206) of respondents were aware of published guidelines for optimal weight gain in pregnancy for various BMI groups, 17.6% (n=68) were not aware of guidelines and the remaining 29% (n=112) were unsure.

Midwives were asked what they would recommend as a healthy weight gain in pregnancy for women of various BMI (Figure 3).

Figure 3: Healthy weight gain recommendation in pregnancy



For underweight women with BMI ≤18.9, the majority of midwives were recommending weight gain of 11-16 kg, or 12-18 kg during pregnancy (43% and 34% respectively). Women in the normal weight range were mostly asked to limit gestational weight gain to between 7-11 kg and 11-16 kg (44% and 49% respectively). Forty two percent (167 of 396) of midwives said they would recommend a weight gain of 5-9 kg for an overweight woman, and a similar proportion (41%) would recommend 7-11 kg weight gain for the same group. Half of the midwives who responded reported recommending weight gain of between 0-5 kg during pregnancy for obese women. A further 33% (131 of 397) would recommend between 5-9 kg weight gain for the same group.

Customising care to meet the needs of the individual woman

There was a large volume of free text data responses in the survey as the midwives sought to explain their answers and how they worked with women. The first of two themes identified 'customising care' and highlighted how midwives individualised care and advice depending on the woman's context.

The majority of midwives who responded to the survey reported that they established a BMI and that they would alter their usual pregnancy care discussions based on the woman's BMI. If the woman was overweight or obese then the midwives indicated they would prioritise this discussion.

"This depends on what the woman is already doing - you would ascertain that first"

"Depends on what the woman is already doing in the way of exercise. Tend to discuss this more with women who are overweight."

"I would weigh a woman if weight was a risk factor, if there were lifestyle issues, if she reported concerns or an increase in weight outside of guideline averages, if there were other issues that could affect weight, and then I may weigh monthly or per term and consider other weighs based on my findings and how the clinical picture would vary. If a woman had a high BMI then weight would be discussed and monitored, certainly each trimester and particularly in the third."

The midwives discussed the difficulties for women of making major life style changes when easier options regarding nutrition were not available.

The midwives reported finding out what the woman is already doing (with regards to exercise and nutrition) and then providing advice to support the woman's context.

"Exercise to your previous level of fitness and reduce the strength and intensity accordingly as the pregnancy progresses. Avoid excessive exercise that super heats the body and unduly raises cardiac output."

"I encourage them to continue with current exercise and add/subtract according to body comfort/gestation."

"If the response to this seems unenthusiastic I discuss what they would be able to do and try to develop something that WILL work for the individual."

The midwives also reported how they individualised their responses during pregnancy when a woman already had a high BMI.

"Looking at her diet together, discussing changes. Referring to a dietician (difficult). Ensuring her awareness of increased risk. Discussing ways she might exercise better."

"Discuss with women risks of high BMI and importance of diet/exercise; review eating, exercise each visit; refer to dietician."

One midwife discussed the need to empower the woman to reduce feelings of intimidation and support her to make changes.

"Women need coaching about their health and clinical observation and counselling in a way that empowers the woman to take charge of her health without her feeling intimidated."

The theme of customising care to the individual needs emerged from a variety of question responses and with midwives explaining the need to consider the full picture for the woman and then customising their discussions and care management.

A second theme that was identified from the free text responses was the acknowledgement that obesity is a public health issue that affects the whole of society and needs a full public health response if changes are to be made and obesity reduced.

Obesity is a wider societal issue

Midwives commented that tackling obesity needed government support, legislative changes, changes to advertising of high sugar foods and reductions in the costs of healthy food.

"The society we live in makes 'change' difficult. Food and exercise advice is not enough!!!! Motivation is needed."

"Also there needs to be responsibility taken by the government and the food industry around food advertising and cost of essential food items."

It is all very well to promote healthy choices but when a family is on the poverty line buying cheap bread, fizzy and not so much fruit and vegetables is the reality. Also we need to focus on the health of our children by being staunchly behind exclusive breastfeeding as the first step in life to combating some of these issues such as obesity and diabetes."

The midwives discussed the difficulties for women of making major life style changes when easier options regarding nutrition were not available.

"Lifestyles are hard to change when it becomes the normal lifestyle for families plagued by decreased physical inactivity and poor diet. Creating better health outcomes by focusing on improving healthier lifestyles is a much larger and complex challenge that needs midwives to have the ability to be able to refer to dieticians/nutritionists - and for women to be able to easily access them within their community."

Midwives in this study said that whilst they considered themselves part of the solution they also called for more resources. Comments reflected concerns that obesity was more common amongst women who were in lower socio-economic groups and who had fewer resources to ensure healthy nutrition.

"There is a huge problem with obesity in our society. It has become 'normal' to be overweight. Most of my clients will fall in to the overweight range, about 5 a year would be classed as obese and 1-2 a year would be considered morbidly obese - it is incredibly difficult to get help/support for the women in the community who want/need it unless/until they have other medical problems. We should be looking at early intervention to prevent the problems rather than treating once they occur (if possible)."

"Very difficult to help women with obesity when financial/social circumstances do not allow them to access support and/or healthy diet. For women who have multiple issues (e.g. low socio-economic, smoke, family violence, transport issues, late booking/non-attenders, etc.) sometimes obesity is the least of your worries. Also find it frustrating that there is no practical help for women who do wish to lose weight and as an LMC there is only so much time you have for the increasing number of issues we are supposed to counsel women about!"

These comments have provided valuable insight from the midwifery perspective of how the issues related to lack of finances and other resources can create barriers to lifestyle change as well as access to support and care provision.

DISCUSSION

This nationwide cohort study is the first of its kind in New Zealand and provides an important insight into the information and practice of LMC midwives when discussing nutrition, activity and weight gain during pregnancy. The vast majority of midwives who responded are providing information on nutrition and exercise during pregnancy and are measuring the height and weight of women in order to determine a body mass index. Based on this, midwives are providing individualised advice that acknowledges the context of the woman's life and discusses ways of ensuring optimal weight gain.

In a qualitative study by Weir et al., (2010), overweight and obese women often viewed healthy eating as being of greater importance for the health of mother and baby than participation in physical exercise. Some pregnant women even perceive physical activity to be unsafe with risks to the baby (Clarke & Gross, 2004). In contrast, our study respondents are giving advice regarding nutrition and exercise in pregnancy, and this is being tailored to the individual woman.

The theme of customising care to the individual woman and her circumstances echoes through the free text data in the responses. This reflects the midwifery model of partnership practised in New Zealand where continuity of care creates a unique relationship between the midwife and the woman, allowing for a relationship of trust to be built. This relationship also provides insight for the midwife into the woman's circumstances so that care can be individualised to the woman's needs.

Nearly half of the LMCs who responded to this survey were unaware of guidelines for gestational weight gain, with respondents generally

The theme of customising care to the individual woman and her circumstances echoes through the free text data in the responses

recommending lower weight gain targets than the updated IOM (2009) published guidelines (IOM, 2009; RANZCOG, 2013). This is in contrast to other studies which have found that providers tend to recommend increased weight gain compared to known guidelines (Herring et al., 2010). There is evidence that low gestational weight gain can increase the risk of small for gestational age infants (IOM, 2009).

Our study is limited by the low response rate obtained and selection bias inherent to surveys. Those with an interest in this topic were more likely to participate in the study. The results are therefore not necessarily representative of the total population surveyed; however the demographics are representative of the total population (MCNZ, 2012). Only midwives who were members of the College of Midwives were approached as this was the best way to access contact details and email addresses confidentially. Therefore midwives who were not members of the College and those whose email addresses were invalid were not invited to participate in the study. This survey targeted midwife LMCs only, and did not include other LMC providers such as general practitioners or private obstetricians.

In their responses, midwives called for more resources and support for overweight and obese women to help them enhance nutrition and activity as a means of improving outcomes for these women. Weight gain and obesity in pregnancy are part of a wider societal issue and a public health concern. The increasing trend to obesity requires a broader approach to support change which may include government legislative changes, limitations on advertising and reducing the costs of healthy food.

CONCLUSION

In conclusion, this study has provided a snapshot of current midwifery practice and how midwife LMCs provide advice about nutrition, activity and weight gain during pregnancy. The majority of midwives who participated in the study are currently measuring BMI and providing individualized advice around exercise, nutrition and weight gain to women during pregnancy; this advice is often tailored to the individual woman's needs and circumstances. However, the issue of obesity was considered to be part of a wider societal problem which will require a broader response and increased resources to support sustained change.

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Midwifery post-graduate education grants

Did you know that grants are available for midwives who are undertaking midwifery post-graduate study?

Key Dates - Semester one first application round 2015:

- Health Workforce New Zealand provide grants to subsidise the full cost of fees and some travel and accommodation costs.
- Applications are administered by the New Zealand College of Midwives Finance Administrator email: finance1@nzcom.org.nz

20 January	<i>First Application Round for Semester One grants closes</i>
31 January	<i>NZCOM provides data for all approved applications to Health Workforce New Zealand</i>
31 January	<i>Midwives notified if application meets criteria for funding and intended payment arrangements</i>
20 February	<i>HWNZ payment disbursed to NZCOM</i>
23 February	<i>NZCOM disburses grant payment either directly to education providers or midwives</i>

There will be a further opportunity to apply for Semester One grants in March 2015. Applications will be prioritised on a first come first served basis.

NZCOM is working with the following three main midwifery post-graduate education providers with payment of the grants going directly to them on behalf of midwives:

Auckland University of Technology

Stephanie Gregory
Faculty of Health Sciences

Telephone 09 921 9999 ext 7877
email: sgregory@aut.ac.nz

<http://www.aut.ac.nz/study-at-aut/study-areas/health-sciences/postgraduate-study/midwifery>

Victoria University

Belinda Tuari Toma
Graduate School of Nursing,
Midwifery and Health

Telephone 04 463 6647
email: belinda.tuari@vuw.ac.nz

<http://www.victoria.ac.nz/nmh/prof-programmes/qualifications/midwifery>

Otago Polytechnic

Elizabeth Moynihan
School of Midwifery
Te kura atawhai ka
Kaiakapono te Hakuitaka

Telephone 0800 762 786 ext 8328
email: elizabeth.moynihan@op.ac.nz

<http://www.op.ac.nz/study/health-and-community/midwifery/postgraduate-diploma-in-midwifery>

Application forms are available from www.midwife.org.nz



Rural Student Midwifery Grant

Mary Garlick, a retired long standing rural midwife has generously granted a sum of money to the New Zealand College of Midwives to administer as an annual grant for midwifery students who intend to practice rurally on graduation. Applications will be accepted from students who have completed the requirements of the second year of the New Zealand Bachelor of Midwifery programme and intend to enrol in the 3rd year of the programme in 2015.

Midwifery students are eligible to apply for the annual \$2,000 grant if they meet the following criteria:

- Applicant must be a New Zealand College of Midwives member and enrolled as third year student of an approved New Zealand Bachelor of Midwifery programme for 2015
- Applicant must intend to practice as a rural midwife in New Zealand on graduation. Preference may be given to those intending to practice as an LMC
- Applicants must have two character referees (see opposite)
- Application must demonstrate a commitment to rural midwifery practice on graduation

Application process

- Only one grant will be awarded per annum
- Applications are made to the NZCOM and put before the Midwifery Student Rural Grants Advisory Committee
- Applicants need to include the following information with their written application:
 - Name, Address and Date of birth
 - Accompanying letter, no more than 500 words setting out intention to practice as rural midwife on graduation, and reasons for wanting to do so
 - Employment history or work/life history prior to becoming a midwifery student
 - Written character references: One from the midwifery school in which the student is enrolled which also confirms that the student is succeeding academically and clinically in the Bachelor of Midwifery programme and one from a midwife whom they have had a clinical placement with.
 - Preference may be given to midwifery students who are currently residing in or have had experience living in a rural community
- NZCOM national office provides secretarial support to the application process

Applications must be submitted via email to NZCOM national office by 20th January 2015.

JOAN DONLEY 7th Biennial MIDWIFERY RESEARCH FORUM 24-25 SEPTEMBER 2015



JOAN DONLEY
MIDWIFERY RESEARCH COLLABORATION



NEW ZEALAND COLLEGE OF MIDWIVES (INC)

How is research contributing to New Zealand's model of midwifery care?

Napier War Memorial Conference Centre

CALL FOR ABSTRACTS

Papers for oral presentation are invited.

Abstracts must be informative and descriptive; less than 250 words and contain the following information:

- Title
- Author(s) names
- Origin (Organisation, City and Country (if outside of New Zealand))

Abstracts must be received by **09 February 2015**

By emailing your abstract as a word document to:
JDMRC Secretariat - JDMRC@nzcom.org.nz

Authors will be notified of acceptance or non-acceptance of their abstract by 02 March 2015. The organisers retain the right to allocate successful submissions to meet the theme of the forum.

The purpose of the forum is to provide an opportunity for midwives and others to share ideas, experiences and knowledge through research, audits and postgraduate studies relating to midwifery and maternity care.

For more information visit: www.midwife.org.nz

