NEW ZEALAND COLLEGE OF MIDWIVES (INC)

JOURNAL

The emotional wellbeing of New Zealand midwives: Comparing responses for midwives in caseloading and shift work settings

Outcomes of blood loss post physiological birth with physiological management in the third stage of labour at a maternity home in Japan

The core of the core: What is at the heart of hospital core midwifery practice in New Zealand?

Strategies for improving the experiences of Māori students in a blended Bachelor of Midwifery programme

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New Zealand College of Midwives Journal

The New Zealand College of Midwives Journal is a blind peer-reviewed journal and the official publication of the New Zealand College of Midwives. The Journal focuses on midwifery issues and women's health. It is provided as a benefit to all members of the College and has a wide readership, which includes New Zealand and overseas midwives, other health professionals, New Zealand women and others with an interest or involvement in pregnancy and childbearing.

The philosophy of the Journal is:

- To promote women's health issues as they relate to childbearing women and their families
- To promote the view of childbirth as a normal life event for the majority of women, and the midwifery professional's role in effecting this
- To provoke discussion of midwifery issues
- To support the development of New Zealand midwifery scholarship and research
- To support the development and dissemination of New Zealand and international research into midwifery and maternal and child health

Publication
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Submissions
The Journal welcomes original research, literature reviews, exemplars/practice stories/case studies, audits and research methodology articles that fit with the philosophy of the Journal.
It is important that articles submitted for review have not been published previously in any form and are not under consideration for publication elsewhere.
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NEW ZEALAND COLLEGE OF MIDWIVES (INC)

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EDITORIAL

Invisibility of Midwifery

Andrea Gilkison

Co-editor

Recently I spent the day listening to third-year midwifery students presenting cases of women they had cared for, who had challenged them in some way. Those stories were incredible as the students discussed the midwifery care they had provided for women and babies with complex obstetric, neonatal, social, health and mental issues. They spoke about caring for teenage mothers, immigrants, women who do not speak English, women in violent relationships, women with mental health issues. They shared the way they cared for women whose babies were growth restricted, or women who wanted a vaginal birth and whose babies were breech. They shared how they traversed the primary/secondary interface and worked interprofessionally in their work to advocate for women and to ensure optimum care for mothers and babies.

I was so heartened to hear the way these soon-to-be midwives provided absolutely excellent midwifery care for these women. Whether it be liaising with social services, making multiple home visits, or advocating with the consultant for a vaginal breech birth, these students did it all and in such a professional way. How lucky are the women of New Zealand to have these midwives at their sides. It is mind blowing the care that midwives provide, and this should be shouted from the roof tops! Yet this incredible day-to-day work of midwives in New Zealand is often invisible to all except the woman and her whānau.

The invisibility of midwifery struck me again at the International Confederation of Midwives Congress in Toronto in June. Midwives were invisible in the poorest parts of the world which lack the most basic resource. On the other end of the spectrum, in wealthy parts of the world with incredibly high Caesarean Section rates, again there are no midwives. Whether it is a lack of resource, or a lack of valuing the work of the midwife, midwifery is invisible.

Even in New Zealand, the real day-to-day work of a midwife is often invisible. This includes being invisible to the Ministry of Health it appears, although the threat of a high court case from the College has resulted now in making the work of a midwife visible and instigating the co-design of the funding model for New Zealand midwives. The co-design is based on visibility and pay equity for all midwives, employed and self-employed.

It was so heartening to read the story in the New Zealand Herald in April this year in which the parents of a baby born following a cord prolapse named midwife Sue Bree as a superhero. Sue was quoted as humbly saying "the services…. did well. It wasn't any one person, it was all the services." Just another day in the life of a midwife. Stories like this should be told more often, as it makes our work visible. As individual midwives it takes a lot of energy to make oneself visible, but as a profession we can work together to make the work of a midwife not only visible, but up in lights.

Each of the seven articles published in this issue of the NZCOM Journal does much to add to the visibility of midwifery. Morgan Weathington et al. explore the literature around the risk of stillbirth, and a Japanese study of third stage management shows the world that the midwifery profession has a lot to add to evidence-based practice. Three pieces of research exploring midwifery education establish the uniqueness of midwifery education models in New Zealand. Mary Kensington et al. have researched the use of groups in a blended model of undergraduate midwifery education and Jean Patterson et al. have researched the important topic of improving the experience for Māori midwifery students. Continuing in the area of education, Suzanne Miller and Christine Griffiths present findings of their study of how online postgraduate midwifery education enhances midwifery practice. In the sphere of midwives' wellbeing and the sustainability of midwifery practice, Lesley Dixon et al. present findings from a study which explored the important issue of the emotional wellbeing of New Zealand midwives, and Andrea Gilkison et al. present their research on what is at the heart of core midwifery.

Thank you to all the authors who submit articles to our Journal. The quality of the research published is high, and each article adds to midwifery knowledge, to evidence-based practice and to midwifery's visibility! I hope you enjoy reading these articles, and reflect on how we can work together to ensure the world hears about the less visible parts of the work of a midwife.

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NEW ZEALAND RESEARCH

The emotional wellbeing of New Zealand midwives: Comparing responses for midwives in caseloading and shift work settings

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ABSTRACT

Background: Ensuring the psychological wellbeing of midwives is becoming increasingly recognised as an important strategy in maintaining a healthy workforce and retaining midwives within the profession. Midwives in New Zealand can choose to be self-employed and work in the community, providing continuity of care to a caseload of women (self-employed caseloading), or can be employed to work within a maternity hospital environment (generally shift work). Some choose to work in both work settings (self-employed and employed by an organisation).

Aim: The overall aim of this study was to explore the emotional wellbeing of midwives in New Zealand. The first objective was to describe and compare the demographic and work-related factors of midwives who were (a) self-employed, (b) employed by an organisation or (c) both self-employed and employed. The second objective was to explore factors associated with burnout within each of the three groups.

Method: Practising New Zealand midwives who were members of the New Zealand College of Midwives were invited to complete an online survey. The study package included demographic questions, the Depression, Anxiety and Stress Scale (DASS-21), the Copenhagen Burnout Inventory (CBI), Perceptions of Empowerment in Midwifery Scale (PEMS) and the Practice Environment Scale (PES).

Findings: A total of 1073 midwives responded with 44% (n=473) self-employed, 42% (n=452) employed and 14% (n=148) both self-employed and employed. Employed midwives worked fewer hours (median 32hrs) than the other two groups (median 40hrs and 36hrs respectively) but had significantly higher levels of work and personal-related burnout as well as anxiety. Employed midwives also reported lower levels of autonomy, empowerment and professional recognition. Aspects of the work environment found to be associated with burnout (particularly for employed midwives) were inadequacy of resources, lack of management support, and lack of professional recognition and development opportunities.

Conclusion: While levels of stress and depression were high for all midwives, self-employed midwives providing continuity of care to a caseload of women had better emotional health and less burnout than midwives working in an exclusively employed capacity.

Keywords: burnout, anxiety, continuity of care, employment, self-employment, caseload model

INTRODUCTION

Ensuring the emotional wellbeing of individual midwives is recognised as an important strategy in retaining midwives within the profession and maintaining a healthy midwifery workforce (Ball, Curtis, & Kirkham, 2002; Deery, 2005; Kirkham, Morgan, & Davies, 2006). Contemporary working conditions can often place increased demands on midwives when efficiency, cost effectiveness and administrative requirements are prioritised over relationships and women's care provision. Factors such as a stressful work environment (Hildingsson, Westlund, & Wiklund, 2013) and insufficient staff and resources have been found to negatively influence job satisfaction and emotional wellbeing (Ball et al., 2002). On the other hand, occupational autonomy, social support and the ability to develop meaningful relationships with women have been found to sustain midwives and potentially protect against burnout (Collins, Fereday, Pincombe, Oster, & Turnbull, 2010; Kirkham et al., 2006; Sandall, 1997; Yoshida & Sandall, 2013).

Occupational burnout is characterised as a state of emotional, physical and mental exhaustion and is considered to be an adaptive response to high levels of stress (Seidler et al., 2014). Service-related professions (such as teachers, nurses and doctors) have been found to have a high prevalence of burnout although there is little agreement on how burnout is defined (Bakker, Schaufeli, Sixma, Bosveld, & van Dierendonck, 2000; Borritz et al., 2006; Roberts, Cannon, Wellik, Wu, & Budavari, 2013). In the United Kingdom (UK) studies that have explored burnout in midwives (Sandall, 1997, 1998) and reasons for leaving the profession (Ball et al., 2002) have found a range of issues related to the working conditions within the National Health Service.

Insufficient resources, lack of management support, not having control over work and not having the time to develop or sustain relationships with women or colleagues were cited as reasons for leaving midwifery.

More recently Yoshida and Sandall (2013) explored and compared work factors related to burnout in 238 UK midwives from one Hospital Trust, who worked either in the community or hospital setting. The study found that, while longer working hours were associated with burnout, high levels of occupational autonomy were protective against burnout. Midwives who worked in the community and those who worked in the hospital had different contributing factors for burnout. Community midwives had higher levels of team work, more satisfaction and autonomy but also higher levels of stress.

Consistent with the system in the UK, midwives in New Zealand can work either in a hospital or a community setting or a combination of both. When working within the community setting, however, the majority of midwives are self-employed and contract directly with the Ministry of Health to provide maternity services to women under the Maternity Services (Section 88) notice (Ministry of Health, 2007). In this situation the midwife works as a Lead Maternity Carer (LMC). LMCs provide continuity of midwifery care to a defined number of childbearing women every year, commonly referred to as a caseload. They work across the full scope of midwifery practice providing primary care during pregnancy, labour and birth and the early transition to parenthood (six weeks postpartum). Similarly, midwives who work within maternity facilities (tertiary/secondary hospitals or primary birthing units) work across their scope but are employed to provide midwifery care for women who are admitted to the facility as part of the maternity team providing care for women with complex issues. A small proportion of midwives (3.5%) are employed by a maternity facility to provide care to a caseload of women (Midwifery Council of New Zealand, 2013). New Zealand midwives often move between employed and self-employed work, depending on personal and family needs and general life circumstances (Midwifery Council of New Zealand, 2013). Some midwives work in both settings, providing LMC care to a small caseload of women whilst working a few shifts at a local maternity facility. Those working as self-employed LMC midwives enjoy a high degree of occupational autonomy in determining their caseload, work hours and care provision. For midwives working within maternity hospitals, the requirements of the facilities and organisational factors can influence their levels of autonomy, work hours and care provision.

The sustainability of working as a LMC midwife has been called into question because of the often extensive "on call" requirements and potential for long working hours. A telephone survey of 94 midwives who worked as LMCs in one region of New Zealand found that the need to work long hours, to be on call 24/7 and a lack of time for family and friends led to exhaustion and were reasons for leaving caseloading practice (Wakelin & Skinner, 2007). Conversely, providing continuity of care and the quality of the relationships with women supported and sustained these midwives (Wakelin & Skinner, 2007). Matthews, Scott, Gallagher, and Corbally (2006) explored the experiences of 12 LMC midwives who experienced burnout, finding that burnout was often masked and little understood. Young (2011) argued that being so readily available to women and the unpredictable nature of caseload work had the potential to increase the level of occupational burnout. Building on this work, New Zealand researchers Donald, Smythe, and McAra-Couper (2014) used action research to explore "ways of working" that ensured a positive work-life balance for 16 caseloading midwives. These midwives had identified a tension between their work and home commitments, and a potential risk of burnout. The midwives enjoyed the positive aspects of providing continuity of care but struggled to ensure structured time off. The authors developed a "work-life balance tool" designed for midwives to identify whether they needed to make changes to support their own work-life balance. They argued that there is a need to create and support an optimal wellbeing culture within the midwifery profession.

Similarly, McAra-Couper et al. (2014) interviewed 11 caseloading midwives who had been in practice for more than eight years to determine what sustained and supported them to continue to work as LMCs. The study found that working in partnership with women, and having supportive working relationships with midwives who had a shared philosophy, were important when managing the unpredictability of being on-call. Although McAra-Couper and associates identified a need for midwives to negotiate boundaries with women, ultimately it was the "joy" of working closely with women across the entire childbirth episode that sustained midwives and supported their continued commitment to working in a caseload model.

Although there is a growing body of research examining the experience of midwives working in different models of care, no studies specifically explore the emotional wellbeing of midwives in New Zealand, where continuity of care is an expectation within the national health maternity service. The emotional wellbeing of midwives needs exploring, and specifically what factors may decrease or protect the emotional wellbeing of midwives (wherever they work) within the New Zealand context of maternity care.

This study is now situated within a large international programme of work referred to as WHELM (Work, Health & Emotional Lives of Midwives) which is designed to explore the relationship between the emotional wellbeing of midwives and the work environment across a number of different maternity care contexts (Sweden, Australia and New Zealand). In this paper we describe and compare the demographic and work-related factors of New Zealand midwives who were either (a) self-employed or (b) employed by an organisation or (c) both self-employed and employed. The second objective was to explore factors associated with burnout within each of the three groups.

METHOD

A quantitative cross-sectional design and survey methodology was used. Ethics approval was provided by AUTEC (Auckland University of Technology Ethics Committee) (13/211 Exploring the emotional wellbeing of midwives in New Zealand).

Setting

In 2013 the New Zealand Midwifery Council reported that there were 2,938 midwives with a practising certificate working in New Zealand (Midwifery Council of New Zealand, 2013). As previously described, midwives in New Zealand work in a variety of ways (self-employed/ employed/both), as well as across different work settings and regions of New Zealand (metropolitan, rural and remote).

Participants

In September 2013 all actively practising midwife members of the New Zealand College of Midwives, who had a valid email address and had agreed to receive non-practice-related emails, were invited to participate (n=2236; 76% of the total number of practising midwives in New Zealand).

Recruitment and Data Collection

Midwives were invited via email to participate. The email included a letter of invitation outlining the aims and objectives of the study and the contact details of the New Zealand project manager, should clarification be required. Within the email was a live link to the questionnaire platform which hosted the survey (Qualtrics). Consent was implied through completion of the survey.

The study adhered to the ethical principles set down by AUTEC. Anonymity of participants was assured as no name or identifying data were collected. Completed surveys were given numerical identifiers to enable participant responses to be tracked according to anonymised demographic data. Given the nature of the study, potential participants were also provided with the contact details of the Midwifery Advisor to the New Zealand College of Midwives, should completing the survey generate emotional distress and/or participants request additional support or advice. Counselling resources were made available.

Instruments

The survey consisted of a demographic section that included personal information (i.e., age, marital status, level of education), as well as work-related variables, such as model of care and hours worked per week. The subsequent sections contained a number of validated measures.

The Depression, Anxiety and Stress Scale (DASS-21)

The DASS-21 is a three domain scale that measures depression, anxiety and stress (Lovibond & Lovibond, 1995). Each subscale has seven items, with participants being asked to consider how much the statement applied to them over the past week (1 = did not apply to 4 = most of the time). Examples of items in the depression subscale included "I felt down-hearted and blue" and "I felt I wasn't worth much as a person". "I was aware of dryness of my mouth" is one item from the anxiety subscale and "I found myself getting agitated" is an example from the stress subscale. Higher scores indicate higher levels of depression, anxiety and stress. Guidelines are provided by the scale authors to classify scores into a number of clinical categories (normal, mild, moderate, severe, extremely severe) (Lovibond & Lovibond, 1995). Norms are also available for each of the three scales and the values reported in the scale manual for female respondents were used in this study for comparison.

The DASS-21 has been used extensively within the international context. As such, the psychometric properties of the three domains (i.e., validity and reliability) have been well tested (Henry & Crawford, 2005). In the current study the Cronbach alpha coefficient for each subscale, which is a measure of reliability or internal consistency, was found to be .84 for stress, .72 for anxiety, and .88 for depression. As values exceeded the recommended level of .70 this suggests the scale was reliable in this context (Nunnally, 1978).

The Copenhagen Burnout Inventory (CBI)

The CBI is a three domain scale that measures the sources of burnout that individuals perceive they are experiencing (Deery & Kirkham, 2006; Kristensen, Borritz, Villadsen, & Christensen, 2005). The first subscale is related to personal burnout and consists of six items such as, "How often do you feel tired?" The second subscale uses seven items to capture work-related burnout. Two examples from this domain are: "Does your work frustrate you?" and "Are you exhausted in the morning at the thought of another day at work?" The third domain relates to client burnout and consists of six items. An example of an item from this subscale is: "Do you find it hard to work with women?" There is a mix of response formats, with some items assessing frequency (never/almost never to always) and others measuring intensity (very low degree to very high degree). All items use a five-point scale with scores being adjusted so that the possible score range for all three subscales range from 0 (low burnout) to 100 (high burnout). The Cronbach alpha values were high for all subscales (personal burnout alpha=.90, work-related burnout alpha=.87, client-related burnout alpha=.88), supporting their reliability.

The Perceptions of Empowerment in Midwifery Scale (PEMS)

The PEMS was developed by Matthews, Scott, and Gallagher (2009) to measure midwives' perceptions of conditions which could be considered to be important to empowerment. The scale has 22 items, with responses ranging from strongly disagree to strongly agree. In the original scale there were three subscales: (a) Autonomous Practice, (b) Effective Management and (c) Women-centred practice. However, factor analysis undertaken for our cohort suggested an alternative four-domain structure representing Empowerment (four items – "I have autonomy in my practice"), Supportive Manager (five items – "I am valued by the manager"), Professional Recognition (five items – "I am recognised as a professional by the medical profession"), and Skills and Resources (five items – "I have adequate access to resources for birthing women in my care") (Pallant, Dixon, Sidebotham, & Fenwick, 2015). Total scores for each of these subscales were calculated by adding scores from each item and dividing by the number of items. Higher scores equate to higher levels of empowerment.

The Practice Environment Scale (PES)

The PES is a 31-item scale designed to measure the organisational characteristics of a nurse's work setting that facilitate or constrain professional practice (Kirkham & Morgan, 2006). The PES was adapted for use in this study by changing the word "nurse" to "midwife". One item was removed from the scale (Use of nursing diagnoses) as it was considered inappropriate in the context of midwifery practice. In the original scale there were five domains, with participants being asked to respond using a five-point Likert scale where one equalled "strongly disagree" and five was "strongly agree".

Although the scale has been widely used in the nursing context, there has been very little research using the PES in a midwifery-specific context. Exploratory factor analysis of the revised items revealed a four-factor structure: Quality of Management (six items – "A Midwifery Unit Manager who is a good manager and leader"), Midwife-Doctor Relations (three items – "Doctors and midwives have good working relations"), Resource Adequacy (four items – "Enough staff to get the work done"), and Opportunities for Development (seven items – "Opportunity for midwives to participate in policy decisions"). Totals for each of these subscales were calculated by adding scores from each of the individual items and dividing by the number of items. The higher the score the more satisfied midwives were with their practice environment.

As self-employed midwives routinely work in the community and home environment, coming in and out of the hospital environment based on their clients' needs, they were asked to complete the PES from the perspective of the maternity hospital which their clients most frequently accessed for intrapartum care provision.

Statistical Analyses

The sample was divided into three groups based on midwives' self-report of their employment situation (self-employed, employed,

or both self-employed and employed). The demographic and work-related factors were compared across these three groups using Chi Square tests (categorical variables) and Kruskall-Wallis tests (continuous variables). To compare wellbeing across the groups, a series of analysis of variance tests (ANOVA) were performed. Where there was violation of the assumption of equality of variances (Levene's test), the Welsh's F test provided by SPSS as a robust test of equality of means, was used (McLardy, 2003). To identify factors associated with burnout within each of the three groups, Pearson correlation coefficients were calculated between scores on the CBI: Work Burnout scale and the PES and PEMS subscales and a number of demographic and work-related variables.

Participant Characteristics

Of the 2236 midwives sent an invitation, 1073 completed the survey (48% response rate). A separate question asked the midwives to identify if they were self-employed, employed, or both self-employed and employed, and this question was used for group comparisons (Table 1). Midwives who were self-employed were considered to be providing continuity of care within a caseload model. The midwives ranged in age from 21 to 70 years, the majority had children and were married or living in a de facto relationship. Table 1 shows the demographic characteristics of self-employed midwives (n=473, 44%), midwives employed by an organisation (n=452, 42%) and those who were both self-employed and employed by an organisation (n=148, 14%).

RESULTS

A comparison of work settings with the Midwifery Council workforce data is provided in Table 2 and demonstrates similar proportions of employed midwives (41.1% versus 49%) and employed caseloading midwives (3.4% versus 3.5%) completed the survey. However, a larger proportion of self-employed midwives completed the survey (43.6%) compared to the national average (32.8%) (Midwifery Council of New Zealand, 2013).

The length of time participants had worked as a midwife ranged from 0 to 42 years with a median (Md) for each group of between 11 and 13 years. Almost 75% of employed midwives were located in urban areas, while self-employed midwives were spread across both urban and rural areas (p<.001). There were significantly fewer self-employed midwives undertaking additional study (n=27, 5.7%, p<.001) compared to those who were employed (n=62, 13.7%) or worked both as self-employed and for an organisation (n=23, 15.8%). The majority of midwives considered that they had flexibility to have time off when they needed it, and this did not differ significantly between work settings.

Self-employed midwives recorded the highest number of hours worked per week (Md=40), with the employed group reporting the lowest (Md=32, p<.001). The majority of self-employed midwives worked between 29 and 40 hours (47.8%), with a further 143 (36.2%) working between 41 to 60 hours (Figure 1).

Table 1. Characteristics of midwives who were self-employed, employed, or both self-employed and employed

	Self-employed n=473 (44%)	Employed n=452 (42%)	Both self-employed & employed n=148 (13.6%)	Statistical comparison*
Demographic factors				
Age (Md, range)	Md=48 (22 to 70)	Md=47 (21 to 70)	Md=48 (24 to 69)	Chi Sq=2.5, p=0.27
Ethnicity (n, %)				**Chi Sq=13.5, p=0.09**
New Zealand European	357 (75.54%)	323 (71.6%)	115 (78.8%)	
Māori	21 (4.4%)	25 (5.5%)	5 (3.4%)	
Pasifika	6 (1.3%)	2 (0.4%)	0 (0%)	
Asian	9 (1.9%)	3 (0.7%)	0 (0%)	
Other	80 (16.9%)	98 (21.7%)	26 (17.8%)	
Marital status (n, %)				Chi Sq=1.72, p=0.42
Married/de facto	187 (75.5%)	177 (70.7%)	60 (72.3%)	
Single/Sep/Div/Wid	60 (24.3%)	74 (29.5%)	23 (27.7%)	
Children (n, % yes)	423 (89.4%)	353 (78.3%)	127 (87.0%)	Chi Sq=22.68, p<.001
Children living at home (n, % yes)	296 (70.5%)	243 (69.2%)	85 (66.9%)	Chi Sq=0.597, p=0.74
Caring for others (n, % yes)	84 (17.8%)	74 (16.4%)	39 (26.4%)	Chi Sq=7.612, p=0.22
Work-related factors				
Initial registration (n, %)				Chi Sq=2.591, p=0.27
Midwife	265 (56.0%)	235 (52.1%)	72 (49.3%)	
Nurse	208 (44.0%)	216 (47.9%)	74 (50.7%)	
Length time as midwife (Md, range)	Md=11yrs (0 to 42yrs)	Md=13yrs (0 to 42 yrs)	Md=13yrs (0 to 40yrs)	Chi Sq=1.71, p=0.42
Location (n, %)				**Chi Sq=166.056, p<.001**
Urban	154 (34.4%)	329 (74.9%)	51 (36.4%)	
Rural	96 (21.4%)	48 (10.9%)	35 (25.0%)	
Both	198 (44.2%)	62 (14.1%)	54 (38.6%)	
Work hours (Md, range)	Md =40 (0 to 90)	Md=32 (0 to 64)	Md=36 (0 to 104)	Chi Sq=133.962, p<.001
Additional study (n, % yes)	27 (5.7%)	62 (13.7%)	23 (15.8%)	Chi Sq=20.961, p<.001
Flexible time off (n, % yes)	308 (70.0%)	291 (67.2%)	101 (74.3%)	Chi Sq=2.571, p=0.27

* Chi Square tests were used to compare categorical variables across groups, while Kruskal Wallis tests were used to compare continuous scores. Significant tests are shown in bold font.

Table 2. Comparison of workplace setting of study respondents with Midwifery Council Workforce Survey

Work setting comparisons	Emotional Wellbeing Survey	Midwifery Council Workforce Survey
	n (%)	n (%)
Employed in a tertiary hospital	213 (15.5)	599 (20.4)
Employed in a secondary hospital	213 (15.5)	557 (19.0)
Employed in a primary unit	139 (10.1)	282 (9.6)
DHB-employed caseload practice	46 (3.4)	102 (3.5)
Self -employed caseload practice	599 (43.6)	964 (32.8)
Caseload other	0 (0)	52 (1.8)
Management/advisory/ administration	34 (2.5)	91 (3.0)
DHB educator	15 (1.1)	35 (1.2)
Educator tertiary/undergraduate/ postgraduate	15 (1.1)	57 (1.9)
Other midwifery	99 (7.2)	140 (4.7)
Nursing	0 (0)	23 (0.8)
Working overseas	0 (0)	31 (1.1)
Not reported	0 (0)	5 (0.1)
Total	**1373***	**2938 (100)**

* Includes more than one response

Whereas the majority of employed midwives (n=265, 58.6%) worked between 29 and 40 hours, a further 161 (35.6%) worked 28 hours or less and 4.9% worked between 41 and 60 hours. Midwives working in both models worked on average 36 hours, with the majority working 28 hours or less (n=51, 34.5%) and a further 29.4% (n=44) working between 29 and 40 hours. These midwives were also more likely to be studying (n=23, 15.8%).

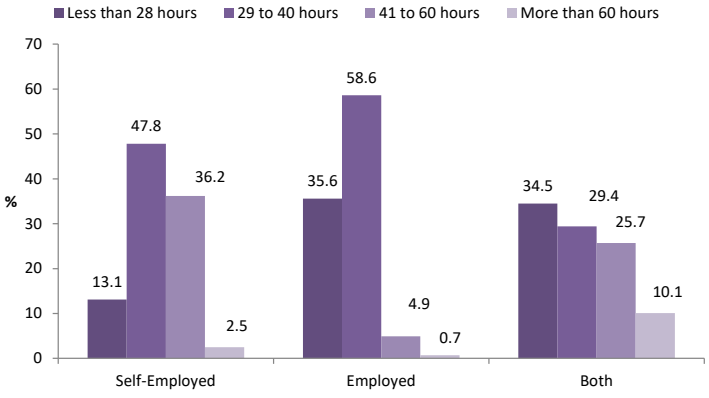

Figure 1. Work hours in average week per work setting of midwife

Midwives' emotional health

Scores on the four validated scales (DASS-21, CBI, PEMS, PES) were compared across the three employment groups (see Table 3).

Depression, anxiety and stress

On the DASS-21 the employed group recorded higher mean scores than the other two groups; however, the difference only reached statistical significance for the DASS: Anxiety scale (p=.001). The mean scores for the employed group were above the normative values reported in the DASS manual for both the DASS: Depression (6.52 compared to the norm of 6.14), and the DASS: Anxiety (5.27 compared to the norm of 4.8).

The proportion of the sample that fell within the clinical categories of moderate/severe/extreme on the DASS scales are presented in Table 3. On the DASS: Anxiety scale there was a significantly higher proportion (p=.04) of employed midwives classified in these clinical categories (18.9%) than self-employed (13.3%) or both employed and self-employed (12%). There was no difference between groups for the DASS: Depression or DASS: Stress scales.

Burnout

There were significant differences among the groups on two of the three scales of the CBI. On the CBI: Work Burnout scale the employed group recorded significantly higher scores than the other two groups (p=.007). A similar pattern was also evident for the CBI: Personal Burnout scale (p=.03). For the CBI: Client-related Burnout scale scores were low across all three groups with the highest scores recorded in the self-employed group, although this did not reach statistical significance (p=.08).

Work environment

Groups were also compared for their scores on the PES and the PEMS, with significant differences detected for five of the eight scales. The self-employed group recorded lower scores on both the PES: Doctor/Midwife Relationships subscale (p=.004) and the PES: Management Quality subscale (p=.02). On the PEMS the employed group recorded lower scores on the PEMS: Skills and Resources subscale (p=.001), the PEMS: Professional Recognition subscale (p=.004) and the PEMS: Autonomy and Empowerment subscale (p<.001). The self-employed group recorded higher scores than the other two groups on the PEMS: Autonomy and Empowerment subscale (p<.001).

Factors associated with work-related burnout

To identify factors associated with work-related burnout, we calculated the Pearson correlation coefficients between the CBI: Work Burnout scores and age, time worked as a midwife and hours worked per week, and scores on the PES and PEM (see Table 4). The correlation between burnout and age, years worked as a midwife, and hours worked per week were all very weak, with correlation coefficients below 0.3. This suggests that these factors were not associated with burnout for any of the groups. For the PES the aspects of the work environment most associated with burnout were Resource Adequacy, Development Opportunities, and Management Quality. This was particularly the case for the employed midwives with correlation coefficients above .35 for each of these PES subscales.

On the PEMS, the subscales Management Support, Professional Recognition, and Skills and Resources showed the highest association with burnout. Once again correlation coefficients were higher for the employed group, suggesting that these aspects played a more important role in determining levels of burnout for this group. The correlations recorded for the group of midwives who were both self-employed and employed were lower across all measures, suggesting that the aspects measured by the PES and PEMS have less impact on their level of burnout.

Table 3. Comparison of scores on the DASS-21, CBI, PES, PEMS for midwives who were self-employed, employed, or both employed and self-employed

	Self- employed n=473 (44%)	Employed n=452 (42%)	Both employed & self- employed n=148 (14%)	Statistical comparison*	Post hoc tests
DASS-21	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**		
Depression (*Normative sample Mean=6.14 SD=6.92)*	5.65 (7.38)	6.52 (7.90)	5.40 (6.72)	F(2,936)=1.79, p=.17	
Anxiety (*Normative sample Mean=4.80 SD=5.03)*	3.96 (5.07)	5.27 (6.09)	3.84 (4.42)	**F(2,379.1)=6.68, p=.001**	Employed significantly higher than the other two groups
Stress *(Normative sample Mean=10.29 SD=8.16)*	9.49 (7.70)	10.10 (8.04)	8.59 (7.54)	F(2,935)=1.89, p=.15	
DASS Classifications	**n (%)**	**n (%)**	**n (%)**		
Depression *(n, % in moderate/ severe/extreme categories)*	58 (14.3%)	56 (13.8%)	15 (12.0%)	Chi sq=1.88, df=2, p=.39	
Anxiety *(n, % in moderate/severe/ extreme categories)*	54 (13.3%)	77 (18.9%)	15 (12.0%)	**Chi sq=6.33, df=2, p=.04**	Employed significantly higher than the other two groups
Stress *(n, % in moderate/severe/ extreme categories)*	58 (14.3%)	56 (13.8%)	15 (12.0%)	Chi sq=.41, df=2, p=.82	
Copenhagen Burnout Inventory	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**		
Personal	52.49 (16.71)	53.93 (18.42)	49.17 (16.63)	**F(2,357.5)=3.74, p=.03**	Employed significantly different to Both
Work	39.67 (18.21)	42.81 (19.82)	37.69 (16.49)	**F(2,367.3)=5.00, p=.007**	Employed significantly different to Both and Self-employed
Client	23.85 (20.30)	22.93 (19.87)	20.0 (15.72)	F(2,384.8)=2.52, p=.08	
Practice Environment Scale	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**		
Doctor/midwife relationships	2.78 (.55)	2.91 (.55)	2.90 (.53)	**F(2,867)=5.55, p=.004**	Employed significantly different to Self-employed
Resource adequacy	2.42 (.52)	2.36 (.65)	2.45 (.62)	F(2,331.8)=1.69, p=.19	
Development opportunities	2.70 (.46)	2.73 (.52)	2.82 (.53)	F(2,823)=2.32, p=.10	
Management quality	2.43 (.58)	2.54 (.66)	2.59 (.72)	**F(2,317.8)=4.17, p=.02**	Self-employed significantly different to Both
Perceptions of Empowerment in Midwifery Scale	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**		
Skills and resources	4.25 (.54)	4.11 (.56)	4.28 (.51)	**F(2,904)=8.62, p<.001**	Employed significantly different to Self- employed and Both
Autonomy and empowerment	4.51 (.49)	3.88 (.67)	4.34 (.54)	**F(2,341.4)=113.4, p<.001**	Significant difference between each pair of groups
Management support	3.40 (.85)	3.45 (.97)	3.58 (.97)	F(2,335.2)=1.87, p=.16	
Professional recognition	3.97 (.67)	3.82 (.65)	3.98 (.67)	**F(2,901)=5.55, p=.004**	Employed significantly different to Self-employed

* Significant tests are shown in bold font.

DISCUSSION

The context of maternity care in New Zealand provides a unique opportunity to examine the emotional wellbeing of midwives working in different ways and work settings. The results from this study represent the views of over a third of the midwifery workforce in New Zealand. Similar proportions of the midwives in this study worked in a self-employed capacity providing continuity of care to a defined number (caseload) of women (44%), as those in an employed model (42%) who were more likely to be working in defined areas of practice (i.e., antenatal, intrapartum, postnatal). A smaller proportion worked across both service models. All three groups were similar in age, marital status, initial registration and length of time working as a midwife. Significantly more of the employed midwives lived in an urban area; this may be related to secondary and tertiary facilities being situated within cities or provincial towns in New Zealand. Of note is the finding that midwives working in an employed model recorded the least number of working hours of the three defined groups, yet they had significantly higher levels of personal and work-related burnout as well as anxiety. This finding is contrary to that of Yoshida and Sandall (2013), who found an association between higher levels of burnout with increased number of hours worked. Employed midwives also reported lower levels of autonomy, empowerment, professional recognition and access to resources. Aspects of the work environment associated with burnout were adequacy of resources, management support, and professional recognition and development opportunities.

Table 4. Correlations between CBI: Work Burnout and demographic and work-related factors and PES and PEM subscales

	Self-employed (n=473, 44%)	Employed (n=452, 42%)	Both employed and self-employed (n=148, 14%)
Correlations with Burnout scores	r	r	r
Age	-.15*	-.21*	-.14
Years as midwife	-.16*	-.21*	-.17
Hours worked per week	.06	.14*	.22*
Practice Environment Scale			
Doctor/midwife relationships	-.28*	-.25*	-.18*
Resource adequacy	-.36*	-.46*	-.34*
Development opportunities	-.32*	-.35*	-.27*
Management quality	-.31*	-.45*	-.17
Perceptions of Empowerment in Midwifery Scale			
Skills and resources	-.24*	-.33*	-.20*
Autonomy and empowerment	-.18*	-.25*	-.08
Management support	-.36*	-.43*	-.24*
Professional recognition	-.37*	-.35*	-.22*

*p<.05. Values shown in the table are Pearson Correlation Coefficients. Values less than .3 are considered small, values between .3 and .49 are considered medium, and values are above .5 are considered large (Cohen, 1988).

Self-employed caseloading midwives are "finding it better"

A significant finding of this study was that self-employed midwives, providing continuity of care in a caseload model, either full-time or combined with some employed work, had much better emotional health (lower levels of burnout, anxiety, stress and depression) than midwives working in an exclusively employed capacity. This study adds to the body of evidence demonstrating that working in a caseload model, with supportive midwifery partners, work flexibility and autonomy, is potentially protective. For example, Australians Newton, Forster and McLachlan (2011) compared the levels of burnout using the CBI in a group of employed caseloading and employed non-caseloading midwives. Although they tested relatively small numbers, these researchers found significantly less burnout, across all three domains, in the 22 midwives working in a caseload model than in the 130 midwives who worked in the standard fragmented Australian model of maternity care (antenatal care, labour and birth care, postnatal care).

The high number of self-employed midwives working in a caseload model is a unique foundational feature of New Zealand maternity care. The result of our study suggests that this model of care is sustainable but does require careful consideration of professional and family commitments.

The high number of self-employed midwives working in a caseload model is a unique foundational feature of New Zealand maternity care. The result of our study suggests that this model of care is sustainable but does require careful consideration of professional and family commitments. There is a need to balance the positive benefits of working closely with women against the potential negative issue of longer working hours. In addition to having better emotional health, this study revealed that midwives working in a self-employed capacity also recorded high levels of empowerment. Although the PEMS has not been used widely outside Ireland (where it was developed), which limits direct comparisons, the psychometric properties of our adapted version were supported in this study (Pallant, Dixon, Sidebotham, & Fenwick, 2016). When the new four-factor structure was applied the results again supported the work of others who have argued that having a sense of autonomy and feeling empowered are protective against burnout in midwives working in a caseload model (Collins et al., 2010; Ministry of Health, 2015; Sandall, 1997; Yoshida & Sandall, 2013).

Perhaps not surprisingly, self-employed midwives, whose main practice environment was the community and/or women's homes, rated the hospital environment more poorly than their employed colleagues. Of particular note was the domain of Doctor/Midwife Relationships, which elicited midwives' perceptions on relationships, collaboration and team work with doctors. Midwives who worked external to the institution had lower scores in these domains. Globally there has been limited research examining the interface between midwives who work in a self-employed capacity, like the New Zealand midwives in this study, and other health professionals working for organisations such as hospitals. In her study of UK community midwives, Hunter (2010) was perhaps one of the first to suggest that these midwives engaged in higher levels of emotion work (managing their own and others' emotions) when "coming in" to the hospital environment, as a result of a "clash" in philosophies. While caseload midwives were aligned with women, midwives in the hospital system were aligned to the institution, despite being employed by the same overall hospital trust. Canadian researchers, Bourgeault, Sutherns, MacDonald and Luce (2012), have also explored the work environment of community midwives who provided care to women in both home and hospital settings. Similarly to Hunter's findings, the Canadian midwives described feeling like "visitors" when working within the hospital and that they needed to negotiate social relations with the other hospital staff, which included doctors, nurses, midwives and auxiliary staff.

More recently, Australian researchers, Menke, Fenwick, Gamble, Brittain and Creedy (2014), examined the structures and processes that supported positive health outcomes for vulnerable and

disadvantaged childbearing women in a publicly funded, caseload model and found that the midwives were often considered "outsiders". The caseload midwives perceived they were not only treated differently to their midwifery colleagues working on the birth suite, but were afforded limited respect and support from doctors, midwifery managers and midwifery team leaders (Menke et al., 2014).

This study has identified a correlation between midwives having sufficient resources to support their work and midwifery burnout. Resource adequacy involved having enough midwives to provide quality care, enough time and opportunity for midwives to spend time with their clients and the ability to discuss client care problems with other midwives.

In the current study the self-employed midwives considered they received more professional recognition from the medical profession than the employed midwives (according to the PES) but rated the Doctor/Midwife Relationships lower. This may be due to the more limited opportunities to develop relationships and teamwork with hospital doctors when the majority of the midwife's work is undertaken within the community environment. It's likely that midwives who had a "foot in both camps" were better off as a result of not only having longitudinal relationships with women but also more opportunities to develop relationships and teamwork with hospital personnel within the employed environment.

Employed midwives "doing it tough"

Although our results support the emotional benefits afforded to midwives working in caseload models, what becomes evident is that those midwives working in an exclusively employed capacity were significantly worse off. While levels of stress and depression were high but not significantly different between groups, midwives working in an employed model were much more likely to be categorised as having moderate, severe or extreme anxiety and had levels well above the general population norm. This resonates to some degree with Hegney et al. (2014), who found significantly elevated levels of anxiety with regard to nursing, when they explored compassion fatigue in a group of 132 nurses working in an Australian tertiary hospital.

Although our results support the emotional benefits afforded to midwives working in caseload models, what becomes evident is that those midwives working in an exclusively employed capacity were significantly worse off.

There is limited work exploring anxiety in midwives. The work of Hood, Fenwick and Butt (2010) perhaps provides some insight. In this Australian qualitative study the researchers explored midwives' experiences of an external review of obstetric services. The high level of scrutiny eventually resulted in midwives experiencing significant fear and anxiety around their clinical decision making and practice.

In our study, the exclusively employed midwives also had significantly higher levels of personal and work-related burnout than their self-employed colleagues. The emotional health of these New Zealand midwives was similar to that reported by two studies with smaller cohorts of employed Australian midwives using similar methodology (Jordan, Fenwick, Slavin, Sidebotham, & Gamble, 2013; Newton, McLachlan, Willis, & Forster, 2014), where high levels of personal and work-related burnout were reported. Taken together, these three studies demonstrate that those midwives in exclusively employed models felt less empowered when compared to their self-employed/caseloading colleagues, considering themselves to be less skilled, less autonomous and having lower professional standing.

Autonomy has been described as having control over your sphere of activity, having the right and capacity to make and act upon decisions, having this right acknowledged by others and taking responsibility for decisions made (Pollard, 2003). In her study exploring facilitators and barriers to autonomy, Pollard (2003) found that good relationships and lack of hierarchy between midwives facilitated autonomy, with the greatest barrier to autonomy being the power of the medical profession. In New Zealand the partnership model of midwifery care is the foundational philosophy of care for midwives and relies on partnerships formed with women, other midwives and health professionals to enhance empowerment and autonomy. Partnership requires equality of status, responsibility and decision making (Guilliland & Pairman, 2010). Further work is needed to explore midwifery perceptions of facilitators and barriers to autonomy within the hospital environment.

The importance of having sufficient resources

This study has identified a correlation between midwives having sufficient resources to support their work and midwifery burnout. Resource adequacy involved having enough midwives to provide quality care, enough time and opportunity for midwives to spend time with their clients and the ability to discuss client care problems with other midwives. This issue was also identified by Hildingsson et al. (2013), who explored burnout amongst 475 Swedish midwives and found that a lack of staff and resources, along with a stressful work environment, were factors that contributed to burnout in midwives. When midwives work in busy practice environments where they feel unable to provide quality woman-centred care, there is an increase in stress (Fenwick et al., 2012) which commonly features as a reason midwives seek to leave the profession (Kirkham & Morgan, 2006; Kirkham et al., 2006; Sullivan, Lock, & Homer, 2011). The New Zealand Midwifery Employee Representation and Advisory Service (MERAS) has identified a set of midwifery staffing standards for maternity facilities to ensure adequate midwifery staffing levels (MERAS, 2014). The provision of quality maternity services relies on having sufficient midwives within a facility to provide clinical governance and quality care. Further work is needed to determine whether the midwifery staffing standards are being met, with a need to highlight the potential impact on the emotional wellbeing of the midwifery workforce when there are inadequate midwifery personnel. Working conditions can influence mental health, so there is a need to consider what constitutes healthy working conditions and how they can be achieved (Seidler et al., 2014).

Midwifery managers can make a difference

Within the PEMS and PES, midwives assessed communication, levels of support and their perception of being listened to, and valued by, their midwifery manager. Where midwives perceived the quality of the support received from midwifery management to be low, particularly for the employed midwives, there were associated elevated levels of burnout. Again this is consistent with the findings of another study (Ball et al., 2002), where lack of management support has been identified as being one of the key issues contributing to midwives leaving the profession. Certainly the large body of work undertaken with registered nurses demonstrates how fundamental the unit level manager is to nurses' ability to provide quality care, gain social capacity and have job satisfaction; all of which protect against emotional exhaustion (van Bogaert, Kowalski, Weeks, van Heusden, & Clarke, 2013). The presence of a supportive manager is equally important to employed and self-employed midwives as both need seamless transition through the institutional systems and processes that enable them to provide woman-centred care.

The presence of a supportive manager is equally important to employed and self-employed midwives as both need seamless transition through the institutional systems and processes that enable them to provide woman-centred care.

STRENGTHS AND LIMITATIONS

A strength of this study is the large sample size with good representation of midwives working across New Zealand and in both employed and self-employed capacities. Having said this, we acknowledge that the midwives were recruited using convenience sampling and the questionnaire was self-administered. It is possible that a response bias may be present with only those with strong views responding. In addition, New Zealand's maternity system has a unique model of care with continuity of care supported and promoted for all women through a variety of frameworks and specifically the Maternity Services (Section 88) notice (MOH, 2007). This model of maternity care is different to other countries and results may therefore be context specific and need to be interpreted with caution.

CONCLUSION

This study explored aspects of emotional wellbeing in a large cohort of midwives working in the New Zealand maternity care context. Despite working more hours, the midwives in our survey who worked across their scope of practice and provided continuity of care (even if also undertaking some employed work), were emotionally better off than their exclusively employed colleagues. Midwives working solely in an employed situation, where maternity care is delivered largely in a fragmented way and where midwives' scope of practice is limited, were found to have significantly higher levels of anxiety and burnout. Employed midwives reported lower levels of autonomy, empowerment and professional recognition, with less access to resources. For all groups, but particularly employed midwives, the quality of midwifery management was fundamental to how midwives assessed their emotional health. While for the New Zealand context there are strong messages about how to better support those in employed models, internationally the results add to the body of knowledge that "debunks" the assumption that providing caseload care is detrimental to midwives and their emotional wellbeing.

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LITERATURE REVIEW

Individualised risks of stillbirth at advanced maternal age: A literature review of the evidence

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ABSTRACT

Introduction: Women worldwide are having their babies later than in previous generations. Advanced maternal age (AMA) has been associated with adverse pregnancy outcomes, the most severe being increased risk of stillbirth. This literature review examines the evidence for risk of stillbirth at term for women aged 40 or over in high income countries, and outlines factors found in the literature that amplify or mitigate the risk. The aim is to assist New Zealand (NZ) AMA women to make informed choices around induction of labour (IOL) which is frequently recommended at 39 weeks gestation as a general district health board (DHB) guideline for women of AMA.

Methods: Databases searched included Google Scholar, CINAHL, Science Direct, PubMed, ProQuest, and Cochrane. Seven papers met the inclusion criteria. Stillbirth risk was assessed against the exacerbating or mitigating factors within the individual papers and compared, if appropriate. Guideline documents regarding NZ obstetric recommendations for AMA were also hand searched.

Findings: The risk of stillbirth is associated with increasing maternal age beyond age 40 with the range of adjusted odds ratios (AORs) of 1.43 to 3.04. However, absolute risk of stillbirth for Australian and NZ women over age 40 remains very low at 4.05 stillbirths/1000 undelivered pregnancies, or an absolute risk factor above a baseline rate of 3.4/1000 for stillbirths (>24wks). Further, the stillbirth risk for women of AMA may be modified by parity and general health.

Conclusion: AMA is associated with increasing stillbirth rates, although the absolute rate remains low and can potentially be modified by parity and general health. Therefore, women of AMA in the NZ context have the opportunity to assess their overall risk in consultation with their maternity carer, including these factors, when making a decision about early term IOL.

Keywords: stillbirth, advanced maternal age, induction of labour, New Zealand

INTRODUCTION

There is a growing trend in developed nations such as the United Kingdom (UK), Western European countries, Australia, Canada and New Zealand (NZ) for women to delay childbearing to later in their lives (Royal College of Obstetricians and Gynaecologists [RCOG], 2009). From 2005 to 2014 the birth rate for NZ women over 40 increased by 17%, from 13 to 15.3 births/1000 women of reproductive age (Ministry of Health [MOH], 2015a). The reasons women are making this choice are often associated with the availability of safe effective contraception, continuing education, career development, achieving financial independence, seeking a stable relationship with a supportive partner, sophisticated fertility treatments, and shifts in the female gender role (Carolan, 2003; RCOG, 2009).

In the last 100 years, the notion that "older" mothers are at higher risk in pregnancy and birth has flourished (Hallgrimsdottir & Benner, 2014). There is a large volume of literature, although inconsistent, associating increasing risk with advancing maternal age (Carolan & Frankowska, 2011; Flenady et al., 2011; Kenny et al., 2013). AMA pregnancies (defined in this paper as mothers >40 years) are associated with higher rates of hypertension and diabetes (Cleary-Goldman et al., 2005; Joseph et al., 2005), and women in general will accrue skeletal damage, cancers and other underlying medical conditions as they age (Suplee, Dawley, & Bloch, 2007).

AMA is also associated with a range of adverse pregnancy outcomes: low birth weight, preterm birth, stillbirth and unexplained death, and increased rates of assisted births and caesarean sections (Bayrampour & Heaman, 2010; Cleary-Goldman et al., 2005; Flenady et al., 2011; Fretts, 2005; Herstad et al., 2014; Tough et al., 2006). However, there is lack of consensus in the literature regarding at what age this risk becomes significant (Carolan & Fankowska, 2011). Further, the underlying cause of these pregnancy outcomes, when the known pathophysiology of underlying disease is not the cause, is yet to be determined.

Currently in NZ, it is common to recommend induction of labour (IOL) at 39 weeks gestation for women of AMA beyond age 40 (Canterbury District Health Board [CDHB], 2014; Capital & Coast District Health Board [CCDHB], 2015; Wise et al., 2014). Over 40% of women over the age of 40 are being induced (MOH, 2015b), although the reason for these inductions is unclear. A guideline of IOL for AMA after 39 weeks is seen as a way to minimise the risk of AMA and term complications, mainly stillbirth. However, the routine or blanket application of a guideline fails to account for individualised risk assessment as happens within the NZ model of midwifery partnership.

Population-based studies (national datasets), although powered to detect a rare event such as stillbirth, are consistent in reporting an association with women aged over 40 and stillbirth (1.72-3.3 OR,

95% CI), but have insufficient data to reveal differences in risk based on quality/quantity of antenatal care, model of care, parity, body mass index (BMI), underlying conditions, socio-economic status and education (Ananth, Liu, Kinzler, & Kramer, 2005; Bateman & Simpson, 2006; Fretts, 2005). When variables such as general health, socio-economic status, education and parity are controlled for, as they are in hospital-based or cohort studies, the risk of stillbirth for women of AMA is smaller (Flenady et al., 2011; Waldenstrom, Cnattingius, Norman, & Schytt, 2015).

NZ has a unique maternity system. Community midwifery care of low-risk women is embedded into primary care and is fully funded. NZ midwifery care, whether in the hospital or the community, promotes partnership and informed choice, continuity of care, cultural safety, normal physiology if appropriate, and a well-defined referral pathway to secondary care when needed (Rowland, McLeod, & Froese-Burns, 2012). Antenatal care is encouraged to begin before 10 weeks and is to be provided in a safe, timely, equitable and efficient manner. Continuity of care is promoted, and there is a mandatory minimum number of postnatal visits (MOH, 2007). Information sharing between the woman and the midwife is paramount; for instance, the NZ midwifery partnership allows for women's perception of fetal wellbeing to hold as much validity as other clinical findings and would be acted upon if necessary (Stacey et al., 2011a). In this review, the risks of stillbirth for women over 40 years of age will be considered within this NZ maternity context with reference to the changing demographics.

Search strategy

On 20th February 2015, Google Scholar, CINAHL, Science Direct, PubMed, ProQuest and Cochrane Databases were searched using the terms: "Advanced maternal age or AMA" and "Risk or Adverse outcome or stillbirth" and "New Zealand". A further search used the terms: "Advanced maternal age" and "Guidelines "and "New Zealand". Guideline documents regarding NZ obstetric recommendations for AMA were also hand searched.

Inclusion criteria were: NZ; studies involving maternal factors such as BMI, socio-economic status, education, underlying disease, midwifery care; advanced maternal age beyond 40 years old; and stillbirth rate.

Exclusion criteria were: datasets older than 20 years (due to a different demographic of high parity and lower socio-economic status), and therefore studies conducted earlier than 1996. Seven studies fitted the inclusion criteria and are summarised in Table 1.

FINDINGS

The literature reviewed included one systematic review, which examines eight studies of stillbirth and women over age 40, (Carolan & Frankowska, 2011). In addition, three population-based studies (Ananth et al., 2005; Gordon, Raynes-Greenow, McGeechan, Morris, & Jeffery, 2013; Waldenstrom et al., 2015) and three hospital or cohort studies were examined (Arnold, Beckmann, Flenady, & Gibbons, 2012; Khalil, Syngelaki, Maiz, Zinevich, & Nicolaides, 2013; Mutz-Dehbalaie et al., 2014). All studies were retrospective and observational, therefore causation of stillbirth could not be determined due to possible confounding variables, but associations could be inferred (Sedgwick, 2014). According to Sedgwick and Marston, (2010), because stillbirth is a rare event, odds ratios (OR) are a good estimate of population relative risk. ORs were compared in six of the seven papers reviewed. The Australian study (Gordon et al., 2013) was confident in the comprehensive collection of every stillbirth that happened in New South Wales over their study time period and therefore calculated a hazard risk – which is relative risk over time, in this case as gestation progresses. AMA pregnancies in women 40 years and older were associated with increased risk of stillbirth when compared to younger women in the majority of the studies reviewed. Five of the six individual studies reviewed here also showed an association with stillbirth and age beyond 40. The ORs were: 1.66 (95% CI 1.03-2.66) when compared to women aged 25-34 (Mutz-Dehbalaie et al., 2014); 1.88 in Norway (95% CI 1.29-2.75) and 2.33 in Sweden (95% CI 1.85-2.95) when compared to ages 25-29 in the same countries (Waldenstrom et al., 2015); and 2.42 (95% CI 1.04-5.62) when compared to women aged 25-29 (Arnold et al., 2012). Ananth et al. (2005) also showed an association between age and stillbirth (OR 2); however, the difference, between the baseline stillbirth rates of white women (3 stillbirths/1000 livebirths) and black women (6.5 stillbirths/1000 livebirths) in this study, demonstrates that there are factors other than age that influence how often there is a stillbirth outcome. All the studies within Carolan and Frankowska's (2011) review showed an association (the range of the eight ORs 1.67-3.04) between 40 years and older and stillbirth, although the absolute rate remained low.

In Australia, Gordon et al. (2013) demonstrated an adjusted hazard ratio of 2.58 (95% CI 1.67-4.01) for primiparous women over age 40 and 2.32 (95% CI 1.52-3.56) for multiparous women over age 40 when compared to women aged 20-24. Whereas Khalil et al. (2013) demonstrated no difference in number of stillbirths between women over the age of 40 and women aged 35-39, after accounting for variables such as method of conception, smoking, hypertension, diabetes and parity. Thus, the absolute risk of stillbirth in high income countries remains very low, about 3.1 stillbirths/1000 livebirths (Cousens et al., 2011) and stillbirth continues to be a rare event in NZ (Perinatal and Maternal Mortality Review Committee [PMMRC], 2015). This rarity means that studies on our small NZ population did not meet the inclusion criteria as they were underpowered to detect differences in maternal age and stillbirth (Stacey et al., 2011b).

Findings in the research varied on aspects of general health, parity, socio-economic status, conception methods, BMI, smoking status, place of birth and model of care, and definitions of stillbirth and AMA (see Table 2). The studies that accounted for multiple variables found that education and socio-economic status influenced the stillbirth risk (Mutz-Dehbalaie et al., 2014; Waldenstrom et al., 2015). Only one paper identified midwifery care and place of birth within its dataset (Gordon et al., 2013) but these variables were not separated out as confounding variables.

Currently, NZ IOL policies for AMA are based on non-NZ studies, and do not take into account our unique maternity system. Six articles were identified that inform some of the NZ IOL policies relating to AMA. Canterbury District Health Board (CDHB) Induction of Labour Guidelines (CDHB, 2014, p. 13) are informed by Ananth et al. (2005), Bateman and Simpson, (2006) (which was within the Carolan and Frankowska (2011) review), and RCOG (2009), an opinion piece. The Capital & Coast DHB Induction of Labour Policy for Wellington Hospital (CCDHB, 2015, p.2) is informed by Raymond, Cnattingius, and Kiely (1994), whose work was not part of the review due to the age of the dataset. An Induction of Labour Best Practice Guideline, developed by the DHBs of Auckland: Auckland, Counties Manukau, and Waitemata (Wise et al., 2014) is informed by Carolan and Frankowska (2011), RCOG (2013) (opinion) and Arnold et al. (2012). Although these studies may be generalisable to the populations of high-income nations and the changing demographic within, none of the countries in these studies has the same model of maternity care as NZ.

Table 1. Articles reviewed for AMA and stillbirth

Authors, year, country	Study design	Results
Carolan & Frankowska, (2011) Multiple countries	Systematic review of adverse outcomes for women aged 35-39. 40 and above also addressed. Review of 9 studies totalling 40 million women. 6: USA, 1: Canada, 1: UK, 1: Australia	Summary: rates of stillbirth associated with maternal age. Increasing rates from 35 years on, but gaining momentum beyond age 40. Impact of changing demographics not understood. The range of Odds Ratios of stillbirth for women >40: 1.67-3.04
Khalil et al., (2013) United Kingdom	Hospital dataset. Retrospective study. Singleton pregnancy with first AN care between 11-13.6 weeks. Age is a continuous and categorical variable. 76,158 women. Association was measured as a continuous and categorical variable.	Odds Ratio of stillbirth 35-39y 1.32 (95% CI 1.01-1.72) 40y or older 1.43 (95% CI 0.90-2.27) These two categories are not significantly different P=0.068. No significant increase in stillbirth between age categories of 35-39 and 40 or older.
Gordon et al., (2013) Australia	Population-based cohort study. State maternity/perinatal death data collections, 2002-2006. 327,690 births. (Data sets = NSW Midwives Data Collection [included public/private hospitals, homebirths]; Perinatal Death Data from the NSW Perinatal & Maternal Committee)	Hazard ratio calculated Absolute risk calculated: per 1000 undelivered pregnancies **Nulliparous women** / **Multiparous women** **<20y** 0.79 / 0.83 **20-24y** 0.76 / 1.07 **25-29y** 1.11 / 0.99 **30-34y** 0.87 / 0.95 **35-39y** 1.42 / 0.38 **>40y** 4.05 / 1.42
Waldenstrom et al., (2015) Multiple countries	Population-based register. Women >25 years, singleton pregnancies, 1990-2011.	Odds Ratio for stillbirth, 25-29y reference **Low/medium level of education** / **High level of education** **1st birth 40y or older** 1.50 (1.05-2.15) / 2.29 (1.69-3.12) **2nd birth** 1.72 (1.22-2.42) / 1.00 (0.66-1.49) **3rd birth** 2.03 (1.44-2.85) / 1.19 (0.64-2.20) **4th birth** 1.44 (1.02-2.05) / 1.93 (0.55-6.74)
Mutz-Dehbalaie et al., (2014) Austria	Hospital dataset. Retrospective cohort study. 56,517 singleton hospital births, 1999-2008.	Odds Ratio for stillbirth Age 35-39: 1.03 (95% CI: 0.77-1.39) Age >40 1.66 (95% CI: 1.03-2.66) Neonatal mortality not significantly different between groups. Obesity & poor antenatal care (<4 visits) amplified stillbirth outcomes.
Arnold, Beckmann, Flenady, & Gibbons, (2012) Australia	Hospital dataset. Retrospective cohort study. Singleton births, 1998-2008, that occurred after 37 weeks. Population: 62,351 after exclusions, aged <40: 60,203 births, 67 stillbirths; aged >40: 2148 births, 6 stillbirths	Adjusted Odds Ratio for stillbirth Age >40 2.42 (95% CI: 1.04-5.62) compared women age <35. SGA fetus also independently associated with term stillbirth.
Ananth, Liu, Kinzler, & Kramer, (2005) USA	Population-based cohort study. Retrospective sample of 71,037,685 singleton live births and stillbirths, 1981-2000.	Overall decrease in all age cohort stillbirths over time. Relative increase of stillbirths in women beyond age 35. AOR 2.2 for white women aged 40-45 compared to women aged 25-29 (stillbirth rate of 3 stillbirths/1000 live births). AOR 1.9 for black women aged 40-45 compared to women aged 25-29 (stillbirth rate of 6.5 stillbirths/1000 live births). Odds ratio for stillbirth among black women vs. white women was 2.4 (95% CI: 2.1-2.7).

Table 2. Comparison of variables within papers that met the inclusion criteria

Authors, year, country	AMA def'n*	Compared with age	Stillbirth def'n*	Exclusion of aneuploidy /multiples	Adjusted for						
					Underlying disease	ART	Type/ amount of care	Smoking	Parity	Socio-economic status/ education	BMI
Carolan & Frankowska, (2011)	≥ =40	Systematic review									
Khalil et al., (2013) UK	≥ =40	35-39	>24wks	yes	yes	yes	no	yes	Null only	no	no
Gordon et al., (2013) Australia	>40	Absolute risk calc.	>22wks or >400g before labour	yes	yes	yes	yes	yes	Null & Multi	no	no
Waldenstrom et al., (2015)	>40	25-29	>22wks	no	yes	no	no	yes	Null & Multi	yes	yes
Mutz-Dehbalaie et al., (2014) Austria	>40		>500g	no	yes	no	yes	yes	Identified but not compared	yes	yes
Arnold, Beckmann, Flenady, & Gibbons, (2012) Australia	>40	<35	>37wks	yes	yes	yes	no	yes	no	no	yes
Ananth, Liu, Kinzler, & Kramer, (2005) USA	40-45	25-29	>20wks	no	no	no	yes	no	no	no	no

* Note the differences in definitions of stillbirth and AMA which will affect reported stillbirth rates.

DISCUSSION

Comparing stillbirth rates between studies has been difficult. The studies are set in different countries, the women included differ in parity, and definitions of stillbirth and AMA are varied. Other factors, such as pregnancies following assisted reproduction technology (ART), issues around BMI, variations in socio-economic status, education, general health and lifestyle, and antenatal care, may or may not be considered (see Table 2). There are no NZ AMA stillbirth rates with which to compare the international rates; as previously noted, Stacey et al., (2011b) is not powered to detect differences in maternal age and stillbirth risk, therefore is not included in this review.

Carolan and Frankowska's (2011) review, involving more than 40 million women, clearly linked increased rates of stillbirth to women beyond age 40; however, the degree of association varied considerably between the studies, from OR 1.62 (Canterino, Ananth, Smulian, Harrigan, & Vintzileos, 2004) to OR 3.04 (Bahtiyar et al., 2006). Improved socio-economic status and education and a reduction of the risk of stillbirth was marginally supported (Cleary-Goldman et al., 2005; O'Leary, Bower, Knuiman, & Stanley, 2007; Yuan et al., 2000) although not well understood.

Individualised care is the hallmark of NZ midwifery and is underpinned by facilitating women's ability to make an informed choice (Guilliland & Pairman, 2010); therefore, knowing and sharing which factors can influence a woman's risk for stillbirth are important. However, rates of stillbirth for AMA women within the studies reviewed are difficult to apply to the individual NZ woman; this is due to the heterogeneity of study cohorts and definitions between the studies (Suplee et al., 2007). For example, two of the six individual studies differentiated stillbirth results between parities (Gordon et al., 2013; Waldenstrom et al., 2015) and showed that multiparity can be protective against stillbirth at advanced maternal age. BMI was accounted for in only three of the six studies (Arnold et al., 2012; Mutz-Dehbalaie et al., 2014; Waldenstrom et al., 2015), despite high BMI complicating care and increasing risk of stillbirth (Flenady et al., 2011). ART versus spontaneous conception was addressed in only one of the six studies (Khalil et al., 2013), despite ART being more common in older women and appearing to increase the risk of stillbirth (Bewley, Ledger, & Nikolaou, 2009). Furthermore, definitions of when fetal death is designated a stillbirth ranged from >20 weeks gestation (Ananth et al., 2005) to >37 weeks (Arnold et al., 2012) and only one study differentiated between antepartum and intrapartum stillbirth (Gordon et al., 2013). These differences in studies make comparison and application of rates difficult.

It is accepted that the risk for stillbirth increases as a woman ages (Khalil et al., 2013); however, the cohort of 40 years and over does not account for the differences between a 40-year-old pregnant woman and a pregnant 50-year-old—it is assumed the stillbirth risk is the same. Only Ananth et al. (2005) had categories for ages 40-44 and 45-49, showing an increase in risk with age. It could be assumed that women closer to 40 would have a lower risk of stillbirth to that of women closer to 50.

Factors exacerbating or mitigating risk

Waldenstrom et al. (2014) recently compared the risk of fetal death (0.21%) (measured as adjusted absolute risk) for low-risk women (non-smokers, normal weight, ages 25-29) to that of women older than 30 or who smoked or were overweight or obese. Findings showed the risk of fetal death was highest for overweight and obese women (0.53%). Women over 40 had a risk of 0.49%, compared to women aged 35-39 whose risk was 0.37%, and smoking was associated with a risk of fetal death rates of 0.33%. The authors concluded that maternal age was an independent risk factor but their study did not allow for definitive conclusions about causality.

Nonetheless, Flenady et al. (2011) conclude that the combination of age, increased BMI and maternal smoking increased negative outcomes substantially.

Just as some lifestyle choices may compound the effects of aging, other lifestyle choices may offset the development of pregnancy-related problems associated with aging, as suggested by Carolan and Frankowska (2011). This theory has been backed by Suplee et al. (2007). Further, Viau, Padula, and Eddy (2002) demonstrated that women over 35 were "proactive health seekers" (p.330), changing their health behaviour patterns based on the physiological needs of their pregnancy. Women having their first baby over 40 are more likely to be of higher socio-economic status than younger women (Carolan & Frankowska, 2011; Joseph et al., 2005)—allowing these women to afford healthy food choices and time to seek out alternative health modalities to improve and maintain their health. For example, Carolan (2003) found that women of AMA may view pregnancy as a their "last chance" to become a mother and make health decisions that protect it, and higher socio-economic status and lower parity are known predictors of greater pregnancy investment and more favourable pregnancy outcomes (Viau et al., 2002). A recent study (Goetzinger, Shanks, Odibo, Macones, & Cahill, 2014) reports that AMA women have fewer fetal anomalies, excluding aneuploidy, than their younger counterparts, and attributes this partly to healthy behaviours by women of AMA. Therefore, the large studies that do not control for socio-economic status may not be accurately reflecting the protective effect of good health and lifestyles.

As mentioned above, parity too may have an effect. Gordon et al. (2013) found that multiparity decreased the stillbirth risk in women over age 40, and Waldenstrom et al. (2015) discussed the protective effect of parity in higher socio-economic cohorts. Therefore, guidelines in NZ suggesting IOL to reduce risk of stillbirth for AMA alone, and not differentiating risk on the basis of the woman's age, parity, BMI and smoking respectively and collectively, may be overstating the benefits of IOL for preventing stillbirth.

Just as women have physiological variations in how they age, women will have had different environmental and lifestyle influences over the years. Further complicating this are the many unproven theories about the underlying pathophysiological mechanism for the increased adverse outcomes. Some of these mechanisms will be explored below, although they may be only one aspect of the adverse outcomes being reported.

Pathophysiology underlying risk associated with AMA

There are co-morbidities that often accompany pre-existing medical conditions, such as hypertension, obesity and diabetes (Cleary-Goldman et al., 2005; Joseph et al., 2005). These underlying illnesses affect a larger percentage of older mothers (a quarter of women 45 years or older will have a chronic medical disease; Department of Health, 2004), but there are clear cause-and-effect care pathways for these, and they will not be addressed here. Pathophysiological theories for the association of stillbirth with AMA, separate from these pre-existing conditions, are mainly focused on uterine aging.

In the broader literature, the pathophysiology underlying increased stillbirths, assisted deliveries and caesarean sections is mainly linked to impaired decidua development and placentation. Sclerotic lesions increase with age, which may be one factor that causes under-perfusion of the fetus, eventually leading to stillbirth (Prefumo et al., 2004). Doppler studies show more notches and higher vascular resistance in nulliparous women (Hafner, Schuchter, Metzenbauer, & Philipp, 2000; Prefumo et al., 2004) compared to multiparous women. One hypothesis suggests that a successful first pregnancy may inherently change the uterine lining to have increased non-muscular tissue in the uterine arteries (Khong, Adema, & Erwich, 2003) and improve the endovascular trophoblast invasion (Prefumo, Ganapathy, Thilaganathan, & Sebire, 2006). This supports the research findings that increased parity reduces the risk of stillbirth in women of AMA (Gordon et al., 2013; Waldenstrom et al., 2015).

Managing the increased risk of stillbirth in AMA women in NZ

Primary maternity caregivers in NZ have well-defined referral guidelines (MOH, 2012) to determine what pre-existing or developing conditions warrant a consultation or transfer of care to the obstetric team. However, there is not a specific pathway for AMA. For conditions outlined in the referral guidelines, a three-way conversation is mandated with the woman, her lead maternity carer (LMC, a midwife in 84% of NZ cases; MOH, 2015c) and the consultant. It is also possible that in a strong midwifery partnership, where the well-informed woman evaluates her own risk, she may or may not choose to consult.

Many DHB guidelines for IOL state that women of AMA, without any other risk factors, can be offered an IOL between 39 and 41 weeks (CDHB, 2014; CCDHB, 2015; Wise et al., 2014). Assessing a woman on age alone assumes that the underlying pathophysiology is universal and needs to be treated. However, the mechanism for the risk of stillbirth in women of AMA is undetermined (RCOG, 2009, 2013), as previously shown, and so treating an associated risk with a general recommendation of induction will have a large number of women being treated for few babies being saved.

Further, the iatrogenic consequences of induction are well documented; such as, lower maternal satisfaction (Brown & Furber, 2015), increased need for epidurals (Brown & Furber, 2015) leading to increased assisted births (McCarthy & Kenny, 2011), and increased Neonatal Intensive Care Unit (NICU) admissions (Stock et al., 2012). Randomised controlled trials (RCTs) comparing rates of caesarean deliveries between women with IOL and those with expectant management have generally concluded that the caesarean rate is unchanged or lower with IOL (Hannah et al., 1992; Mishanina et al., 2014). However, observational studies say otherwise (Allen, O'Connell, Farrell, & Baskett, 2005; Vahratian, Zhang, Troendle, Sciscione, & Hoffman, 2005) and so there remains a possibility that failed IOLs possibly result in increased caesarean section rates (McCarthy & Kenny, 2011; Shetty, Burt, Rice, & Templeton, 2005). This information should be conveyed as part of the informed consent to the intervention process.

RCOG (2009) suggests that if all women aged 40 or more in the UK, with a singleton pregnancy, were induced at 39 weeks instead of 41 weeks, 17 stillbirths would have been prevented from 2009-2010. This would have required an extra 9350 inductions over that time period, or 550 inductions to prevent one stillbirth. To provide perspective, the number of postdates inductions needed to prevent one stillbirth after 42 weeks gestation is 410 (Gülmezoglu, Crowther, Middleton, & Heatley, 2012). Arnold et al. (2012) calculated from their dataset that IOL at 40 weeks for women aged 40 or more, results in an extra five caesarean sections for every 100 women induced. Hypothetically, if this was the same rate for the RCOG (2009) commentary, this would mean an extra

468 caesareans for that time period, or 28 caesareans to prevent one stillbirth.

Utilising IOL to mitigate a possible maternal age risk, without any other indication, further burdens hospital secondary care resources such as staffing numbers, length of stay in unit, medicines and equipment (Druzin & El-Sayed, 2006). IOL, assisted delivery and caesarean section all have a much higher economic cost than vaginal birth (Allen et al., 2005). Alternatively, expectant management, although it too has a cost in extra monitoring (Goeree, Hannah, & Hewson, 1995), is another way to address the possible increased risk posed by AMA.

Expectant management has been studied by Fox et al. (2013). This United States (US) retrospective cohort study (4,469 women) found that women over 35 years old did not have a higher rate of stillbirth when compared with women less than age 35 with expectant management, within an obstetric model. Women over age 35 had weekly biophysical profile testing after 36 weeks gestation, and planned delivery at 41 weeks or sooner if indicated.

However, in the greater literature the effectiveness of fetal surveillance of AMA women remains unclear and stillbirths of AMA women are often unexplained (Gordon et al., 2013; Salihu et al., 2008; Silver, 2007). A Cochrane Review (Alfirevic, Stampalija, & Gyte, 2010) did not find any evidence that routine assessment of fetal growth or umbilical/uterine artery Dopplers could identify fetal growth restriction and therefore a higher risk for stillbirth. Similarly, Alfirevic, Stampalija and Medley (2015) could not find any benefit in using fetal Dopplers as a screening tool to identify fetal problems in low-risk babies, although they were useful to identify the at-risk fetus in known potentially high-risk cases. Although adverse outcomes such as Small for Gestational Age (SGA) and stillbirths could be caused by placental insufficiency, in women of AMA stillbirth is not associated with oligohydramnios or meconium stained amniotic fluid (Miller, 2005).

Expectant management in NZ is not solely related to external surveillance, however; it also includes close attention paid to maternal perception of fetal movements. Tveit et al. (2009) outline how information sharing about decreased fetal movements halved the stillbirth rate of the Norwegian population. A small NZ study (Peat, Stacey, Cronin, & McCowan, 2012) indicated that, although 97% of women in NZ are being asked about fetal movements by their midwife, only half of women in midwifery care are receiving optimal information about fetal movements, which is easily incorporated into care and may influence late-term stillbirth rates.

In the NZ context, some women over 40 may not choose IOL after 39 weeks as recommended by DHB guidelines. The well-informed pregnant woman, acquainted with her risk and the gaps in what we know, may choose to be monitored for any heightened risk rather than accept a general population recommendation. Self-employed, midwifery-led care does not have differing stillbirth rates from hospital midwifery, GP/shared or private obstetrician-led care in NZ (Stacey et al., 2012), suggesting that how AMA women are being cared for within the NZ midwifery model is effective in addressing the increased risk. Therefore, individualised care within the NZ midwifery partnership model may reduce the rate of inductions for AMA alone, without increasing the stillbirth rate for this cohort of women.

Given that the rates of stillbirth do not vary between model of care or choice of LMC, more research would be helpful in uncovering if and how care of AMA women differs between models. Additionally, calculating the economic and social costs of an elective early-term IOL, versus expectant management within the primary care model, would be useful for the NZ maternity system. Uncovering this model could reduce the economic and social burden of more women and babies requiring secondary care, and promote choice for AMA women at the end of their pregnancies.

CONCLUSION

Midwives are increasingly caring for women over 40 years of age (Statistics New Zealand, 2014) and, while there is a large body of literature on the pregnancy and intrapartum risks of later childbearing, it is difficult to apply it to the individual woman of AMA within the NZ maternity system. This is due to lack of consensus on the underlying physiology of aging, heterogeneity of the cohorts studied within research, such as parity, socio-economic status, ART versus spontaneous conception, BMI, general health, smoking status, place of birth, model of care and caregivers' tolerance for risk for this cohort (Carolan, 2013).

Actual risk of stillbirth remains low, despite the increased association. DHB guidelines within NZ recommend IOL at 39 to 41 weeks gestation for women of AMA in order to minimise the increased stillbirth risk (CDHB, 2014; CCDHB, 2015; Wise et al., 2014). However, the population-based IOL recommendation has its own risks that may outweigh the individual risk of stillbirth (Allen et al., 2005; RCOG, 2009).

Not all AMA women in NZ are being induced at 39-40 weeks, so it seems the stillbirth risk may be addressed by expectant management. The stillbirth rates for the women cared for by self-employed midwives do not differ from those cared for by hospital midwifery teams, GP/shared or private obstetrician-led care in NZ (Stacey et al., 2012). This suggests that midwives, in collaboration with obstetricians if needed, are addressing the increased stillbirth risk for AMA effectively. More research needs to be done to investigate how AMA women are being cared for by NZ midwives in the community, as this model has the potential to reduce pressure on secondary care facilities and provide AMA women with more choice at the end of their pregnancies.

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This review was inspired by the women I have cared for, who are undertaking motherhood later in life. Thank you.

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INTERNATIONAL RESEARCH

Outcomes of blood loss post physiological birth with physiological management in the third stage of labour at a maternity home in Japan

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ABSTRACT

Background: Debate continues as to whether active or physiological management of the third stage of labour reduces the risk of postpartum haemorrhage for healthy well women. However, little attention has been paid to what volume of blood loss should be considered within normal range when the birth has been physiological, including physiological management of the third stage. At midwife-run maternity homes in Japan, midwives support physiological labour and birth, including the third stage, with protocols in place which govern when to intervene, refer and transfer to hospital obstetric care.

Objectives: To describe and quantify and gauge the significance of blood loss volume following birth when labour, birth and third stage have been physiological at one Japanese maternity home.

Method: Retrospective cohort study with data being extracted from the birth records of 512 women who gave birth at a maternity home between January 2007 and February 2010. Blood loss was measured up to two hours postpartum.

Findings: Among the 512 births, we determined the means of parity as 2.2 (SD=0.86), blood loss up to two hours post-delivery as 608.7ml (SD=403.1), and length of the third stage of labour as 12.9min (SD=7.7). Blood losses of between 0-499ml, 500-999ml, 1000-1499ml, 1500-1999ml and ≥2000ml were 52.3%, 31.6%, 11.3%, 4.1% and 0.6%, respectively. Therapeutic intravenous uterotonics were provided to 3.1% of women when blood loss was <1000ml but given to 83.3% when blood loss exceeded 1500ml. Furthermore, 5.6% of the women received IV iron therapy when blood loss was <1000ml, while all the women did when blood loss exceeded 1500ml. Mean haemoglobin level at four days postpartum with blood loss >1500ml was 8.3 g/dl (SD=1.0) which was significantly lower than the mean of 9.8 g/dl (SD=1.2) calculated for the women who had a blood loss of 1000-1499ml and the 9.6 g/dl mean (SD=0.9) for the women with a blood loss of 500-999ml ($F=27.92$, $p<0.001$). Of those reported (n=11), mean haemoglobin levels in all groups increased to almost 11 g/dl after two weeks.

Conclusion: Although these data are only from one maternity home in Japan, they clearly demonstrate that for these women, when births were physiological and the third stage was physiologically managed, blood loss during the third stage and up to two hours postpartum could be more than 500ml and may be as much as 1000ml without adversely affecting them.

Keywords: physiological birth, physiological (expectant) management of the third stage of labour, blood loss, maternity home, Japan

INTRODUCTION

Active management versus physiological management of the third stage of labour has been debated in the literature since the 1980s (Begley, 1990; Dixon, Fullerton, Begley, Kennedy, & Guilliland, 2011; Jangsten, Mattsson, Lyckestam, Hellstrom, & Berg, 2011; Prendiville, Harding, Elbourne, & Stirrat, 1988; Rogers et al., 1998; Thilaganathan, Cutner, Latimer, & Beard, 1993). Active management has been identified as consisting of three interventions: prophylactic uterotonic administration, early cord clamping before cord pulsation ceases, and controlled cord traction (Begley, Gyte, Devane, McGuire, & Weeks, 2015). In physiological management the placenta is delivered spontaneously with the aid of gravity and sometimes by maternal effort without those three interventions (Begley et al., 2015).

In their Cochrane systematic review aimed at assessing the effectiveness of active or expectant management of the third stage of labour, Begley et al. (2015) found active management of the third stage reduced the risk of a haemorrhage greater than 1000ml. They concluded that active management has benefits for women at mixed levels of risk for bleeding, although "there was an absence of high-quality evidence" (Begley et al., 2015, p.1), but that adverse effects were also identified. The studies included in the review involved births in hospital only settings with women often experiencing intervention during the first and second stages

of labour, such as induction and/or augmentation of labour and instrumental delivery (Begley, 1990; Khan, John, Wani, Doherty, & Sibai, 1997; Prendiville et al., 1988; Rogers et al., 1998).

In contrast, Dixon et al. (2011) conducted a systematic review aimed at assessing outcomes for low risk women who had a physiological labour and birth followed by physiological third stage care. The women included in this review had no interventions (such as induction/augmentation) during labour and birth. Using this definition Dixon et al. (2011) found four studies that met the review criteria. These demonstrated no increased risk of haemorrhage with physiological management and the authors then questioned the use of active management for low risk women. This review included a retrospective study from New Zealand of a cohort of low risk women who had had no interventions during labour and birth and had received physiological third stage care. Their findings indicated an increased risk of blood loss of more than 500ml with active management (Dixon et al., 2009).

Research studies to date have compared physiological and active management of the third stage with a focus on which method can reduce the volume of blood loss. With a blood loss volume of more than 500ml classed as a postpartum haemorrhage, the underlying assumption is that lower volumes are optimal for women. Throughout history, excessive blood loss during childbirth, with its resultant morbidity and mortality, has been one of the greatest concerns facing healthcare professionals. Consequently, emphasis has been put on the reduction of excessive blood loss during the third stage, yet little attention has been paid to what should be considered a normal range of blood loss volumes for a normal physiological birth.

Gyte (1992) suggested that blood loss at birth is "physiologically normal" and is part of the mechanism which brings the mother's blood volume back to its non-pregnant level. But how much is normal is debatable (Begley et al., 2015).

Postpartum haemorrhage (PPH) is defined by the World Health Organization (WHO) as a blood loss exceeding 500ml. This definition is problematic (Cunningham & Williams, 2001) because, if measured quantitatively, it transpires that a considerable number of women have a loss exceeding 500ml. In one study, when chromium-labelled red blood cells were used to measure the blood volume lost from the circulation, 39% of women had lost more than 500ml (Pritchard, Wiggins, & Dickey, 1962). Another study by Brant (1967) used a washing machine extraction method and found that 21.5% of women had lost more than 500ml of blood at delivery. Newton, Mosey, Egli, Gifford, and Hull (1961) used the acid-hematin spectrophotometric method to identify the mean blood loss, of a cohort of primiparas without oxytocin after the delivery of the placenta, and the result was a mean of 613ml.

Visual estimation is the most frequently practised method of judging blood loss during childbirth. Newton et al. (1961) and Brant (1967) compared visually estimated blood loss to measured blood loss and found that there was considerable underestimation, a finding replicated by others. Schorn (2010) reviewed 46 studies which compared actual measurement and estimated blood loss during childbirth, and found that visual estimation is inaccurate. She argues that estimated blood loss should be eliminated from routine assessment and documentation and that a combination of direct measuring and weighing is optimal.

Returning to the challenge of the current WHO definition of PPH, a blood loss of more than 500ml may not necessarily be an abnormal event. Well-nourished, healthy women are able to compensate a blood loss of up to 1000ml (Blackburn, 2008; Cunningham & Williams, 2001; Frye, 2004). This is because the total blood volume during pregnancy can potentially increase by between 1400ml and 2000ml (Bloomfield & Gordon, 1990; Cunningham & Williams, 2001). In 1996 WHO refined its definition of PPH stating that blood loss of up to 1000ml could be considered physiological dependent on the woman's response to that loss (WHO, 1996).

In our study we consider that physiological blood loss during the third stage is the amount of blood that the woman's body sheds as a way of restoring equilibrium within the maternal circulation, during the transition from pregnancy hypervolemia to the non-pregnancy state.

Japanese independent midwives run their own maternity homes without needing a physician to be present. They are required by law to have a contract with a back-up physician and an institution. Only low risk women are supported to give birth in these maternity homes with a normal birth expected. Practice Guidelines for Maternity Homes (Japanese Midwives' Association, 2005, 2009) designate the criteria for whether a woman can have care from a midwife alone, needs co-management with a back-up physician, or needs referral to an obstetrician. Well pregnant women, with a singleton fetus and cephalic presentation, are seen by an obstetrician during pregnancy and, if expected to be able to have a spontaneous vaginal birth, can be managed by midwives autonomously (Japanese Midwives' Association, 2005, 2009). In these circumstances midwives aim to support normal physiological birth of the baby and the placenta. The midwives take care of women throughout pregnancy, continuously nurturing women physically and mentally, to make physiological birth successful. Women are free of medical interventions and free to choose any position to give birth. No prophylactic uterotonics are used in the third stage, although some emergency medicines, such as uterotonics and intravenous infusions, and medical procedures can be used according to a given protocol with a back-up physician if haemorrhage occurs.

Midwifery-led maternity homes in Japan are unique places for childbirth in that medicine and/or medical procedures are prohibited by law. This study was prompted because the midwives working at one particular maternity home felt, overall, that the total blood loss in the women they provided care for without uterotonics, seemed to exceed what is traditionally defined as a PPH. However, almost all these women have an uneventful postpartum period.

Physiological labour, birth and third stage are more likely to occur in maternity homes, so exploring care provision and outcomes in this setting is likely to provide more understanding of what could be considered normal blood loss following physiological birth. Therefore, the aim of this study was to describe, quantify and gauge the significance of blood loss volume over a set time period, following birth when labour, birth and the third stage have been physiological within one midwifery-led maternity home in Japan.

STUDY SETTING

The maternity home in this study provides care for low risk women up to one month postpartum. This maternity home has about 150 births a year on average and six to seven midwives provide care to all women, rostering shifts to cover each 24 hours. The midwives share information about women closely and all the midwives get to know all the women, resulting in individualised and continuity of care from pregnancy through to the postpartum period.

All midwives are aware that they cannot give medicines within the maternity home and all are confident in managing a physiological third stage, including how and when to identify excessive

blood loss. Health promotion and non-pharmaceutical care takes place throughout the antenatal period to help make physiological birth, including the third stage, possible.

The placenta is delivered spontaneously without either the administration of a prophylactic uterotonic agent or fundal massage or suprapubic pressure. After the baby is born and has been placed onto the mother's chest for skin to skin time, the umbilical cord is clamped and cut after making sure pulsation has ceased. Most women lie supine for the delivery of the placenta and are sometimes encouraged to push or squat.

In Japan, blood loss at birth is defined as the volume of blood lost within two hours of the birth, with haemorrhage being defined as a loss of more than 500ml (Japan Society of Obstetrics & Gynecology, 2003). According to this definition, blood loss is measured at the end of the third stage, and then one hour and two hours later.

In our maternity home, when giving birth, the women are on three layers of collection sheets. The top layer is for amniotic fluid and is removed as soon as the baby is placed onto the mother's chest so that amniotic fluid is not mixed with blood loss. Then the placenta is delivered onto a second sheet which also collects the blood loss. Any extensive blood loss is collected on the third sheet, which is also weighed while the placenta is inspected. Any additional coagulated blood on the surface of the placenta is removed and placed onto the third sheet. Then all sheets are removed and weighed. The collection sheets are weighed before and after use. All gauzes and pads are also weighed before and after use. This constitutes the data collection at the end of third stage. Then a new pad is applied and then weighed after one hour, before being replaced with a second new pad which is weighed at the conclusion of the second hour. Total blood loss is then calculated to assess whether or not it was a haemorrhage.

This method has been routine practice at this maternity home and was introduced to ensure consistency of measurement. The midwives felt it was important to measure blood loss accurately to facilitate their decision-making process regarding the care they provided. In addition, the maternity home was a place of teaching, where consistent methods of delivering the placenta and measurement of blood loss had to be taught to all staff and students. According to a protocol agreed with the back-up physician, oral methylergometrine and/or IV oxytocin are available in the case of postpartum haemorrhage. Either can be administered during the delivery of the placenta or within one to two hours, depending on when bleeding occurs. Oral methylergometrine is administered when uterine atony occurs but is responding to care such as fundal massage and bleeding and the midwives consider the bleeding is likely to stop. For immediate heavy blood loss and/or continuous bleeding, IV oxytocin is administered. The midwives in attendance determine severity of blood loss from the nature and speed of blood flow, and the condition of the woman and whether the oral and/or IV uterotonics should be used. Usually two midwives attend a birth so they can discuss the situation between them, thereby helping their decision-making process.

Haemoglobin (Hb) is checked if the woman has had a blood loss of more than 1000ml (as per the protocol with the back-up physician) or at the midwives' discretion if they consider the woman to be clinically anaemic. If Hb is lower than 10g/dl the physician will prescribe oral iron on the day of discharge (fifth day). IV iron can be also administered immediately after birth and in the postpartum period if a PPH has occurred. According to the protocol, if the woman has a blood loss of 1000ml or more, IV iron should be administered within one to two hours of the birth and every day up to the fourth day postpartum.

METHOD

This was a retrospective cohort study with data extracted from the birth records of the 512 women who gave birth at one Japanese maternity home between January 2007 and February 2010. Inclusion criteria were: low risk women with no major problem during pregnancy, singleton pregnancies, cephalic presentations and spontaneous onsets of labour between 37 weeks and 42 weeks. No medicine or medical procedures were used during the first or the second stages of labour for these 512 women. If either was required the woman was transferred to the back-up physician or the back-up institution and these women were excluded from this study.

The primary outcome of the study was blood loss volume during and following birth. The definition of blood loss has been described earlier. Blood loss was measured at the end of the third stage, and at one and two hours later. These measurements were added together to provide the total blood loss. Blood loss was measured and documented by midwives as a routine practice in the way described earlier. This documentation was then retrospectively analysed.

Secondary outcomes were: requirement for either oral or IV therapeutic uterotonic treatment, requirement for IV iron therapy, weight of baby, length of the third stage of labour, length of labour, parity, age, mother's body mass index (BMI, calculated as follows: weight (kg) ÷ {height (m) x height (m)}), condition of placenta, perineal lacerations, postpartum Hb levels up to day four and at week two when reported. Changes in Hb levels, from the last antenatal Hb measurement to Hb levels at day four postpartum, were calculated.

Data analysis

Blood loss was divided into five groups by 500ml increments and then combined into four quartiles for the purpose of statistical analysis. Analysis included ANOVA, student t-tests, and Pearson's r, and all data were analysed using SPSS v12. A p value of <0.05 was considered to be statistically significant.

Ethical consideration

This study was approved by the Institutional Review Board of Tenshi College, Japan.

FINDINGS

Demographics

Demographics of the study participants are shown in Table 1.

Table 1. Demographics

	M (SD)	Range	n
Age	31.2 (4.6)	18 - 43	512
Parity	2.2 (0.9)	1 - 5	512
Gestational age	39w6d (7d)	37w0d - 42w0d	512
Woman's BMI	20.4 (2.4)	15.6 - 35.3	512
Length of labour & delivery	6hr47min (5hr40min)	50min - 53hr07min	512
Length of 3rd stage	12.9min (7.7min)	1min - 1hr42min	512
Newborn weight	3162.1g (343.7g)	2100g - 4244g	511
Apgar score at 1min	9.0 (0.78)	4 - 10	492

These include mean age and parity of women, gestational ages, newborn birth weights, Apgar scores, lengths of the third stage and lengths of labour and delivery. The women who had been accepted to have their baby in the maternity home therefore were at low risk; however, there were three newborn and two maternal transfers.

Blood loss

Table 2. Blood Loss from completion of 3rd stage until 2 hours post birth

	M (SD)				Range	n
At 3rd stage	392.4ml (329.7ml)				0-2070ml	512
1 hour	144.2ml (134.4ml)				0-1120ml	511
2 hours	71.7ml (101.2ml)				0-950ml	509
Total[a]	608.7ml (403.1ml)	Parity	Total blood loss	n	92-2430ml	512
		1	610	106		
		2	632.2	252		
		3	566.3	121		
		4	580	27		
		5	584	6		

a. Total blood loss = 3rd stage + 1 hour + 2 hours

The mean blood loss at the end of the third stage of labour was 392ml and the mean total blood loss at two hours following birth was 608ml (Table 2). The sample consisted of almost 80% multiparas (n=406), but there was no significant difference in total blood loss between primiparas and multiparas (t=-1.30, p=0.19). Parity was not significantly associated with total blood loss (F=0.59, p=0.67).

Table 3. Identified differences in mean total blood loss

	Intact (%)	Not intact (%)	P-value[c]
Perineum n=512	600.8ml n=231 (45)	615.1ml n=281 (54.9%)	p=.69
Placenta n=509[a]	781.4ml n=504 (99)	608.8ml n=5 (1%)	p=.34
Membranes n=481[b]	718.4ml n=471 (97.9)	596.6ml n=10 (2%)	p=.33

a. Unrecorded (1) & unclear status (2) were excluded from total of 512
b. Unrecorded (2) & unclear status (29) were excluded from total of 512
c. Student t-test

The placenta and the membranes were intact in 98.4% and in 92% of the births, respectively, and 45.1 % of the perineums were intact (Table 3). Among women who had perineal lacerations (54.9%), 79.4% (n=223) had first degree and 20.6% (n=58) had second degree lacerations. There were no third or fourth degree lacerations. The total blood loss was not associated with whether or not the placenta was intact (t=0.95, p=0.34), the membranes were intact (t=0.98, p=0.33), or the perineum was intact (t=0.39, p=0.69). The total blood loss was positively correlated with the weight of the placenta (r=0.29, p=0.00), the baby's weight (r=0.20, p=0.00) and the woman's BMI (r=0.17, p=0.01), and negatively correlated with the woman's age (r=-0.12, p=0.01). The woman's BMI was also positively correlated with blood loss at one hour and two hours (r=0.12, p=0.01, and r=0.16, p=0.00, respectively). Table 4 shows the length of the third stage did not correlate with either blood loss at the end of third stage or total blood loss (r=0.08, p= 0.07, and r=0.04, p=0.39, respectively).

Total blood loss volumes and uterotonic administration frequencies are shown in Table 5.

Table 5. Therapeutic use of uterotonics

Total blood loss	n	%	Uterotonics			
			Oral	%	IV	%
0-499ml	268	52.3	13	4.9	0	0
500-999ml	162	31.6	36	27.2	5	3.1
1000-1499ml	58	11.3	30	51.7	15	25.9
1500-1999ml[a]	21	4.1	7	29.2	20	83.3
≥2000ml[a]	3	0.6				
Total	512	100	86	16.8	40	7.8

a. Incidence of therapeutic use of uterotonics is combined for women who lost 1500-1999ml and ≥2000ml

The majority of women in the cohort lost between 500ml and 999ml of blood and accounted for 84% of the total sample. Two of the mothers with excessive blood loss were transferred to hospital for management of their severe postpartum haemorrhages. The mean BMI of the women was compared over the four blood loss groups, 0-499ml, 500-999ml, 1000-1499ml and ≥1500ml and were 20.1, 20.7, 20.5 and 20.7 respectively, with no significant differences among the groups (F=2.49, p=0.06).

Therapeutic use of uterotonics

Of the women who had a blood loss of less than 1000ml, one third (32.1%) were given oral therapeutic uterotonics (Table 5) and 3.1% were given IV uterotonics. The majority of women who had blood loss of 1000-1499ml were given oral therapeutic uterotonics with 25.9% being given IV. In contrast, almost all the women who lost more than 1500ml of blood needed oral and/or IV therapeutic uterotonics. Overall, 7.8% of the cohort needed IV uterotonics.

Table 4. Correlations with total blood loss

	Total blood loss	Fall in Hb[a]	Weight of placenta	Woman's BMI	Woman's age	Length of 3rd stage	Parity
Total blood loss	-						
Fall in Hb[a]	0.40**	-					
Weight of placenta	0.29**	-0.04	-				
Woman's BMI	0.12**	0.00	0.20**	-			
Woman's age	-0.12**	0.05	-0.07	.092*	-		
Length of 3rd stage	0.04	-0.01	0.02	-0.02	-0.10*	-	
Parity	-0.04	-0.13	-0.07	0.11*	0.41**	-0.07	-

a. Fall in Hb = last antenatal Hb – Hb at 4 days postpartum, *p<.05, **p<.001

Haemoglobin levels in the postpartum period

Table 6. Therapeutic use of Iron and Hb results

Total blood loss		IV iron	Hb at D4[a]		Fall in Hb[b]		Hb at W2[a]	
	n (%)	n (%)	n	M (SD)	n	M (SD)	n	M (SD)
0-499ml	268 (52.3)	0 (0)						
500-999ml	162 (31.6)	9 (5.6)	15	9.6 (0.9)**	15	1.44 (0.35)**	4	11.0 (0.8)
1000-1499ml	58 (11.3)	44 (75.9)	56	9.8 (1.2)**	56	1.68 (0.18)**	4	10.8 (1.1)
1500-1999ml[c]	21(4.1)	24 (100)	23	8.3 (1.0)	23	3.22 (0.29)	7	10.8 (1.1)
≥2000ml[c]	3 (0.6)							
Total	512 (100)	77 (15)						

a. ANOVA(Bonferroni) **p<.001
b. Fall in Hb = last antenatal Hb – Hb at 4 days postpartum
c. Incidence of therapeutic use of uterotonics is combined for women who lost 1500-1999ml and ≥2000ml

The numbers of women who had an Hb taken and/or were treated for anaemia are provided in Table 6. IV iron was administered to 5.6% of the women who had had a blood loss of less than 1000ml, and to 75.9% of the women who had had a blood loss of 1000-1499ml. All of the women with a blood loss of more than 1500ml received iron therapy.

The mean Hb level at four days postpartum for women with a blood loss ≥1500ml was 8.3 g/dl (SD=1.0). This was significantly lower than the 9.8g/dl (SD=1.2) found for women who had a blood loss of 1000-1499ml and the 9.6g/dl (SD=0.9) for women with a loss of 500-999ml (F=27.92, p<.001).

The decreases in Hb level between the last antenatal check and at four days postpartum were compared among the three groups of blood loss (Table 6). The mean decrease in Hb levels was significantly higher for women who had a blood loss of ≥1500ml than the mean decrease in the women whose blood loss was 1000-1499ml or 500-999ml (F=11.90, p<.001). There was no significant difference in the decrease of mean hemoglobin levels with a blood loss of 500-999ml compared to a blood loss of 1000-1499ml.

Regardless of the woman's blood loss, by two weeks postpartum Hb levels were almost 11g with or without iron therapy and there were no statistically significant differences among the groups (F=0.66, p=0.54).

Other events affecting mothers and newborns

Three newborn transfers occurred. Two were due to respiratory problems and one was due to a persistent fever. Phototherapy for jaundice was given to 2.0% (n=10) babies. At two weeks postpartum 93.8% of mothers were breastfeeding completely, 2.1% were breastfeeding partially and 2 (0.4%) women were using formula only. Breastfeeding status was not associated with total blood loss (t=1.52, p=0.13).

DISCUSSION

In our study, the women were healthy and no interventions took place throughout the first, second and third stages of labour and birth. We found that approximately half (52%) of our cohort had a total blood loss of less than 500ml and a further 32% had a blood loss of 500-999ml. Therefore, the majority (84%) of this normal low risk cohort had a total blood loss, at two hours following the birth, of less than 1000ml, with an average of 608ml. Parity and first and second degree lacerations did not affect the blood loss volume. Furthermore, there were only two obese (BMI>30) women in our study.

Therapeutic intravenous uterotonics were administered to 3.1% of women when blood loss was <1000ml but given to 83.3% when the loss exceeded 1500ml.

Blood loss in our study appears to be higher than what has traditionally been considered normal but adverse effects were not apparent unless the women had a blood loss of ≥1500ml, at which time the mean Hb level was significantly lower when compared to other blood loss volumes. In addition, for this group, the decrease in Hb levels in the early postpartum stage when compared to the last antenatal Hb level was also significantly larger.

Our findings are consistent with other studies that suggest women can tolerate a blood loss of up to 1000ml without this having any long term impact on their health (Blackburn, 2008; Bloomfield & Gordon, 1990; Frye, 2004; Gyte, 1992).

The results of our study differ from those reported by the studies reviewed by Dixon et al. (2011). In this review Thilaganathan et al. (1993), Dixon et al. (2009) and Bais, Eskes, Pel, Bonsel and Bleker (2004) reported mean blood losses of 200ml, 213.6ml and 361ml, respectively. The wide variation may be due to timing of blood loss measurement in each study.

A Swedish randomised controlled trial (Jangsten et al., 2011), comparing blood loss dependent on third stage care, compared actively and physiologically managed third stage of labour and found very similar results to our study in the physiologically managed arm. The average blood loss was reported as 680ml and losses of more than 1000ml occurred in 16.8% of the physiologically managed arm.

In our study and in the Swedish study, blood loss was measured for up to two hours following the birth. Whereas, both the Thilaganathan et al. (1993) and the Dixon et al. (2009) studies used estimated loss immediately following the birth. The timing of blood loss measurement was unclear in the study by Bais et al. (2004).

Despite this difference in timing, if blood loss measures are compared for immediately following the birth, the mean loss for Jangsten et al. (2011) was 395ml and in our study 392ml, both of which are higher than the estimated values of the other studies (Bais et al., 2004; Dixon et al., 2009; Thilaganathan et al., 1993).

A potential reason for the higher recorded blood loss volume is the method of blood loss measurement. There is evidence that visual estimation results in either over or underestimation of blood loss. When the loss is small, it is more likely to be overestimated and when large it is more likely to be underestimated (Al-Kadri et al., 2014; Dildy, Paine, George, & Velasco, 2004; Newton et al., 1961; Razvi, Chua, Arulkumaran, & Ratnam, 1996; Wallace, 1967). Brant (1967) found that when the visually estimated loss exceeded 300ml, underestimation was invariable. Razvi et al. (1996) also found that the tendency to underestimate blood loss was greatest when the measured blood loss was greater than 300ml. It is also possible, because traditional teaching may have

influenced blood loss measurement with the expectation that the range for normal blood loss is 200-300ml, that this is indeed why most of the estimated losses fell into the 200-300ml range. It is possible that the visually estimated volumes reported by the Thilaganathan et al., (1993), Dixon et al., (2009) and Bais et al., (2004) studies, were underestimated since they were gauged subjectively and not quantitatively.

Our study and the Swedish study (Jangsten et al., 2011) have sought to measure blood loss with a high degree of accuracy. In the case of the Swedish study, soaked pads with amniotic fluid were removed and a dry sanitary pad was placed under the mother immediately after the birth of the baby, and all sanitary towels and pads were weighed before and after use. In our study, not only was there a protocol for measurement, but there was also consistency of midwifery staff. The method of measurement was consistently taught to all midwifery staff and attending students in the maternity home carrying out the measuring, which has potentially contributed to the accuracy of the measurements.

Despite these similarities there were some differences between our study and that of Jangsten et al. (2011). In the latter study medical interventions (such as epidural and augmentation) were included in the physiological arm of their study. This could have confounded their results. However, of importance are the similarities between blood loss volumes and rate of occurrence of severe PPH in these two studies.

Therapeutic use of uterotonics, and iron and haemaglobin levels

A third of women in our study had a total blood loss of 500-999ml, did not require therapeutic uterotonics or IV iron replacement and had no clinically signs of anaemia following birth. For women who had a blood loss of 1000-1499ml, one quarter were treated with IV uterotonics and the majority (75.9%) were treated with IV iron, resulting in improved Hb levels postpartum. For those women who had a blood loss volume of more than 1500ml, almost all needed therapeutic uterotonics and IV iron replacement. Despite these treatments, their Hb levels were significantly lower than the levels of the other groups. Furthermore, a loss of ≥1500ml brought about a significantly greater decrease in Hb levels compared to the last antenatal Hb level, suggesting that the level above which immediate intense treatment is required for all women, regardless of their condition antenatally, is this litre and a half level. Lilley et al. (2015) also found that gravimetric measurement of blood loss was correlated with a fall in Hb following PPH where blood loss exceeded 1500ml. They hypothesise that when blood loss exceeds 1500ml, the protective, physiological adaptation of pregnancy is less effective. Our findings are supportive of this hypothesis.

Uterotonics and/or iron were given at the midwives' discretion. Therefore, an individual midwife's perspective can potentially influence treatment given. Our results show that, despite a culture of not using medication unless necessary, the midwives made appropriate assessments and decisions which supported the wellbeing of women.

Physiology of blood loss after pregnancy-induced hypervolemia

Cunningham and Williams (2001) argue that when blood loss is measured accurately, a volume in excess of 500ml is not necessarily an abnormal event. Bloomfield and Gordon (1990) agree, suggesting that a fit young woman can cope with a blood loss of up to 1000ml without difficulty because she has increased her circulating blood volume by more than this during pregnancy. During pregnancy a woman increases her blood volume by 30-60% which for an average-sized woman amounts to 1000-2000ml (Cunningham & Williams, 2001). Consequently, a woman can tolerate blood loss at delivery approaching the volume of blood she added during pregnancy, without any remarkable decrease in postpartum hematocrit (Cunningham & Williams., 2001). Therefore, blood loss up to 1000ml may be considered physiological in women who are well nourished and can be considered healthy (World Health Organization, 1996).

Newton et al. (1961) argue that the height and weight of the mother may be related to her response to blood loss during third stage. A non-pregnant woman's circulating blood volume can be calculated as half of [height (inches) ×50] + [weight (pounds) ×25] and pregnant blood volume increase varies from 30-60% of calculated non-pregnant volume (Cunningham & Williams, 2001). In our study, BMI was correlated with blood loss at one hour, two hours and total blood loss. Bloomfield and Gordon (1990) point out that the definition of haemorrhage as a blood loss of 500ml or more does not make allowance for the size of the circulating blood volume of the individual mother.

Some studies in the literature report BMI >30 as a risk factor for excessive blood loss (Fyfe, Thompson, Anderson, Groom, & McCowan, 2012; Schrauwers & Dekker, 2009). Nevertheless, in our study there was no significant association between mean BMI and excessive blood loss. However, compared to Western populations, the prevalence of obesity is much lower in Japan, especially among women giving birth at maternity homes. This is demonstrated by the fact that only two women in our study were classified as obese, therefore our finding cannot be generalised to other populations with a higher prevalence of obesity. Further research is necessary to investigate whether a woman's BMI and blood loss are associated physiologically and how we should take this into consideration when we decide how much blood loss constitutes the normal range for an individual woman.

This is the first study to evaluate blood loss up to two hours postpartum at a maternity home outside of a hospital setting in Japan. In hospitals, prophylactic uterotonics are routinely used and active management is prevalent, though many variations exist. No other study has been published on blood loss with physiological management of the third stage following physiological birth in Japan to date.

A strength of this study is the consistency of the method of, and the personnel involved in, the measurement of blood loss volume. We found that the total mean blood loss at two hours postpartum was greater than 500ml (therefore, technically defined as a PPH). Our findings provide a baseline for future research aimed at identifying normative blood loss volumes when birth is physiological and the third stage is physiologically managed.

Blood loss of ≥1500ml seemed critical with two maternal transfers and significant falls from the last antenatal Hb levels postpartum. However, almost all women were breastfeeding and recovering well with Hb levels returning to normal levels at two weeks postpartum.

LIMITATIONS

This is a retrospective cohort study which was conducted at one maternity home in Japan. The findings of this study cannot be generalised to other maternity homes. Larger studies are necessary to fully evaluate the normal range of blood loss with physiological management following physiological labour and birth.

Hb levels were not taken from all the women in our cohort. Only

women who lost more than 1000ml of blood and those who looked clinically anaemic, even if they had a blood loss of less than 1000ml, had samples taken. Any further study should evaluate all women's Hb levels to judge the effect of blood loss volume.

CONCLUSION

Although these data come only from one maternity home in Japan, they record exact quantities of blood loss at the third stage and up to two hours postpartum, and the results suggest that blood loss volumes of 500-1000ml may be physiologically normal when births are physiological and the third stage is physiologically managed.

Further research is needed to understand the physiology of the blood loss that accompanies childbirth and the physiological reaction to that blood loss, so that we can develop appropriate guidelines for identifying and treating pathological haemorrhage and the administration of therapeutic uterotonics when the birth has been physiological.

CONFLICT OF INTEREST STATEMENT

The authors report no conflict of interest.

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NEW ZEALAND RESEARCH

The core of the core: What is at the heart of hospital core midwifery practice in New Zealand?

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ABSTRACT

Background: New Zealand midwives who are employed by District Health Boards and are based in hospitals and maternity units are known as core midwives. Half of New Zealand midwives are employed as core midwives, performing a variety of key roles and, as such, are central to the functioning of maternity services. The sustainability of core midwifery is therefore highly significant for the future of maternity services in New Zealand. Research on sustainable midwifery practice operates as a constructive counterpoint to the growing literature on burnout and stress amongst midwives.

Aim: The question this study asked is: What sustains midwives who have been in hospital practice in New Zealand for more than eight years? The findings will inform workforce planners, managers and the midwifery profession about what may well contribute to the retention of midwives who are essential to the maternity services provided in hospital settings.

Methods: A qualitative descriptive study was conducted in New Zealand, recruiting and interviewing 22 core midwives with between 8 and 40-plus years' experience. Interviews were transcribed and thematic analysis was undertaken by the research team. Analysis was done as a group in a reciprocal fashion between the individual interviews and the data as a whole. Themes were clustered into groups and excerpts from the data used to illustrate the agreed themes. Ethical approval was obtained from Auckland University of Technology Ethics Committee.

Findings: This study found that core midwives sustain themselves in practice through developing significant core midwifery skills. Core midwives quickly build a partnership with women; and they are prepared to deal with everything, including unexpected and critical incidents. Core midwives often take on a managerial role in a unit and, as such, create the culture of the unit while supporting students and new graduates, as well as Lead Maternity Carers.

Conclusion: Core midwives highlight the importance of effective relationships with women, whānau, colleagues and managers. Our sample displayed unique and specific skills: connecting quickly with women, anticipating ahead to keep women safe, managing complexity, being prepared for everything, managing a unit and displaying flexibility and adaptability in their work. However, these core midwives feel invisible and undervalued at times, a finding that may well shine much needed light on what threatens sustainability of the core midwifery service nationwide.

Keywords: core midwifery skills, hospital core midwives, sustainable midwifery

INTRODUCTION

Background and rationale for the study

Research on sustainable midwifery operates as a constructive counterpoint to the growing literature on burnout and stress amongst midwives. Studies that have explored sustainable midwifery practice in New Zealand have tended to focus upon the experiences of caseloading Lead Maternity Carer (LMC) midwives (Engel, 2003; Gilkison et al., 2015; McAra-Couper et al., 2014; Wakelin & Skinner, 2007). Of the midwives who held a current midwifery annual practising certificate in October 2015, 50.2% reported core practice as their main work (Midwifery Council of New Zealand, 2015). This study explores the experiences of a group of such midwives. In this study the term "core midwife" has been used to refer to all midwives who are employed (usually by District Health Boards, DHBs) and are based in hospitals or maternity units, or who have other employed roles. This is a definition that seeks to acknowledge the wide variety of midwifery roles that are performed by employed midwives, and the pivotal, indeed "core", function that each of these has in relation to the continued day-to-day running of New Zealand's maternity facilities. The range of different jobs and functions that core midwives perform is considerable, underlining the diversity of roles that exist within core midwifery. The sustainability of the practice of core midwives is a significant issue for the future of sustainable maternity services nationally and internationally.

There is a history of persistent core midwifery vacancies across New Zealand, affecting some DHBs in particular (Kyle & Aileone, 2013). The main issues noted by the Midwifery Employee Representation and Advisory Service (MERAS, 2014) are distribution of the workforce and retention of midwives, particularly in some of the larger maternity units. According to the New Zealand College of Midwives (NZCOM), some maternity units in New Zealand's hospitals are in what is described as an emergency situation due to midwifery shortages (Williams, 2017). The Midwifery and Maternity Provider Organisation's (MMPO's) mapping project found that, between 2011 and 2013, the number of hospital midwives dropped from 1444 to 1345. This was in part due to some midwives in rural areas choosing to become self-employed LMCs. Rural communities across the country are particularly vulnerable to shortages if a midwife retires or leaves the area, as it can take up to two years to recruit a replacement (Health Workforce New Zealand, 2015). Furthermore, there is a national shortage of midwives in a number of countries across the world and many countries face problems relating to attrition of the midwifery workforce (Hunter & Warren, 2014; Pugh, Twigg, Martin, & Rai, 2013; United Nations Population Fund, International Confederation of Midwives, & World Health Organization, 2014).

The impact of shortages of midwives can lead to suboptimal staffing standards, potentially affecting the quality and safety of maternity services for women. MERAS has encouraged DHBs to "develop contingency plans to mitigate the risk to services and implement action plans towards meeting the staffing standards which would also assist in recruitment and retention of midwives" (MERAS, 2014, p.1). This study provides insights into conditions that support the sustainability and retention of core midwives and, therefore, holds the potential to significantly inform maternity service provision in New Zealand and internationally.

Literature review

Midwifery is one of those professions that can be physically, emotionally and mentally demanding, making midwives particularly prone to stress and burnout (Schaufeli & Janczur, 1994; Young, Smythe, & McAra-Couper, 2015). This applies to both caseloading midwives as well as core midwives; however, the kind of pressure each group is exposed to differs substantially (Yoshida & Sandall, 2013). While caseloading midwives have been thought to suffer mostly from the personal and social constraints of constantly being on call (Donald, Smythe, & McAra-Couper, 2014; Engel, 2003; McLardy, 2003; Todd, Farquhar, & Camilleri-Ferrante, 1998; Young et al., 2015), for core midwives burnout has been linked to lower job autonomy and longer working hours (Mollart, Skinner, Newing, & Foureur, 2013; Yoshida & Sandall, 2013).

Other issues core midwives in particular have encountered include: role conflicts, harassment and bullying by colleagues and family of clients, and greater workload in relation to staffing levels (Yoshida & Sandall, 2013). Conflict with colleagues, such as medical doctors or between senior and junior midwives, is a recurring theme when investigating stressors for those midwives working in a hospital setting (Banovcinova & Baskova, 2014; Hunter, 2004). Hunter (2004, 2005) proposed that at the centre of these work conflicts lies an ideological clash as midwives working in a hospital setting have to conflate the ideal of providing individualised woman-centred care with the more technology-intensive, tightly protocol-governed, institutional demands of the hospital. This clash in itself constitutes an internal conflict and can lead to disillusionment as midwives may feel they no longer can live up to their personal professional standards (Hunter, 2005).

Another source of stress core midwives contend with are pressures resulting from staff shortages (Curtis, Ball, & Kirkham, 2006; Kirkham, Morgan, & Davies, 2006). Such shortages result in midwives being expected to cover or do the same work with fewer people, which leads to the dissatisfaction of not having the time and resources to provide optimal care. Shift work has also been associated with an increase in work-related stress and burnout (Kirkham et al., 2006; Yoshida & Sandall, 2013). In their survey of hospital and community midwives, Mollart et al. (2013) found that those midwives working a mix of day and night shifts had poor morale, which is one of the signs of burnout. Moreover, shift work has been linked to a range of health issues such as poor diet, insomnia or other sleep disorders, irritability and headaches (Zhao & Turner, 2008), as well as an increase in risk for anxiety, hypertension, tiredness and stress (Di Milia, Waage, Pallesen, & Bjorvatn, 2013; Flo et al., 2012). Consistent nightshifts in particular can heighten stress levels and impact family life (Presser, 2000).

All these issues have been found to negatively impact midwives' experiences of their job and ultimately may lead to a decision to leave practice, which can put a further strain on remaining staff (Curtis et al., 2006; Wakelin & Skinner, 2007). While these findings seem to paint a fairly bleak picture of the profession, researchers have started to create a productive counterpoint by focusing their investigations on the factors that motivate and sustain midwives to continue with their work (Brodie, Warwick, Hastie, Smythe, & Young, 2008; Davies, Daellenbach, & Kensington, 2011; Engel, 2003; Gilkison et al., 2015; Kirkham et al., 2006; McAra-Couper et al., 2014; McLardy, 2003; Sandall, 1997; Sullivan, Lock, & Homer, 2011; Wakelin & Skinner, 2007). The concept of sustainability refers to the ability of systems, processes or people to continue without exhausting their resources (Crowther et al., 2016). With regard to midwifery, studies exploring sustainability of practice have focused on factors that maintain midwives' passion and commitment to their profession and the concepts or interventions that support midwives to cope with the stresses of their job (Crowther et al., 2016).

Research from the international arena also suggests that relationships with women are an important part of what sustains midwives in any context. For example, research among National Health Service (NHS) midwives in the United Kingdom (UK) (Kirkham et al., 2006) and hospital midwives in Australia (Sullivan et al., 2011) showed that midwives working in these settings gain a great sense of satisfaction from their relationships with the women in their care. Being able to establish an effective relationship with women is fundamental for midwives to practise well, as these encounters, however short or fragmented they may be, can have a great impact on the woman's emotional state and her overall maternity experience (Halldorsdottir & Karlsdottir, 1996).

Supportive relationships with colleagues and management, and the sense of community and belonging that comes with collegial relationships, also rank high among the factors that reduce midwives' stress level on the job and have been listed as reasons to keep practising (Kirkham et al., 2006; Sullivan et al., 2011; Yoshida & Sandall, 2013). Hunter (2005) noted that for hospital midwives it was their colleagues rather than their clients who were the most important source of professional feedback.

Core midwives were also found to take great pride in their profession as they regarded it as a privilege to be able to be present during births (Sandall, 1997; Sullivan et al., 2011), which helped

them deal with the stresses of their job. Others indicated they enjoyed the variety of roles their profession brings (Kirkham et al., 2006). For these midwives, the unpredictability and variability of their work and the large range of skills required are sources of excitement that keep them interested and engaged. Higher levels of occupational autonomy were also associated with reduced stress (Yoshida & Sandall, 2013) and greater job satisfaction and morale (Kirkham, 2011).

The current study seeks to contribute to the accumulation of research into sustainability among core midwives, which is an issue that has not been explored in the New Zealand context previously. In seeking to identify factors and strategies that support core hospital midwives to carry out their practice in a durable way, this research is ideally situated not only to contribute to the growing body of work on sustainable midwifery but to the provision of effective, sustainable maternity services across New Zealand and internationally.

METHOD AND METHODOLOGY

Potential participants were invited to participate in this research via an email circulated to midwives through the NZCOM database. The email invited recipients, who would like to participate in the study or to find out more about the study, to email the project's research officer. For the 22 midwives who consented to participate, semi-structured interviews lasting approximately an hour were organised at a time and place of convenience to the interviewee, outside of their workplace. The interviews were carried out in person, by telephone or via Skype, depending on the location and preference of the research participant. The interviews were recorded, and participants were provided with an opportunity to review and make changes to the transcript of their interview, prior to it being included in the research analysis.

Data analysis was informed by a qualitative, descriptive approach (Braun & Clarke, 2006). Interview transcripts were read by different members of the research team for emerging themes and patterns. On the basis of team discussions, a list of key themes, referred to within the team as "codes", were identified. Transcripts were then read and analysed using these codes, and interview data were allocated to individual codes with some data being identified as relevant to two or more codes. Team discussion was ongoing throughout this process in order to facilitate accurate and consistent coding. This also allowed for a small number of new research codes to emerge as discussion and reading of the data became more nuanced. Each code was subsequently analysed separately for sub-codes, and was then considered in relation to other data codes in order that overlaps, cross-overs and relationships could be identified. This enabled analysis of the patterns, both within and across the different codes, to occur.

The research received ethical approval from the Auckland University of Technology Ethics Committee (AUTEC reference number 14/380). The project was also reviewed by the Joan Donley Midwifery Research Collaboration (JDMRC) Database Access Governance Group, which agreed that the research met the criteria for access to the NZCOM membership database.

Participants

The 22 midwives who participated in this study came from a range of jobs and functions but all had worked between 8 and 40-plus years as core midwives. Ten of the midwives worked in tertiary level units, 5 in secondary level units, and 5 in primary units, with the remainder working in other employed capacities. Twelve research participants were based in the North Island of New Zealand and 10 in the South Island. Some of the midwives who participated in the study regularly rotated to different wards of a maternity unit; others worked almost exclusively on a particular ward. Some midwives worked in urban areas and others rurally; some were specialists in a particular field of midwifery; some were charge midwives or worked at another level of management; and a number had experience of working two midwifery jobs at the same time. The majority of midwives worked shifts, including rostered shifts over the weekend, although some did work fixed hours.

FINDINGS

Core midwifery skills

This research has found that the sustainability of core midwifery for our participants relies on having effective relationships with women, whānau, colleagues and managers. Along with relationships, these core midwives are sustained by the love of the job and the variety and diversity of work options that being a core midwife afford. For core midwives to feel sustained they also need to feel valued for the work they do and have control over their working conditions. This research has identified strategies that this sample of core midwives has developed to sustain themselves, such as ways that they look after themselves, and arrange their work and life. Core midwives who participated in this study spoke of feeling invisible and sometimes undervalued, but this research has identified the very special skills that core midwives have, and shows their unique contribution to New Zealand's maternity service.

It is the significant core midwifery skills that this paper explores. Other themes will be explored in forthcoming articles. From the interviews emerged an appreciation of the special and unique skills that core midwives have developed. Core midwives thrive on the diverse and varied nature of their roles. Midwives in this study spoke of quickly building a partnership with a woman whom they have probably never met, and who may have very complex needs. Core midwives need to be skilled and prepared to deal with everything, including the unexpected and critical incidents, while at the same time working in partnership with the women and guarding the normal as much as possible. The skill of managing a unit, creating the culture of that unit and supporting students, new graduates and LMCs, as well as the women being cared for in that facility, is another role that a core midwife can be asked to take on.

Core skill of connecting with women quickly

As a part of everyday practice, core midwives meet and care for women they are unlikely to have met previously, and often at a time when the women are in distress. Core midwives in this study speak of working with every woman who "comes through the door", and of the skill of being able to form a partnership with each woman.

One midwife puts it this way:

> *I think I'm quite good at that because I've been doing it for a long time and I am able to get a connection with the woman very, very quickly to make that a really good experience for her but at the same time to have a lot of professionalism. And also knowing that women need hospital midwives. I am happy to provide that care; I am happy to be the one who comes in and, you know, hopefully, makes it a good experience.*

Midwife participants seem to retain the same strong philosophy of working in partnership with women alongside self-employed midwives who are able to work in partnership over the whole childbearing period for the woman. What is different is that their work with women is likely to encompass complicated and complex

issues; however, the core midwife keeps her focus on the woman. One midwife talks about the needs of high risk women:

> *I think that for me women who have complications, who have problems during the pregnancy, deserve really good midwifery care just as much as the women who are normal and can birth at home.*

It is not only physical complexity which this midwife sees; she is aware of multiple social complexities as well:

> *I see a lot of women who have terrible obstetric histories; who have all kinds of, not just physical health problems, but social stresses, a lot of socio-economic things. A lot of the time having a baby isn't the main thing they are thinking about in their pregnancy. They have a lot that they are juggling and I have always thought that those women need really good midwifery care too. So, for myself, in order to be able to provide that, I focused on learning to be confident with high risk, with the more medical interventions to do with pregnancy, which I know is not usually a standard midwifery philosophy. I enjoy helping women get positive experiences when it is that much more of a challenge for them to have a positive experience, if that makes sense.*

For this core midwife it is not only the obstetric complexity, but the social complexity and diversity of women for whom she provides expert care; trying to make it into a positive experience for them in whatever ways she can, and also protecting normal birth in complex situations.

The skill of guarding normal while in a technological world

Some of the participants point to the fact that women have different needs and different views on what matters for them during childbirth. These core midwives provide individual care and adapt their philosophy to meet the needs of individual women and to work around the medicalised environment of the hospital setting. One midwife speaks of preserving the experience of women becoming mothers (which she describes as normalising) wherever possible, so that it is meaningful for the woman and always keeping the woman at the centre of care:

> *I try to normalise the woman's experience. It is not that I naïvely think that all birth is normal because I don't, but I think to make it as normal and meaningful for the woman and her family. That has always been my thing that has kept me going. So even in very abnormal situations to be able to do that and to place the woman at the centre of everything I do. That has always been my philosophy - that she is there, in the centre.*

Despite working in an increasingly medicalised environment, core midwives in this study are very clear that the focus of their care is on the woman and the fact that she was becoming a mother, as well as providing midwifery care required for women experiencing complications. For them, the skills of core midwifery, therefore, encompass both the skill of caring for women with complex needs, as well as preserving the special event for the woman and her family of welcoming a new baby.

Core midwifery skill of anticipating: Keeping women safe

Another midwife explains her skill of anticipatory knowledge, which comes from experience, and also her ability to anticipate and know when things are not right:

> *Yeah, you get a sense quite early on, you know. You kind of have a picture in your head when you take over and it's probably experience as well because I've been working in hospitals for such a long time, I've got that kind of experience that you know 'Ooh, there are certain alarm bells that are going off' and 'This is what I'm looking for, and I'm hoping this is the presentation I get'. But I also can anticipate and early on I can sense that something is not going right.*

The ability to anticipate early and having an intuitive sense of what is happening when she first assesses a woman can trigger "alarm bells". For core midwives, a lack of previous knowledge of, or relationship with, a woman means that they need to rely on good assessment skills, highly developed intuition and early anticipation as means of supporting safety for the woman and her family.

The range and diversity of core midwifery skills

Some of the core midwives in this study work in complex and high stress secondary or tertiary environments. Some midwives love the diversity and enjoy the experience of emergencies because there is a sense that midwives are at a very significant event in people's lives, an event that won't be forgotten and it feels a privilege for midwives to be with women during such a special life event.

There are occasions when birth does not go to plan, but the core midwife helps:

> *But also, you know, in the times where something is not so nice and someone loses a baby - like - if you think what you did even just a little bit helped people through that horrible time - like - that kind of thing, that kind of sustains you because you know, at the end of the day, what you did wasn't just for money - like - it isn't just because you need to survive. Like you actually - maybe not a big difference - but just made a little bit of difference. Like that is quite important for me out of a job because you spend so much time doing it I think you want to have that kind of good feeling about it.*

The role of the core midwife is to attend women when her risk status alters and there is transfer of care from her primary care midwife (LMC), when, for example, the baby has died. In such cases, this midwife says she makes sure she helps the woman and family by making a little bit of a difference. It makes her feel good to think she has helped. This midwife shows sincere empathy in her work with families experiencing loss and acknowledges how horrible the situation can be. Yet in this sadness, this midwife feels better by knowing she has done her job really well and has done it for the love of the job, not just money.

On the other end of the spectrum, in primary units, some core midwifery roles focus more on care related to physiological birth, breastfeeding and postpartum care. Midwives in these roles also emphasise the positive nature of that role. The following participant identifies the positive aspects of her role in this way:

> *I get to go to so many lovely physiological births. Truly people give birth, you know, by themselves. I get to go to so many lovely physiological births and it is so different looking after those women and their babies postnatally compared to [looking after] the babies that have come from the base hospital, you know, that have been pulled out with forceps, you know. They [the mothers] can't breastfeed because they've had an augmented labour and an OP position, you know, with masses of drugs … and the poor women who feel like they've failed… So one of the things*

that I love about my job is doing nights sometimes, so going to lots of physiological births. And, sometimes, I get to help people debrief a bit from their really traumatic birth, you know, in the middle of the night, sitting there, [the woman] breastfeeding and talking about stuff.

Core midwives are sometimes able to attend normal births as second midwife, working together with the woman's LMC midwife – a situation that is common in smaller birthing units, rural and urban, in New Zealand. This midwife speaks of the variety of her roles in attending many normal births, debriefing with women who have had traumatic births, helping with breastfeeding and listening and talking with clients in something of a therapeutic capacity. For the midwives in this study, working with women after the birth provides immense satisfaction, an example of when working on the night shift with mothers and babies can be particularly fulfilling. Whilst core midwives have limited opportunity to provide continuity of care, it is possible, from this one midwife's testimony, that many value working with women and other midwives to support normal birth and provide help and advice for women when caring for their newborn babies.

The skill of complexity and diversity

Part and parcel of being a core midwife is being skilled in caring for complex women and skilled with emergencies. Many midwives in this study are very proud of their ability and skills in this area.

One midwife talks about the skill of being prepared for potential problems that she has developed as a core midwife:

It's about thinking actually that [it] is also [possibly] not normal. It's about thinking just a little bit more about, you know, have you got everything ready for an emergency? You know, what happens if there's a potential problem? I think it is really important to do the PROMPT [PRactical Obstetric Multi-Professional Training] course just to keep yourself updated with emergency stuff because when it happens, it happens really quickly. You are expected to be able to know what to do in an emergency, even to lead the emergency and, unfortunately, we see too many of them. But that is also the nature of our clients. They can be really, really unwell.

For a core midwife who works in a primary unit, dealing with emergencies is also something which adds to the variety of her role. In the primary setting with the tertiary unit being quite some distance away, another layer is added to the complexity. Those of our participants who work in primary units speak of the range of emergencies situations they have encountered in those environments, and of the ways in which they have worked with, and supported, clients through those emergencies.

In the primary setting with the tertiary unit being quite some distance away, another layer is added to the complexity.

They speak of the reality of providing such care in primary settings that may be a considerable distance from a tertiary or secondary unit; of the skills and readiness required; of the necessity for team work, and of the difficulties of the assumption that's made that core midwifery in a primary unit is "stressless". In the words of a core midwife in a primary unit: "So it actually wasn't that stressless". She added, however, "It was really good". This incredibly challenging, diverse and complex nature of core midwifery is part of what some midwives in this study say sustains them.

The skill of being prepared for everything, including the unexpected

One of the factors that supports sustainability is the variability and unpredictability of their work. This unpredictability means that they often don't know what is going to "come through the door next". Whether the participants work in a small primary unit or in a secondary/tertiary unit, they testify to core midwives becoming very skilled at being prepared for everything. As one midwife says:

I think one of the things that keeps me going for so long is no two days are the same. Midwifery is a very humbling kind of career because every time you get cocky and think you know it all, someone throws a curve ball and - you know - shocks you. So I find that really enjoyable. I never know what I'm [going to be] doing from day to day. It changes and you can be sitting on a shift thinking 'oh, this is all quiet…' and something comes through the door which completely throws you off kilter.

The core midwives are aware that in their job they can never get overconfident, or think they know it all, as they need to be always ready to respond to the unpredictable nature of the job, especially when working in a hospital setting. To be able to deal with such a dynamic work environment is a real skill and takes mental preparation. As one midwife says:

I quite like the dynamic nature of the workplace. I am a person who doesn't really like every day to be the same, you know. I think I would struggle with a 9 to 5, I really would. I do like going to work and not knowing who I am going to work with and not knowing what is going to happen in a day and I like the challenge, it really challenges me to do this work in so many ways. And I really like that it does that. I like having to be mentally prepared. I like having to be, you know, be in a good space to do the job and I like to get the best from who I work with, - you know - all those kinds of things, and I guess I like the challenge.

One core midwife who works in a rural unit describes herself in the following way:

I work in a unit in the country, and it does mean that our midwives really need to be 'Jills of all trades'.

A "Jill of all trades" sums up the nature of core midwives who work in primary units, often in rural and remote areas. This description suggests the need for primary unit core midwives to have a variety of knowledge and practical skills (sometimes unrelated to midwifery) so that they can provide quality midwifery care.

The core skill of managing a unit

Usually each area on each shift has a charge midwife who oversees what is happening in the unit. It would be the more experienced core midwives who would step into this role.

[When you are] the person being in charge because it is not just one person - you are [not] advocating for one person; you are really focused on… it is your responsibility to make sure that everyone is doing ok. So, all of the patients and their families and all of the midwives and the health care assistants and the doctors and everyone you are working with, as part of a team…you have to have this kind of helicopter view of everything that is going on.

As the midwife in charge, this core midwife has developed the skill of having a "helicopter view". To manage a unit in such a way requires considerable expertise, in particular in communication skills, so that everyone from the consultant to the health care assistant feels appreciated and valued, and good communication lines are established.

In the opinion of our participants, core midwives sustain and are sustained by being a part of a maternity unit that supports and nurtures students, new graduates and all staff who come into the unit. The participants refer to this as a "nest". Core midwives, they indicate, work hard to create a learning culture within their environments which makes the facility a safe place for people to ask for help and advice. Ultimately a learning culture will impact positively on the care of mothers and babies, which is an important priority for midwives.

Core midwives create a "nest"

One of the aspects of creating the culture of the unit is the way core midwives foster and support students and new graduate midwives. Core midwives in this study speak of the way that they feel the maternity facility creates a "nest" for students, new midwives and new mothers. One midwife, who was interviewed in her garden where a bird was nesting in the tree above her, likens this to a mother bird and her chicks:

> *I've got a bird's nest above me and I would think a mother bird comes and she feeds those chicks up there and I mean she is nurturing those chicks to grow up in the world and have their own children and do exactly what she is doing, you know. It's nurturing, it's nurturing the new students, it's nurturing the new midwives, it's nurturing the mothers and babies.*

Likening experienced midwives in the facility to a mother bird gives a sense of them as nurturers who know when the new students, new midwives and new mothers are ready to fly and leave the nest and be independent. There is quite a skill to working alongside a new graduate or a student, giving them the opportunities to practise in a safe way, and gradually increase their confidence. Another midwife talks about passing on self-care skills to students, as well:

> *When the students are here and they are working with someone I'm always saying to them 'Are you looking after yourself?' I would say, 'You are entitled to have your breaks'. … And even now the midwives who work in the ward making sure they do get a break, you know. If they are going to be there for 12 or so hours they have got to be able to look after themselves first so they can care for the women as well.*

In this way, the core midwife is passing on a sustainable way of working to student midwives by ensuring that they look after themselves and have breaks.

The skill of flexibility and adaptability

The roles that core midwives perform are diverse and varied, from day to day and from position to position. Core midwives in this study developed the skill of flexibility and adaptability in order to flourish, and value the variety in their work as a way of sustaining themselves in core practice. They speak about changing their midwifery roles so that work fitted better with their life outside of work and also sometimes to prevent them from becoming what some described as "stale", or of moving jobs and wards to help get through difficult times. In the words of one participant: "diversity is my sustainability".

> *For me I have to keep moving. I have to keep things fresh. I get bored. I've got a lot of energy and I like to keep moving and I don't want to get stagnant sitting in the same department for 10 years doing the same job.*

Midwives who have, or have had, more than one midwifery role speak of finding that the work they do in a particular job might feed into and support their work in another field of midwifery; thereby bolstering and supporting them in both areas of their practice. For other midwives, one of the benefits of midwifery being diverse is that it also enables them to focus upon becoming skilled in a particular area of work that they enjoy. In such instances it is seen to be partly their love and familiarity of that area that sustains them.

> *I've actually always concentrated on postnatal. I'm a real postnatal midwife, because I find the delivery unit just doesn't give me the excitement that other midwives get.*

Indeed, whilst the variety offered by core midwifery is seen to be important to many midwives, it is also acknowledged that there is a limit to the variety that employees can enjoy or manage well. In the words of one midwife:

> *Management often talk about flexibility or they used to. It was flexibility before resilience, but you just get this impression of this ideal employee or midwife who has an ability to literally bend over backwards and to go wherever you send them. That's another thing that they think is important, you know. A midwife to cope with the unpredictability of obstetrics and the flow, the ideal midwife will rotate around all the areas, so that they visualise us, I'm quite sure - really - as just… we are just numbers and we are ideal if we can at the drop of a hat go into the tertiary or primary facility and give them a hand when they are busy and rotate from maternity to delivery suite.*

While the skills of being flexible and dealing with the unpredictable nature of obstetrics are sustaining, there is a limit. If management sees core midwives purely as entities who can be moved from area to area and cope with whatever they face, then this will lead to dissatisfaction. Participants suggest that the moving/rotation/variety needs to be determined in large part by the midwives themselves, rather than enforced by management.

Valuing and making visible

Perhaps sometimes core midwifery is invisible, and the complex skills and decision making, which core midwives do every day, can go unnoticed amidst a plethora of more task-oriented duties. But as one midwife says:

> *Actually there is a lot of midwifery skill involved in being a core midwife and it's not just running pumps and looking after epidurals.*

Not "just" a core midwife

Despite the incredible skills which these core midwives have spoken of in this study, and the diversity of the work they carry out, they frequently do not give enough credit to their own role and value. Nor do they necessarily feel that others do. This midwife describes the importance of valuing herself in her role:

> *It's so important because I meet so many midwives and they say 'I'm just a core midwife' and occasionally I've heard myself say it too, I'm just a... But I don't think I actually say it, I say 'just' a lot, but I never call myself 'just a core midwife' because I'm really proud to be a hospital midwife.*

> *I'm very proud to be a midwife, actually. I don't see myself as any particular role; I don't put a title on myself; I see myself as a midwife. I happen to work in a hospital and sometimes I go out somewhere else and sometimes I do something else.*

This midwife emphasises the need for midwives themselves to identify their value as well as the importance of being valued by others, regardless of their specific midwifery role. She discards specific titles and identifies herself as a midwife who works in various places but it is the midwifing that is the thing to be really proud of. She tries to influence colleagues to see themselves as important assets and suggests they are not "just a core midwife".

DISCUSSION

In answering the question "what sustains core midwives in New Zealand?", participants in this study provide a myriad of data which reveals what they feel is at the heart, or the core, of core midwifery. The metaphor of a "Jill of all trades", used by one participant, may well encapsulate the skills which core midwives have developed. Our findings suggest that core midwives juggle the varying needs of women and babies within the multiple contexts of maternity facilities across New Zealand.

The ability to connect and form a partnership relationship with women very quickly, often in times of complexity, uncovered in this study, resonates with the findings of others who have explored the sustainability of core midwives (Hunter, 2005; Kirkham, 2011; Sandall, 1997; Sullivan et al., 2011; Wakelin & Skinner, 2007). Our study reinforces the description that core midwives provide care for women and their whānau in often very complex situations, yet they keep the woman at the centre of care and strive to preserve a normal as possible experience for her. The findings of this study concur with others such as Sullivan et al. (2011), who found that Australian midwives gained satisfaction from working with birthing women and this is what held them in practice. Relationships are equally as important for midwives in this study, and it is the particular skill of building that partnership relationship quickly, often in a complex situation, which core midwives in this study describe as integral to good core practice. Along with this, core midwives in this study speak of the skill of guarding the normal experience as much as possible while the woman may require complex care. Core midwives in this study speak of seeing the woman as a woman becoming a mother, not just as "the diabetic in room 2".

The metaphor of a "Jill of all trades" ... may well encapsulate the skills which core midwives have developed. Our findings suggest that core midwives juggle the varying needs of women and babies within the multiple contexts of maternity facilities across New Zealand.

Some of the very things described as helping to sustain core midwives in this study could also, at other times, be a source of stress. Whereas Mollart et al. (2013) found that complexity and diversity of women could contribute to burnout for Australian midwives, in this study a number of participants find aspects of enjoyment in just that complexity and diversity. Indeed, some midwives we spoke with suggest that it is in part the unpredictability and variety of being a core midwife that sustains them and stops them from feeling stagnant in their work. Furthermore, core midwives need the skills of flexibility and adaptability due to the diverse and varied nature of their roles. However, research participants point out that there are limits to the flexibility and adaptability that can be expected of midwives, as there are for any employees. These midwives speak of needing to have choice in relation to the areas they work in and the ways in which they work, rather than simply being moved around at the will of maternity management in order to plug gaps in services. There is a balance to be achieved between core midwives themselves making choices about the areas where they work, and being used simply as an entity to staff maternity facilities. In the former, midwives have the control and choice, and this is what sustains them. If that control over the way they work is taken away, then that may lead to an unsustainable working environment.

Core midwives sometimes feel they are invisible and undervalued for the important role they play in the New Zealand maternity services; yet, from the rich data examined intensively in this research, we can argue it is the core midwives who are fundamental to the effective functioning of New Zealand maternity services.

A further skill which some senior core midwives develop is that of taking on a leadership role within a maternity facility and, as leaders, they have a significant impact on the culture of the unit. In their role of always being present in maternity units, it is the core midwives who support students, new graduates and all staff who come into that unit. It is the core midwives who manage the unit and create the culture of the unit.

Core midwives sometimes feel they are invisible and undervalued for the important role they play in the New Zealand maternity services; yet, from the rich data examined intensively in this research, we can argue it is the core midwives who are fundamental to the effective functioning of New Zealand maternity services.

Strengths and weaknesses of the study

This study is based upon in-depth qualitative interviews and has therefore generated rich data on the research participants' experiences of their working environments and of the ways in which they perceive and understand their sustainability as core midwives in New Zealand. The study involved descriptive analysis of the interview narratives of 22 core midwives working in diverse settings and geographical areas of New Zealand. The findings of this research are not generalisable to all core midwives; yet they provide valuable insights into the types of issues around sustainable practice that core midwives in New Zealand appear to be currently encountering.

CONCLUSION

Whether the woman is experiencing a normal birth at a small rural unit or a complex birth in a large urban tertiary unit, there is likely to be a core midwife involved in some way. Often invisible, the core midwife is the backbone of New Zealand maternity services as they are always "there", always prepared to care for whoever

walks through the door. The findings of this New Zealand study, which explores the sustainability of core midwifery, resonate with previous studies and also take them further by identifying the diverse skill set which core midwives have honed, such as the ability to develop trust and empathy with diverse women in a very short time; the capacity to respond competently to a range of complex and emergency situations; and, importantly, the ability to create and sustain a supportive culture for the benefit of women, as well as both new and experienced staff.

CONFLICT OF INTEREST STATEMENT

The authors declare that there are no conflicts of interest.

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NEW ZEALAND RESEARCH

Using small tutorial groups within a blended Bachelor of Midwifery programme: Bridging the theory-practice divide

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ABSTRACT

Background: In 2009 an innovative Bachelor of Midwifery programme was introduced using a blended delivery model to enable students to study and gain practice experience within their own communities. Students learn much of the theoretical content from their homes through access to online resources and virtual classrooms. In recognition for the potential of social isolation and to encourage cooperative learning between student and lecturer, a modified version of the Oxford Tutorial model was adopted. Students meet in small tutorial groups in their areas each week with a locally employed lecturer, and attend scheduled block study weeks on campus throughout the year.

Aim: To critically evaluate the introduction of this programme.

Method: A participatory action research methodology was used in which students' views were gathered through anonymous questionnaires and focus group interviews. Ethics approval was gained through Ara Human Research Ethics Committee. The particular focus of this article is the students' views in relation to the small group tutorials.

Findings: We found that small group tutorials are helpful in assisting students to manage feelings of isolation and the competing demands of home life and study. Students developed a community of inquiry which was pivotal to negotiating the gap between theory and clinical practice: what they are taught and what they see in midwifery settings.

Conclusion: The research found that the midwifery tutorial model is valued by all students and seen as the "hub" of the programme, effectively bridging the gap between theory and practice.

Keywords: midwifery education, blended learning, community of inquiry, Oxford Tutorial

INTRODUCTION

The rapid pace of technological innovation has meant the way in which students learn is changing, and pedagogical design and delivery need to reflect these demands (Skrypnyk et al., 2015). In the field of midwifery education, enabling students to flourish in increasingly diverse practice contexts requires creative, innovative and responsive pedagogical approaches.

In recent years, midwifery education in New Zealand (NZ) has been faced with the dual challenges of addressing workforce shortages, many of which were rurally based (Hendry, 2009), and the need to increase accessibility to programmes for students who reside in rural and regional areas. Until recently, midwifery education was campus based and students had to commit to attending classroom sessions, which determined that they had to reside in one of the five main cities that provided midwifery education. This was challenging for rural and regionally based women with families, who would often have little other option than to relocate their families in order to complete their midwifery education. This was costly for the families involved but, more significantly, could leave communities deprived of a rural midwife if the family did not return following completion of the midwifery programme.

An exponential growth in technological advances in online learning has offered an opportunity for tertiary education providers to explore other models of education. Tertiary institutions are looking increasingly towards blended learning as an alternative mode of education delivery. Blended learning includes online learning, thereby offering choice and flexibility for students as an "any time, any place, anywhere" way of learning (Eggermont, Bloemendaal, & van Baalen, 2013). The added advantage of a blended model is that it also has face-to-face components as a way of ensuring social interaction and discussion (Skrypnyk et al., 2015). In this article, we describe an innovative model of blended learning introduced at a tertiary institution to accommodate students living in remote areas. The article begins with a background on what prompted the change in delivery and then provides a literature review on blended learning. The research is explained and the findings are presented.

BACKGROUND

In 2007 the Midwifery Council of New Zealand (MCNZ) pre-registration education standards were amended to lengthen the academic year and included a requirement to improve accessibility for students in rural and provincial locations (MCNZ, 2007). This created an opportunity for the two Schools of Midwifery in the South Island of NZ to collaboratively redesign the undergraduate midwifery degree programme. Both institutions agreed that facilitating students to study midwifery in their home area would potentially increase the number of midwives who would choose to practise in their local communities.

The programme was launched in 2009 after extensive planning and design by both Ara Institute of Canterbury (Ara, formerly Christchurch Polytechnic Institute of Technology, CPIT) in Christchurch and Otago Polytechnic (OP) in Dunedin. A blended learning model was agreed and adopted for the joint programme in order to support the concept of a "satellite delivery" (Figure 1).

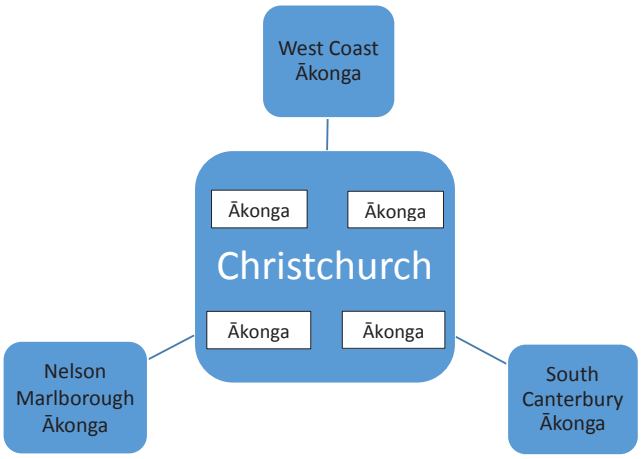

Figure 1. Representation of the range of satellite/tutorial (ākonga) groups at Ara Institute of Canterbury (not including Otago Polytechnic and its satellites)

The model enables students to access the programme both centrally at Ara (Christchurch) or OP (Dunedin), as well as at a number of other satellite sites. When the programme commenced in 2009, Ara introduced its first satellite in the north of the South Island in Nelson/Marlborough, and this was followed by South Canterbury and the West Coast in 2010. Otago Polytechnic began with satellites in the lower South Island and later extended delivery to the lower North Island (Patterson, Baddock, Pairman, Griffiths, & Miller, 2015).

Students now spend much of the programme based in their own geographical areas and, in the interests of parity, the satellite model within a blended learning approach was adopted for all areas in which the programme is available. This ensures all students have a similar experience regardless of where they are situated.

The degree is four years of study (480 credits) but is delivered over three calendar years, with each year providing 45 weeks of study in keeping with the MCNZ requirements. Students complete 4800 total hours, of which 2400 is midwifery practice experience. They gain experience across the midwifery scope of practice in antenatal, labour/birth and postnatal settings, working with both community caseloading midwives and hospital-based midwives in a range of primary, secondary and tertiary settings.

The programme uses a combination of learning methods to enable students to study within their own homes and communities (Figure 2). Each component was chosen to best suit the purpose of the learning with consideration of how learning in each method could be integrated with the other components (Littlejohn & Pegler, 2007).

Students learn much of the theoretical content from home, accessing the online resources/modules and virtual classrooms. The potential for social isolation identified in the literature and the need for cooperative learning between student and teacher led us to design a modified version of the Oxford Tutorial model (Ashwin, 2005; Palfreyman, 2008). The Oxford model is based on small groups of students (three to five) meeting weekly with a tutor to discuss and debate topics related to their study. This has been used effectively with undergraduate students in different settings for centuries (Mills & Alexander, 2013) and is seen as a pedagogical approach that creates learning and assessment opportunities, as well as catering for the individual learning needs of students (Palfreyman, 2008).

In the first two years of the programme, the students are placed in ākonga of four to eight students. (Ākonga is a Māori word for seed, nurturing and cooperative learning and has been used to denote a group of learners.) The groups are geographically based either on central campus or in rural satellite settings. Ākonga meet weekly, face-to-face and are facilitated by a locally employed lecturer known as a kaiako (facilitator of learning). The kaiako leads debriefing and discussion of practice experiences; teaches practice and communication skills; and ensures alignment with course outcomes. Third year students are assigned a kaiako and they maintain regular contact through a mix of phone, face-to-face and online contact throughout the year, although now on a one-to-one basis. Ara students additionally attend intensive block weeks of study in Christchurch each year. These weeks provide

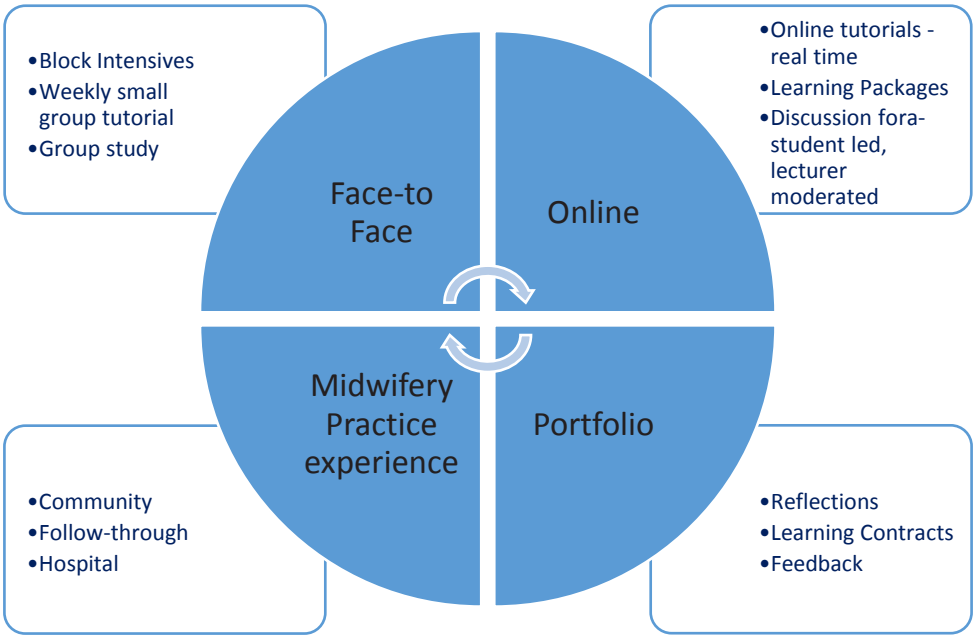

Figure 2. Blended learning model for Bachelor of Midwifery

practical sessions and theoretical content that is better suited to larger group delivery. They also offer an important opportunity for students to engage with a larger cohort of other students in order to socialise and share their experiences.

LITERATURE REVIEW

Technology has been increasingly used to enhance course content and delivery. Research supports the merging of an online and face-to-face blend of learning (Skrypnyk et al., 2015). Blended curricula have been used in health education and clinical settings internationally. Much of the research on blended learning in health relates to students' experiences of either undertaking a component of their undergraduate study as blended learning (Sidebotham, Jomeen, & Gamble, 2014) or completing postgraduate study (Glogowska, Young, Lockyer, & Moule, 2011). However, one study (Milne, Skinner, & Baird, 2014) surveyed first- and second-year undergraduate students at another NZ midwifery school which offers a blended curriculum that includes face-to-face, online modules and lectures delivered via video conferencing. Students in this research reported difficulties with using the technology and rated their engagement with the programme higher through the face-to-face sessions than through video-conferencing.

Technology has been increasingly used to enhance course content and delivery. Research supports the merging of an online and face-to-face blend of learning.

Several studies have found that the development of a community of inquiry is key to sustaining blended learning and that frequency of interaction enhances this outcome (Garrison & Kanuka, 2004; Glogowska et al., 2011). Garrison and Kanuka (2004, p.97) stress that a "sense of community and belonging must be on a cognitive and social level if the goal of achieving higher levels of learning is to be sustained". The authors emphasise the importance of a teaching presence within blended learning to manage the environment and to help focus and facilitate student learning experiences. They also maintain that where there is a cohesive community of inquiry then blended learning is able to support "higher levels of learning through critical discourse and reflective thinking" (Garrison & Kanuka, 2004, p.98). Studies overall report that blended learning is enjoyable, supportive and motivating for learners (Güzer & Caner, 2014), offering students and lecturers greater flexibility and accessibility without compromising the face-to-face contact (Skrypnyk et al., 2015). Research also suggests that students are compelled to read, speak, listen and think, which shifts them from a passive to an active learner (Kaur, 2013).

Although many studies demonstrate the importance of including face-to-face sessions within a blended programme, the amount and type of face-to-face required for blended delivery are not so evident (Garrison & Kanuka, 2004; Glogowska et al., 2011; Milne et al., 2014). Face-to-face is often referred to in relation to classroom teaching, whilst "tutorial" relates to online provision. No studies were found that referred to small group face-to-face tutorials as a significant component of blended learning programmes. Whilst the Oxford Tutorial model is not usually linked with blended learning, the success of these small groups in supporting students to take an active role in their learning was of interest to us (Palfreyman, 2008). Interestingly, Trigwell and Ashwin's (2003) study found that students who considered the tutorials an opportunity for their ideas to be critically examined were more likely to feel supported in their learning than students who saw the tutorials as a teacher-centred learning environment.

METHODOLOGY

In 2010, following the introduction of the new Bachelor of Midwifery, the midwifery teaching team at Ara commenced a participatory action research (PAR) (Kindon, Pain, & Kesby, 2007; Reason & Bradbury, 2006) project titled "Learning Midwifery in a Blended Teaching Environment". PAR as a methodology is variously described as an approach to social investigation, an educational process and a means of taking action to deal with a problem (Kindon et al., 2007; Koch & Kralik, 2009). The project employed a cyclical PAR approach based on reiterations of three phases: collect, analyse and act. This involved collecting, analysing and evaluating data and then implementing actions in relation to the themes identified. This was followed by further rounds of collection, analysis and action. Koch and Kralik (2009) note that "[p]articipatory action research often appeals to clinicians and others working in practice environments because it translates quickly into action so that change can be observed during the process of research" (p.24). In its purest form, it is a methodology that is initiated and driven by all the participants (Baum, MacDougall, & Smith, 2006) but in this study the research process was primarily driven by the researchers within the teaching team. However, Schneider (2010) developed a continuum within the context of PAR that spans from advisory through to consultation, collaboration and finally control. This study comes under the consultation classification described as recognition that the participants have knowledge that may be valuable, but the primary researcher retains control of the project.

During the design of the research project, consultation was undertaken with Māori through the Kaiarahi of Ara who approved this project. Ethics approval was gained from the Ara Human Research Ethics Committee (No. 1290, granted 27th May, 2010).

Research Questions

The research questions were:

1. What do students and educators identify as the strengths and weaknesses of the new blended delivery curriculum?
2. What are the barriers and challenges for students and educators in the blended delivery model and which factors have proved to be of assistance?
3. Does the programme promote an integrative approach to midwifery theory and practice?
4. In what ways does the blended programme enable new graduates to feel competent and confident to practise as midwives?

METHOD

Data were collected from cohorts of approximately 30 students in each year from 2010 to 2014. The students were invited to participate during their second year of the programme and in their first year as a graduate midwife. Students were either invited to complete written questionnaires with open-ended questions or, in alternate years, participate in a focus group. All data collection was anonymised so that the teaching team did not know which students took part. The response rates from the questionnaires ranged from 43% to 80%. There were three rounds of focus groups and about one third of the students from each cohort participated. The focus groups were facilitated by a visiting midwifery scholar from the United Kingdom (UK) in order to avoid any potential conflict of

interest with staff conducting research on current students and to encourage open and transparent responses from the students. All identifying information about individual students was removed from the transcripts before being analysed by the teaching team.

The students were invited to evaluate all blended components of the programme but the focus of this article is on the first three research questions that relate to the student experiences of the tutorial model.

The data were analysed each year and an iterative "interpretive description" approach (Thorne, Reimer Kirkham, & O'Flynn-Magee, 2004) was used by the teaching team. Interpretive description is a method used in qualitative research that employs a constructivist approach to inquiry. The aim of the method is to generate knowledge that is relevant for practice-based contexts.

The interpretation of the data was discussed with students to gain their perspectives on the analysis. In keeping with the methodology, the teaching team developed strategies to address those aspects of the blended model that students found challenging, as well as to strengthen aspects that students identified as enhancing their learning. Subsequent rounds of the action research cycle have enabled the research team to reflect critically on the effectiveness of these changes for students.

Demographics

Demographic data about the participants were not collected in order to ensure that the researchers could not identify individual students. The demographic profile of all students enrolled in the programme was that they were women with a range of ages from 18 to 50. Approximately two-thirds had dependent children and one third lived in rural areas. Between 10% and 20% in each cohort were Māori and approximately 10% were from other non-European New Zealand ethnic backgrounds.

FINDINGS

One of the questions in the second-year and graduate midwife questionnaires asked participants to reflect on their key learning experiences from the ākonga. They were also asked to comment on any other benefits or challenges for learning within these groups. Aspects were further explored within the focus groups.

Themes

A number of themes were elicited from the data analysis. These were: social connection and isolation; communities of inquiry; challenges of the tutorial system; and integrating theory and practice. There was consistency in the themes across all cohorts who participated in the project.

Social connection and isolation

Students valued the flexibility of the online aspects of the programme, although many commented on feelings of "isolation" when they were working through the online course materials. The words of the following students capture their views.

> *VERY isolating. Lack of discussion. Unsure if on the right track, or spending the right amount of time doing certain things. (Year 2, 2010)*

> *I think one of the down points for me … is there's no one sat next to you to bounce ideas off or just to ask one of those silly little questions you want to just to clarify. I think you … there's nobody in your room; you're just in your room with you. (Year 2, 2011)*

The quotes seem to suggest that not being based in the classroom could lead to student isolation. They also highlight the possibility that students were not engaging with, or fully understanding, the online materials, which could have added to their feelings of isolation.

The following quotes illustrate how the weekly ākonga helped to break down these feelings of isolation and provide opportunity for social connection.

> *… it is nice to see other people from the class as working at home from the computer can feel quite isolating at times. (Year 2, 2010)*

> *… closeness of the groups and feeling that you are not alone in your study. (Year 2, 2010)*

Students placed value on the ākonga as a safe haven to share experiences and provide support when life was demanding. For example:

> *The akonga [sic] tutorial group has provided a safe place to share experiences… (Year 2, 2012)*

> *As such, I have found that we students bond well with each other and this in turn provides an often much needed support network when times become challenging. (Year 2, 2012)*

> *... [ākonga] group especially in year 1 & 2 were absolutely vital for me… great learning to listen to others [sic] experiences, and also to talk about mine. (New graduate, 2012)*

The comments indicate that the ākonga provided opportunity for support and debriefing, which mitigated feelings of isolation as well as enabling students to manage competing demands of home and study.

Communities of inquiry

Some of the students commented on the positive value of the intensive blocks; however, all participants commented on the importance of the weekly ākonga and there was recognition that the group created an important learning space. The students were enabled to develop critical reflective and questioning skills within the ākonga.

> *The tutor also expands our thinking by questioning what we have seen in practice and reflecting on our experiences is great! (Year 2, 2010)*

The students valued the significant role that their colleagues played in creating a community of inquiry.

> *Sharing of follow-through experiences and being able to learn from the experience of classmates -> vicarious exposure to a whole variety of experiences in clinical and community settings. (Year 2, 2010)*

> *I think too that we also learn perhaps without realising we are learning to be with women … because we are diverse people sharing different opinions and you do have to – well I learnt like greater tolerance and understanding. (Year 2, 2011)*

The quotes suggest that students appreciate that the group is not solely about learning skills and reflecting on practice but is also facilitating self-reflection and, in particular, highlighting how they communicate and interact with others. The students realise these skills will support them when working in the wider midwifery community.

Challenges of the tutorial system

Some of the students commented on the difficulty of getting to the ākonga and the consequences of missing them. Some challenges around missing sessions were:

> *The only challenge about learning within the akonga [sic] group is that sometimes it is missed due to clashing with clinical placements. … If 1 or 2 are missed in a row it is easy to feel disconnected or isolated from each other. (Year 2, 2012)*

In year two the practical requirements of attending a woman's antenatal, labour/birth and postnatal care as well as attending as many of the ākonga as possible affected a small number of students.

The students were aware that the make-up of each ākonga group created a unique group identity. However, this meant that for some they were anxious and felt they might be missing out when they heard different issues/topics were discussed in other groups.

> *The experience is solely reliant on the tutor – most tutors have a 'focus' and therefore excel in that area, sometimes leaving other areas lacking – the tutors need to agree. (Year 2, 2012)*

> *[ākonga] needs to have a practical underpinning, tutors that had a doll and pelvis with them … were great, the ones that only discussed and focussed on the experience did not meet students learning needs. (Year 2, 2012)*

In year three of the programme it is not practical to continue the weekly ākonga as students are in placements throughout the country. New graduates noted the following in the online questionnaire.

> *Thoroughly enjoyed my [ākonga] groups, was upset that we lost this connection in year 3 but understand this was not possible to do in that year. (New graduate, 2012)*

> *Missed out face to face with lecturers and each other and sharing of knowledge. (New graduate, 2012)*

This change had a significant impact on the students and highlighted the value they placed on the ākonga in their first two years.

Integrating theory and practice

A significant finding of the research was the important role of the ākonga in providing the opportunity and assisting the students to integrate theory and practice.

> *… looking at all the aspects involved in the different births the students experienced. Intertwined with this was the learning as to how to be a midwife – looking at ethics, and ways of practice. (Year 2, 2010)*

The value that they placed on their kaiako and their colleagues to help them negotiate their learning was clearly stated.

> *Really great to debrief and share experiences (both good & bad), and ideas with other students. Very helpful to have a tutor to answer questions about and/or expand on … what experienced/observed in practice. (Year 2, 2012)*

> *The weekly contact with students & tutor allows for rich discussion, the opportunity to ask questions and explore tricky concepts & scenarios such as ethical issues or complex cases. I find I learn a great deal from a student sharing an experience and the tutor breaking it down in order to explore the finer points. The input from other students encourages me to look at the experience from different perspectives, challenging my own thoughts and ideas about issues. The small group works well for me as I feel it is a safe place to share – less intimidating than a large group. (Year 2, 2012)*

The ākonga, by providing a space for students to debrief and learn from each other, with kaiako bringing their midwifery knowledge and spirit of inquiry, enabled the students to integrate theory and practice.

DISCUSSION

The questionnaire and focus group responses provided insight and understanding of the student experience within the ākonga. The thematic analysis identified that the students view the ākonga as serving as the axis of the blended delivery programme.

The question of how many students constitute the perfect group size has been widely debated and disputed in the literature for many years, with most educationalists agreeing that between five and eight is an optimal range (Booth, 1996; Exley & Dennick, 2004; Mills & Alexander, 2013). The group size needs to allow for the dialogue and collaboration that is integral to learning. A weekly three-hour, face-to-face small group tutorial was introduced for students in the first two years of the midwifery programme and the size varied from four to eight students, depending on location.

Palfreyman (2008) proposes that the Oxford Tutorial model is an effective strategy to adopt for undergraduate students because it is seen as the best way to stimulate students to learn the skills of research and critical analysis. Our modification of the tutorial model additionally demonstrates connection and the development of a community of practice, something that is not remarked on in the literature. The main precept of a community of practice is that participants share a domain of interest and, through their collective learning and interactions within this community, develop shared practice (Wenger-Trayner & Wenger-Trayner, 2015). We found that students initially formed social connections within their ākonga (Mills & Alexander, 2013). However, we also observed the development of a community of practice which is reflected in the students' comments. Through sharing personal narratives, as well as reflections on their practice experiences, students mutually support and learn from each other. This point is supported in the literature where studies have noted the importance of ensuring there are opportunities for students within blended learning to come together face-to-face (Glogowska et al., 2011; Kaur, 2013). The value of face-to-face time is reiterated in the findings, showing that the ākonga has the potential to reduce feelings of social isolation.

The ākonga not only provides support and social connection but also creates communities of inquiry (Garrison & Kanuka, 2004). Interestingly, Garrison and Kanuka (2004) stress the importance of students having an awareness of community and belonging if they are to maintain higher levels of learning. This seems to be borne out with our students as it appeared that the ākonga, as well as creating opportunity for social interaction, were able to provide a positive and collaborative learning environment that led to the development of communities of inquiry and communities of practice. This is reflected in the quotes where students demonstrate interpersonal communication skills such as adaptability and sensitivity. In addition, they engage in critical inquiry through the debriefing of midwifery practice experience that can raise complex ethical dilemmas.

[W]e found that the facilitative guidance of the kaiako encouraged the students to challenge each other, thereby stimulating reflective learning and critical analysis.

The kaiako plays a key role in coordinating the development of these communities by managing the environment and providing support alongside the facilitation of student learning experiences (Garrison & Kanuka, 2004). The role requires an advanced facilitation skillset on the part of the kaiako. The transmittal model, which indicates a move from being the "sage on the stage" to that of the "guide on the side" (King, 1993 p.30), has now been appended with the learner-centred conception of "curator of knowledge" (Siemens, 2008, p.17). Like the curator of cultural heritage, the kaiako needs to foster and encourage learner exploration without being too directive. However, whilst the students should be given the freedom and space to explore, the "key concepts of a discipline are transparently reflected through the curatorial actions of the teacher" (Siemens, 2008, p.17). In the ākonga this exploration is achieved primarily through facilitating the debriefing of the students' practice-related experience and encouraging storytelling in order to "unpack" the experience for reflection. Our research has also highlighted that, when several ākonga are running concurrently, it is important that the kaiako are collaborating in order to provide a degree of consistency. In line with a PAR framework, the researchers facilitated discussions with the teaching team to identify strategies to ensure there was more consistency and agreement between kaiako for each year group. A workshop was also organised to discuss and review the challenges of small group tutorials in light of the findings. The principles of flexibility, interaction, reflexivity and engagement were reiterated as key strengths of small group teaching (Mills & Alexander, 2013). A key concern for us in designing the new curriculum was that it could widen the theory-practice gap already debated in the literature (Wilson, 2008). Theory-practice integration had always been a strong focus of our previous curriculum and we had some concerns that we might lose this in the new blended programme. Instead we found that the facilitative guidance of the kaiako encouraged the students to challenge each other, thereby stimulating reflective learning and critical analysis (Mills & Alexander, 2013). Through this process students are changing their conceptions of knowledge through emerging views. A significant finding in this study was the recognition of knowledge as co-constructed between student/s and kaiako. This aspect is also described within the Oxford Tutorial model where the tutor acts as a constructive critic in order to cultivate the student's "critical spirit" (Palfreyman, 2008, p.18).

The findings also demonstrate that ākonga are pivotal in enabling students to learn to negotiate the gap between what they are taught and what they see in midwifery settings.

STRENGTHS AND WEAKNESSES

This research has explored the views of midwifery students across three cohorts of the undergraduate programme of one NZ midwifery education provider. The qualitative themes provide insight into the perspectives of those students who agreed to participate in the study. We were not able to explore the views of students who chose to not complete the questionnaire nor participate in the focus groups. Additionally, as with any questionnaire or focus group, there is the possibility of response bias in that students with stronger opinions were more likely to respond or voice their views. However, within the sample achieved, a range of views was represented.

CONCLUSION

Little is known about the effectiveness and sustainability of satellite-based, blended delivery programmes for the education of health practitioners.

A concern for us in designing this new curriculum was how we would ensure that the fundamental values of face-to-face dialogue and connection within midwifery practice were still retained. This had been a strong focus of our previous curriculum and, reassuringly, the findings have confirmed that these aspects have been retained in the new curriculum. The small group tutorials provide a regular ongoing place which enables this to happen.

This research on the midwifery tutorial model within a blended delivery programme demonstrates that the ākonga is valued by all students and seen as the "hub" of the programme. This model assists students to manage feelings of isolation and the complex demands of the programme alongside their personal lives. It has also enabled them to capitalise on being a student midwife in their own areas by building relationships and becoming part of a local community of practice of students, educators and practitioners. The ākonga as a community of inquiry is pivotal in enabling students to learn to bridge the gap between theory and practice.

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NEW ZEALAND RESEARCH

Strategies for improving the experiences of Māori students in a blended Bachelor of Midwifery programme

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ABSTRACT

Introduction: The New Zealand Māori population is predicted to increase to 16.6% of the total population by 2021 and more Māori midwives are needed.

Aim: The aim of this research was to ask Māori students about their experiences in the Bachelor of Midwifery programme and to identify strategies to optimise success for Māori students in becoming midwives.

Method: A participant research project was designed and undertaken, on behalf of the Midwifery School at Otago Polytechnic in New Zealand, by a Māori researcher, who was guided by Tuhiwai-Smith's seven codes of conduct. Nine of a possible 22 students who self-identified as Māori consented to participate.

Ethical approval for the study was granted by the Otago Polytechnic Ethics Committee, following consultation with the Kaitohutohu's (Māori advisor) office which provided support for the Māori researcher.

Findings: The Māori students appreciated the opportunities afforded by the blended midwifery programme model, such as the range of learning modes and being able to study in their home areas.

The students were challenged by aspects of the programme organisation, the learning environment, student placements and assessments, the lack of Māori visibility, and aspects of the support for Māori students. Recommendations were offered by the students for changes that would improve the learning experience for Māori.

Conclusion: Incorporation of the recommended changes has the potential to improve the learning culture for Māori students in this midwifery programme. This includes changes to the programme organisation and developing a learning environment that more visibly celebrates bicultural identity; thereby decreasing the attrition rate for Māori students in the programme, increasing the number of Māori midwives registering, and contributing to the richness, success and enjoyment of the programme by all students.

Keywords: Māori students, midwifery education, student support

INTRODUCTION

Māori are the first people of New Zealand (NZ) and, in common with indigenous populations in many developed countries, experience poorer health outcomes and are under-represented in health professions (Ministry of Health, 2016). Many health challenges are a legacy of a colonial past, with racist and social attitudes aimed at assimilation. For example, early nursing training (and, by default, midwifery training) reflected Victorian ways of learning (Costello, 1994; Tupara, 2001).

In response to the poorer health statistics for Māori in NZ, health educators have introduced programme elements to increase student understanding of cultural difference for Māori and others in their programmes. These include a successful immersion experience in Māori communities for medical students (Dowell, Crampton, & Parkin, 2001). Similarly, dentistry programmes have incorporated the Oranga Niho (Māori oral health, Table 1) programme into the dental health curriculum (Broughton, 2010), aiming to increase understanding about the wider health implications of poor dental health for Māori (Chia, Densie, & Mogan, 2015).

In nursing, the concept of "cultural safety" (Papps & Ramsden, 1996) was introduced in 1992 as a required component of all nursing education programmes (Nursing Council of New Zealand, 2011). This enabled examination of the Tiriti o Waitangi (which is the founding document signed by representatives of the British Crown and Māori chiefs in 1840) to show how knowledge and power have been, and continue to be, enacted at national and interpersonal levels in everyday practice (Horsburgh & Lamdin, 2004). This cultural safety programme was also a required component of direct entry midwifery education programmes until 2007 when the Turanga Kaupapa (position statements) were developed by Nga Maia o Aotearoa me Te Waipounamu - the national organisation of Māori midwives - and whānau (family), promoting and supporting Māori birthing (Midwifery Council of New Zealand, MCNZ, 2007, p.5). The Turanga Kaupapa are regarded as an ongoing framework to assist midwives to interact respectfully with those of other cultural backgrounds and to recognise the impact of one's own. This programme was adopted by the MCNZ and the New Zealand College of Midwives and is integrated into all midwifery undergraduate curricula in NZ from the first year of the programme.

As a percentage of the total, the Māori population in New Zealand is predicted to rise to 16.6 by 2021 (Statistics New Zealand, 2015). The Māori birth rate, however, is 25.2% of the total birth rate. While all birth rates in NZ are predicted to fall over the next five years, this fall is predicted to be slower for Māori (1.2% to 1.4% by 2021) compared to the rate for the rest of the female population of reproductive age (0.6% to 1.5%). It is thought the main reasons for this are the younger Māori population profile and the larger family sizes (Statistics New Zealand, 2015).

Currently, 88.5% of the midwifery workforce comprises NZ European and other European ethnicities, compared to just 5.7% (n=174) who record Māori as their first ethnicity (MCNZ, 2015). Thus, Māori women are not always able to access care from a midwife who identifies as Māori and who shares their cultural world view. This view includes not just their obligations and connections to whānau, (family), iwi (tribe) and tūpuna (ancestor/s) but also connections to the natural world (Te Ara, 2010). Thus, the challenge in recent years has been to find ways to increase the number of Māori midwife graduates to address this need.

...the challenge in recent years has been to find ways to increase the number of Māori midwife graduates.

E-learning platforms and other digital tools have opened up new and evolving ways to provide tertiary education at distance. E-learning appears to suit mature women with family responsibilities (Blum, 1999)—coincidently the demographic profile of many midwifery students. However, Porima (2011) found that Māori students, while appreciating the flexibility that online learning provides, could experience a sense of isolation and the desire for more whanaungatanga (relationship-based) and kanohi te ki kanohi (face-to-face) interaction similar to a whānau environment. Accommodating cultural difference and diverse learning styles, while posing challenges for educators, provides opportunities to design and teach courses which address these (Lum, 2006).

Options for more flexible learning have been adopted and adapted by the Midwifery School at Otago Polytechnic (OP) to deliver the three-year, 4800-credit Bachelor of Midwifery programme accredited by the MCNZ (2006) across six sites; three in the lower half of the South Island and three in the lower North Island of NZ. The satellite structure and mix of learning modes provide flexible study options for students, enabling them to complete much of their programme close to their home area, avoiding the cost and disruption of moving to a large centre to study.

In the undergraduate midwifery programme at OP, learning packages are developed in modular form and presented on the Moodle e-learning platform—web-based, online conferencing software, accessible by students from anywhere with internet access. These are supported by real time tutorials using the Adobe Connect web-based, online, conferencing software, likewise accessible by students from anywhere that has internet access.

The midwifery students also come together four times a year—for an intensive week of face-to-face seminars—at either the OP campus in Dunedin in the lower South Island or at the Kāpiti Whitireia campus in the lower North Island. In addition, weekly ākonga (small tutorial group meetings) are held in each satellite area, for groups of 4-8 first- and second-year students, supervised by an experienced midwife kaiako (lecturer) who resides in the area. The ākonga are opportunities for debriefing practice experiences, the practice of simulated midwifery skills, and pastoral care, plus discussion of theory content in the programme and its application to practice. In their third year, students are placed with midwife preceptors in a range of maternity practice settings, while continuing to be supported by their OP kaiako.

The mix of distance and face-to-face learning components means students are able to study independently as well as together, potentially mitigating some of the isolation experienced by students in wholly online programmes (Gorodnichenko & Roland, 2011). While all students need to find a balance between their study and their family and community roles, for some Māori students, particularly those who are the first in their whānau to study at a tertiary institution, accommodating family and community responsibilities with study can be particularly challenging (Wilson et al., 2011).

Importantly, the school is responsible for ensuring the full participation of Māori in education programmes as detailed in the Memorandum of Understanding (MOU) between OP and the Kā Papatipu Rūnaka (2004-current). The MOU is operationalised in the Māori Strategic Framework (MSF, 2016-2018), the tenets of which are underpinned by Durie's (2011) vision for Māori futures; that is, for Māori to be able to live as Māori, participate as successful citizens of the world, and enjoy good health and a high standard of living. For this to be more than a vision, the following principles must apply: ngā kawenga, accountability for Māori goals and aspirations; tino rangatiratanga, supporting aspirations for Māori self-determination in relation to tertiary education; toi te mana, empowerment; and mana tiriti/ahu kāwanatanga, the space to make a contribution to the partnership. In addition to the shared vision, the accountability to Māori to whakanui (to magnify or celebrate), the respect for, and accommodation of, different Māori realities and innovations in the programme teaching and learning processes (OP, 2016-2018) must be in evidence.

While the number of midwifery students in the programme who identify as Māori had increased over the previous years, it was not known how well our programme met their study needs.

While the number of midwifery students in the programme who identify as Māori had increased over the previous years, it was not known how well our programme met their study needs. Thus, the aim was to ask Māori students about their experiences in the programme and about aspects of the programme organisation and teaching practices that could be changed to better assist them and future Māori students to succeed in their goal to become midwives.

The findings and recommendations from this participation project may be of interest to other midwifery schools looking for ways to increase the retention of, and rate of successful outcomes for, indigenous and minority ethnic student groups, both in New Zealand and internationally.

METHOD

The OP Research Ethics Committee (OPREC) and the Kaitohutohu (Māori guardian) staff were approached about how best to proceed with this research, as it was not appropriate for

the lecturers in the school to undertake the fieldwork, or to be aware of which students had agreed to participate. It was agreed that a Māori researcher from another institution would establish a relationship with the local rūnaka (tribal council) through the Kaitohutohu office and undertake the data collection for the research. Once these relationships were in place, ethical approval for the study was granted (OPREC # 517).

A bulk email was sent to all students enrolled in the programme in 2013 using their student email address. Students who self-identified as Māori were invited to participate in the research and were encouraged to contact the Māori researcher for further information about the study.

The researcher chose to be guided by Tuhiwai-Smith's (1999) seven codes of conduct for Māori researchers. These guide the approach to students consistent with te ao Māori (the Māori world) processes (pp.119-120):

- Aroha ki te tangata (a respect for people)
- Kanohi kitea (the seen face; that is, present yourself to people face-to-face)
- Titiro, whakarongo … korero (look, listen … speak)
- Manaaki ki te tangata (share and host people; be generous)
- Kia tupato (be cautious)
- Kaua e takahia te mana o te tangata (do not trample over the mana of people)
- Kaua e mahaki (don't flaunt your knowledge)

The researcher met with the students as a group in May 2013 to introduce herself and to give the students the opportunity to ask questions about her whakapapa (genealogy), her academic experience and the research aims. This meeting was informal with a shared meal provided, following which the students could decide whether or not to sign a consent form to participate in the study. All students were given the opportunity to withdraw at any time during this research at no disadvantage to themselves.

In August and again in November 2013, the researcher met with the participants for individual interviews or in small groups, depending on their preferences and availability. Meetings were timed to coincide with the intensive weeks when the students would be on campus, but were held outside class obligations, at a time and location that best suited the student or small group of students. All the conversations were digitally recorded; the voice files were kept on a password-protected computer and the transcriptions in a securely locked filing cabinet.

In line with the kaupapa (purpose) of this research, a participant research model was used (Bergold & Thomas, 2012) which provides a place for groups or individuals with particular knowledge to share their experiences and offer recommendations for improvement and change. The students were asked about their experience in the programme and were invited to contribute ideas for how school practices and processes might be reconsidered and redesigned to improve the study experience for Māori in the programme.

The student contributions were collated by the researcher and a draft report prepared. This was circulated to, and the content validated by, the participants before the wording was agreed upon and finalised. Once editing was completed to the students' satisfaction, the participants agreed that the report be submitted to the School of Midwifery at OP. All the student comments and recommendations were incorporated into the report. A collation of the students' key points and agreed recommendations for programme improvement is presented in the report, rather than the recording of individual verbatim comments. This presentation was preferred, by the small number of Māori students who participated, to avoid being identified with a particular comment.

FINDINGS AND RECOMMENDATIONS

The total number of students who identified as Māori enrolled for 2013 was 22. Of these, 13 were first-year, two were second-year and seven were third-year students. Nine (41% of the Māori students enrolled at that time) agreed to participate in the study, the majority of who lived in the North Island. Only the Māori researcher knew the identity of those who participated and this was a promise to the students to preserve their anonymity. Thus, the reasons why the remaining 59% of students did not choose to participate in the research are unknown.

Aspects of the programme that worked well for the Māori students were highlighted, as were aspects that might contribute to some Māori students withdrawing from the midwifery programme. Further, the students suggested ways in which the programme could be improved to attract and retain Māori students.

These findings and recommendations are discussed under the following headings: the structure and organisation of the programme; the learning experiences in the midwifery programme (including assessments and midwifery practice placements); support for Māori learners; and the learning environment—in particular the visibility of Māori, both in the staffing and in the programme content.

The structure and organisation of, and orientation to, the programme

The participating students said they appreciated the opportunities available from the blended learning programme with the mix of distance, satellite and face-to-face learning—the latter being valued more highly, being akin to a whānau environment.

All students travel to the Dunedin campus of OP for a week of orientation, which means additional costs for travel and accommodation for those from the North Island. The students suggested a separate orientation week in the North Island, but if this was not possible then assistance to find budget accommodation or possibly a marae stay in Dunedin would be helpful.

In addition to the ongoing costs of travel and accommodation, students needed to buy basic clinical equipment and text books, and pay the national examination fee. The students found that it was difficult to calculate the full costs and suggested that the school provide more detailed estimates in their orientation package for these expenses across the three years,.

Changes were also suggested for the organisation and content of the orientation week. These included ensuring there was adequate technical support for students studying at distance. In addition, they wanted to be allocated to their ākonga group at this early stage to enable them to get to know each other.

The students talked about the complexity and intensity of the programme. To help them understand the programme the students asked for the year timetable to be provided earlier so that travel and childcare could be arranged in a timely way. To further help with orientation the students suggested scheduled, informal meetings with second- and third-year students who could share strategies for managing study and provide insights into aspects of the practice and theory content.

The learning opportunities and assessment in the midwifery programme

The blended nature of the programme means that there is less

face-to-face contact with lecturers or other students than would be expected in a more conventional classroom teaching model. Kanohi ki te kanohi (face-to-face) is an important element of teaching, learning and researching in te ao Māori (the Māori world) and, while the students are fully aware and accepting that this programme is a blended distance model, any opportunities to talk face-to-face are valued. One improvement suggested in the online environment was to ask lecturers to use cameras during the Adobe Connect online tutorial sessions. Students would then be able to see expressions and gestures which could assist them with the retention of information.

The regular face-to-face contact is welcomed in the ākonga groups and, while the Māori students found these learning opportunities beneficial, they would like more one-to-one opportunities with their kaiako. They would also prefer the meetings to be more structured to include discussion about upcoming assignments and/or exams. They agreed these sessions could help them manage their time more effectively and prompt them about what they needed to be working on for their assessments.

Other kanohi ki te kanohi opportunities occur during the intensive sessions. Although full days in class were tiring, all students said they benefited from this interactive face-to-face learning environment, which they found more compatible with their preferred learning style.

The Māori students agreed that feedback on their assignments was useful and helped them learn and improve for future assignments. One area many students struggle with is bioscience and they suggested that this seems to be the subject which can "make or break" a student. Thus, they suggested that the content could be broken up into smaller learning units.

However, an area that most of the students enjoyed was the video assessments for one of the first-year practice courses. The students are required to perform a selection of midwifery practice skills in relation to a practice scenario, which is subsequently uploaded for marking. While the cost of the internet or reliance on a library service to upload them was sometimes a challenge, as was the time involved to complete and upload the files, students found this assessment preferable to alternative ways of assessing skill acquisition such as the Occupational Skills Competency Examination (OSCE).

Experiences in practice placements

The students agreed that they had enjoyed, and continued to enjoy, "follow through" practice opportunities. These involved following a woman (and her family) through her pregnancy and birth experiences. Most also had positive experiences during their hospital and community placements.

However, while most of the students enjoyed their practice placements, some did not feel safe in them nor welcome, and these challenges shook their confidence. The students suggested that more monitoring of these placements by the school was needed to enable students to feel safe and to enjoy the placements.

Support for Māori learners

During the programme, the students wanted more contact with Māori support services. They said that they were only contacted when they showed signs of being academically challenged, such as failing an assignment. More regular face-to-face opportunities with the Māori support team were desired, where they could discuss their progress. In particular, they would value establishing ongoing relationships with these services over the course of the programme. This could include more informal meetings, such as sharing a meal outside of class time, which would also avoid highlighting a difference between Māori and non-Māori, making Māori the "other" and to stand out in the programme as having more support. A further idea to increase a sense of community and support was to have access to classroom space in their local area to meet regularly to establish and maintain a whānau learning environment.

Visibility of Māori and Māori culture in the learning environment

Māori students who were accustomed to institutional learning found the learning environment satisfactory, but what was missing for them was the normalisation of Māori culture, values and terminology which, they suggested, only occurred in specific courses with content including te tiriti o Waitangi (Archives New Zealand, n.d.) and the process of colonisation. Further, the cultural sensitivity when working with Māori clients, which they were taught about in their courses, did not reflect how they themselves were treated. For example, when tikanga (custom, practice) was discussed and taught, the students said that important Māori values were only accepted and followed by non-Māori students and staff for a short time. This was particularly isolating for students with a strong involvement in their Māori community with strong te ao Māori values.

To help address these concerns the students said it would be beneficial to have some Māori lecturers who could teach across all subjects. This would bring a Māori voice and world view to their teaching, thereby normalising Māori culture within the programme. It was considered particularly important that the teaching of tikanga Māori was facilitated by Māori and that marae protocols were taught by someone from the relevant marae, such as one of their kaumātua (elders). It was also suggested that at the beginning of each course the students and lecturers could establish a set of class protocols or tikanga that would be culturally appropriate for all ethnicities. This would contribute to a safe learning environment for everyone, including learners not familiar with institutional learning.

What was appreciated, however, was that students who had obligations to their Māori community or family situations—for example, to attend a tangihanga (funeral)—were able to gain extensions for an assignment and that this was achievable in a non-threatening manner.

DISCUSSION

The students have offered the gifts of their experiences in the programme and have extended this to suggest ideas for changes to processes and practices that would enhance their experience and ultimate success in the midwifery programme, with an emphasis on the support for, and visibility of, Māori.

Understanding the organisation and demands of the programme

The programme was described by the students in this course as "intense", meaning that the pace and the detail about the programme content and the mix of learning modes took time to assimilate. It is expected that if students are confused about their course, they would ask lecturers for clarity. Durie (2011) suggests that "Māori are more able to participate in society as Māori if they have a secure cultural identity" (p.8) and Māori students who score highly on their Māori identity, and who have a positive self-concept, are found to be more likely to ask for help to understand course requirements (Cumming-Ruwhiu, 2015; van der Meer, Scott, & Neha, 2010). This leaves Māori students who are less confident in their Māori identity at a disadvantage.

Therefore, increased opportunities for students to get together to share information and computer skills could support their shared learning and help build their confidence (Hall, Rata, & Adds, 2013).

Entering a full-time study course means that managing time for study, family, and community commitments is a challenge. While this is so for most students, Theodore et al. (2015) explain that, in some Māori families, the student may be the first to undertake tertiary study and that the time and space needed by the student to complete course work may not be fully understood by whānau. Further, students would be expected to put their whānau and community responsibilities ahead of their study. This is more likely to be an issue when they are studying at home (as in this programme), where they would feel obliged to help with household and community activities (Wilson, M. et al., 2011). To help whānau understand study demands, dedicated meetings between lecturers, students, and whānau were advocated by Wilson, McKinney, and Rapata-Hanning (2011) in relation to Māori nursing students who, in common with midwifery students, found it difficult to balance study and family demands.

The teaching and learning environment

Meeting face-to-face provides additional information and the opportunity to ask questions in real time. These aspects of their programme were highly valued by the Māori students. While the ability to complete much of their coursework from home was appreciated, some struggled with topics such as bioscience. In this and other topics the students desired more kanohi ki te kanohi.

Kana and Tamatea (2006) emphasise the value of the face in communication, and share the saying "He kitenga kanohi, he hokinga whakaaro—When a face is seen, after a period of absence, memories associated with that face return" (p.15). While these authors were referring to a physical closeness, sharing a live image could come some way to bridging the distance. One suggestion from the Māori students was for lecturers to use their computer camera when facilitating online tutorials. Seeing the face of the lecturer enables students to see expressions and gestures that could add cues to assist with the retention of information (Ferguson, 2014)—for example, smiles, nods and the sense of having a face to focus on were more likely to encourage student online engagement. Further, Ferguson suggests that lecturers could use the camera when responding to student questions, providing immediate feedback, which would allow for the sharing of stories. This practice could be adapted to mitigate the sense (and reality) of being so physically distant, which is often experienced with online learning.

Support for Māori learners

Ongoing support options are available for all students; however, the Māori students in this study wanted more regular contact from the Māori support team. They were disappointed to find that this contact happened only when they failed an assessment or their results were marginal. This need for dedicated support for Māori learners is emphasised by Wilson, M. et al. (2011) and requires an attitude of understanding and approachability from lecturers. This should be in addition to that provided by the Māori support team. What was also important was for all those engaged in student support to have high expectations for academic success for Māori students, in addition to support for their cultural identity (Tahau-Hodges, 2010). Whatever mix of support is offered, it should be subject to evaluation and ideally include integration of iwi (Taiapapaki et al., 2012) and suitably qualified staff able to provide support for Māori learners (Greenwood & Te Aika, 2008). These sentiments were clearly expressed by the students in this study.

While support may be provided in the study setting, it is a challenge to extend this to the bustle of hospital practice placements where some students in this study sometimes felt unsafe or unwelcome and experienced a loss of personal confidence. In common with most workplaces, misunderstandings can occur but some practitioners, including midwives, can bully students (Gillen, Sinclair, Kernohan, & Begley, 2009). Feedback about practice experiences requires prompt discussions with practice colleagues and key hospital management. It is often the students who feel most vulnerable in these settings, though, who may not feel confident enough to share these stories. Thus, an ongoing relationship with a named Māori support person could help students work through these challenges.

Visibility of Māori culture in the learning environment

The lack of Māori lecturers was highlighted by the Māori students as an issue in the programme. Without these role models, some students felt culturally isolated. This desire for teaching role models was also found in other studies to be important for Pasifika students (Benseman, Coxon, Anderson, & Anae, 2006), as were alternative approaches to teaching (Sopoaga et al., 2013). For Māori students, lecturers who identify as Māori have the opportunity to use alternative approaches to their teaching, such as the creative use of pārākau (stories from the Māori world), as suggested by Lee (2009). These methodologies and others could provide alternate approaches to narrative inquiry in a range of theory and practice topics—thereby contributing to the richness, visibility and normality of te au Māori knowledge and culture in the programme.

According to Durie (2006):

> *The measurement of Māori wellbeing requires an approach that is able to reflect Māori world views, especially the close relationship between people and the environment. This ecological orientation carries with it an expectation that social, economic and environmental aspects of wellbeing will be given adequate consideration and that cultural and physical resources will be similarly considered alongside personal wellbeing. (p.15)*

Durie's aspirations for Māori wellbeing are aligned and operationalised in the OP's MSF (OP, 2016-2018). However, success and participation have been demonstrated to be more likely for Māori when there is a connectedness and a sense of whānau environment in the institution which serves to affirm the learner's identity (McMurchy-Pilkington, 2013), but changes need to be more than token. This requires schools to consider ways to make the Māori world visible in all aspects of programmes, with appropriate and frequent use of te reo and Māori symbols in course materials, classroom teaching and online tutorials. The inclusion of a noho marae (when students stay on the marae overnight) early in the programme is also important to expose all students to the Māori world and to meet tangata whenua (hosts and people of that place).

What must be acknowledged, however, is that whatever adjustments or additions are made to the programme, the predominant ethos continues to reflect a Eurocentric educational approach with the risk of reinforcing negative aspects of colonisation (Raumati Hook, 2008). Such an approach puts the focus on individual success and study forms which potentially clash with collectivist (group) ways of learning and valuing knowledge (Kepa & Manu'atu, 2011).

Table 1. Glossary of te reo Māori words and terms and how they are used in this study

Te reo Māori term or concept	Definition*	How the term is applied in this study
Ākonga	Student, learner, pupil or protégé	Small learning groups of students
Iwi	Extended kinship group, tribe, nation, may refer to a large group of people descended from a common ancestor or territory	
Kaiako	Teacher or instructor	Teacher or lecturer
Kaitohutohu	Advisor or instructor	Adviser to our institution in relation to things Māori
Kanohi ki te kanohi	Face-to-face or in the flesh	Face-to-face
Kaumātua	Adult, elder, elderly man, elderly woman, old man - a person of status within the whānau	
Kaupapa	The main purpose, policy, initiative, agenda, plan or matter for discussion	Purpose of the study and plan for engagement of the participants
Mana Tiriti /Ahu Kāwanatanga	The space to make a contribution to the partnership	
Mana Tiriti-whakanui	In addition to the shared vision, the accountability to Māori to magnify or celebrate the respect for, and accommodation of, different Māori realities and innovations in the programme teaching and learning processes	
Ngā kawenga	Accountability for Māori goals and aspirations	
Noho marae	Noho - to sit, stay, remain, settle, dwell, live, inhabit, reside, occupy, located Marae - courtyard - the open area in front of the wharenui, (the large meeting house where guests are accommodated) where formal greetings and discussions take place. Often also used to include the complex of buildings around the marae	Students visit and stay overnight at a local marae for an immersion experience in Māori culture and instruction in the tenets of the Treaty of Waitangi - the founding document of New Zealand signed in 1840 (https://nzhistory.govt.nz/politics/treaty-of-waitangi)
Oranga niho	Survivor, food, livelihood, welfare, health, living. Niho – tooth or tusk	Dental health initiative for Māori
Pārākau	Ancient myths and legends	
Rūnaka (rūnanga)	Council, tribal council, assembly, board, boardroom, iwi authority - assemblies called to discuss issues of concern to iwi or the community	Refers to the MOU signed by Otago Polytechnic and the Kā Papatipu Rūnaka
Tangata whenua	Local people, hosts, indigenous people - people born of the whenua, i.e. of the placenta and of the land where the people's ancestors have lived and where their placentas are buried	
Tangihanga/Tangi	Rites of the dead, funeral to cry, mourn or weep over	
Te ao Māori	The Māori world	
Te reo	Language, dialect, tongue, speech	
Tikanga	Correct procedure, custom, habit, lore, method, manner, rule, way, code, meaning, plan, practice, convention, protocol - the customary system of values and practices that have developed over time and are deeply embedded in the social context	Agreed ways of working together in the class to avoid offence
Tino rangatiratanga	Supporting aspirations for Māori self-determination in relation to tertiary education	
Tiriti o Waitangi	Treaty signed in 1840 between Māori and the Crown	Attendance and engagement in a Treaty of Waitangi workshop is integral to, and compulsory in, the programme
Toi te mana	Empowerment	
Tūpuna	Ancestors, grandparents	
Turanga kaupapa	A stand, position, situation, site, foundation, stance	An ongoing mechanism to assist midwives to interact respectfully with those of other cultural backgrounds and to recognise the impact of their own background
Wairua	Spirit which resides in the mind which exists beyond death	Spirit of the student
Whakanui	To enlarge magnify and expand	
Whakapapa	Genealogy and lineage	
Whānau	Extended family, family group, a familiar term of address to a number of people - the primary economic unit of traditional Māori society. In the modern context the term is sometimes used to include friends who may not have any kinship ties to other members	Family or significant people in the student's life
Whanaungatanga	Relationship, kinship, sense of family connection - a relationship through shared experiences and working together which provides people with a sense of belonging. It develops as a result of kinship rights and obligations, which also serve to strengthen each member of the kin group. It also extends to others to whom one develops a close familial friendship or reciprocal relationship.	Students' sense of connection and belonging with their peers and lecturers providing mutual support and reciprocity

*** Sourced from http://maoridictionary.co.nz/word/3664**

While te reo and ceremonial protocols are easily incorporated into face-to-face events, it is perhaps more important to find ways with e-education pedagogy to maintain Māori values that preserve the wairua (spirit) of the Māori student (Ferguson, 2014).

STUDY STRENGTHS AND LIMITATIONS

The strength of this current project has been the generous sharing of the experiences and ideas by Māori students—signalling aspects they felt could be changed or improved in the programme. These were carefully and sensitively captured by using Tuhiwai-Smith's (1999) seven codes of conduct for Māori research approach and subsequent collation of the student comments by our Māori researcher.

A limitation is the small number of participants—nine out of a possible 22. However, their experiences in tertiary study, and desires for a more culturally compatible learning environment, correlate with findings in the education literature in relation to Māori and other indigenous groups both in NZ and elsewhere. Nonetheless, collective translation of the feedback may have silenced some voices despite the careful efforts of the researcher. However, while confidentiality was assured, there remains the potential for identification, if not with the detail, then with the group sentiment. This invites further research. For example, this study could be repeated to see how helpful the changes resulting from the research have been and if further changes are needed.

CONCLUSION

This kaupapa Māori study has provided ideas for change in the learning experiences and learning environment of this Bachelor of Midwifery programme. The students highlighted how acknowledgement and visibility of, and engagement with, their Māori world and values would provide a sense of belonging that would enhance their success and enjoyment in their study programme. Further, they have offered specific suggestions for how this might be realised. This includes comprehensive and timely information about the demands of the programme, timetables and costs, as well as changes to learning opportunities and assessment processes. Most importantly, the Māori participants identified that culturally sound relationships with lecturers, fellow students and midwives in practice, as well as more iwi/whānau involvement, plus course advice and dedicated academic support, would assist them to be successful in their goal to become registered midwives.

Implementation of the changes advocated in the report by these Māori students at the School of Midwifery at OP will further contribute to an environment that visibly celebrates our bicultural identities, while preserving the energies of Māori midwifery students for their study. These changes have the potential to help fulfil Durie's (2011) vision for Māori to be able to live as Māori, participate as successful citizens of the world, and enjoy good health and a high standard of living. Other midwifery schools may consider these findings for their context with Māori midwifery students as a mechanism to enhance successful programme completions and increase the number of Māori midwifery graduates.

Kia mahi a tātou tahi kia whāia ara ki mua (Let us all work together to find ways forward) (OP, 2016-18, p.3).

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NEW ZEALAND RESEARCH

Online postgraduate midwifery education increases knowledge integration into practice: Insights from a survey of Otago Polytechnic's postgraduate midwifery students

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ABSTRACT

Background: The Midwifery Council of New Zealand requires that registered midwives are engaged in education as one aspect of demonstrating ongoing competence. Barriers to engagement include geographical isolation, inability of workplaces to release midwives, potential for the post-registration student to be unavailable to her Lead Maternity Care clients, and financial constraints associated with travel to where the study is offered. In New Zealand, the Otago Polytechnic postgraduate midwifery programme offers a range of clinically focussed and theoretical papers that are delivered at distance in a blended model, combining online learning with synchronous and asynchronous online discussion opportunities. This model enables midwives to up-skill and build "communities of practice" regardless of their physical location, with no resultant loss of availability to their community or workplace.

Aim: This research aimed to explore midwives' perceptions of how their engagement in online postgraduate midwifery education had influenced their practice, potentially benefiting childbearing women in their care.

Method: Following ethical approval, an online survey was sent to all midwives who were enrolled in postgraduate midwifery courses at Otago Polytechnic in the period 2012 to 2013. Data were collected in April 2014, from a survey that used a combination of Likert scales, yes/no responses, and provision for qualitative comments. Data were analysed using descriptive statistics and thematic analysis.

Results: Fifty-five out of 117 (47%) surveys were returned. Midwife respondents practised across a range of settings from urban to remote rural locations, and midwifery care was provided at home and at primary, secondary and tertiary birth facilities. Respondents felt that participation in online postgraduate midwifery education had improved their knowledge base and their ability to practise in an evidence-informed way, and they felt connected to a community of practice in a virtual sense, gaining the benefits of support and encouragement from fellow learners and lecturers. They believed that the care they provided to women was enhanced because they had practice currency and could apply their knowledge to clinical situations with increased confidence.

Conclusion: For these midwives, engagement in online postgraduate midwifery education informed their midwifery practice, and therefore the care that women received. Online postgraduate midwifery education enabled these midwives through its accessibility.

Keywords: midwifery, postgraduate, online education, e-learning, continuing education, midwifery care

INTRODUCTION

Midwives in Aotearoa/New Zealand are required by the Midwifery Council of New Zealand (MCNZ) to engage in ongoing elective education, as one aspect of its Recertification Programme (MCNZ, n.d.). Engagement in education contributes to midwives' competence for practice, and a number of education providers offer postgraduate learning opportunities. Barriers to engagement have been identified, including cost, location, and rationing of education (Calvert, 2015). Traditional face-to-face classroom learning is said to be limiting midwives' ability to actively engage in education and is seen as "a slow way to translate knowledge into practice" (Calvert, 2015, p.198). Online education offers a promising way forward, and this research from Otago Polytechnic's (OP's) online postgraduate midwifery programme can contribute to our understanding of the overall landscape of postgraduate education in Aotearoa/New Zealand.

BACKGROUND

Postgraduate midwifery education in Aotearoa/New Zealand has evolved over the last ten years to include a range of modalities. Whilst some education is still provided via face-to-face study days, increasingly the focus has turned to online provision of educational opportunities. The OP School of Midwifery offers a programme of online education to Master's level, with courses ranging from seven-week clinically focussed topics to longer courses designed to prepare students for Master's research projects. Most courses comprise weekly modules of theoretical content which include links to research articles, quizzes, external websites and other

learning resources. These are supported by "live" virtual classroom discussions and asynchronous forum discussions. Live sessions enable midwives to share their practice wisdom, hear from guest speakers with expertise in the topic and discuss what occurs in their local areas, thus building online communities of practice. Assessments may include essays, presentations, quizzes, production of resources for women and forum postings.

Clear benefits for institutions offering online education have been identified, in terms of cost-effectiveness, sustainability, rapid and easy updating of course content and learning compression.

Clear benefits for institutions offering online education have been identified, in terms of cost-effectiveness, sustainability, rapid and easy updating of course content and learning compression (Derntl & Motschnig-Pitrik, 2005; Epic, n.d.; Nichols, 2004). A number of benefits to learners who are health professionals have also been identified. These include flexibility with self-directed learning (Andrew, Maslin-Prothero, & Ewens, 2015; Kale & Richardson, 2006; McVeigh, 2009), access for remotely located learners (Carroll, Booth, Papaioannou, Sutton, & Wong, 2009; Morrow, Phillips, & Bethune, 2007), increased knowledge and understanding, and the evolution of "communities of practice" (Bromley, 2010; Cassidy, 2011; Lewis & Price, 2007; Owens, Hardcastle, & Richardson, 2009; Pullen, 2006). But, to date, there has been little exploration of whether there could be benefits beyond the learner, to recipients of the care provided by those engaged in these educational opportunities. Whilst several studies involving nurses and doctors have described enhanced clinical decision-making, knowledge currency, increased understanding and use of research, and positive impacts on practice (Atack, 2003; Lockyer, Moule, & McGuigan, 2007; Moore et al., 2012; Smyth, Houghton, Cooney, & Casey, 2012; Wong & Abbruzzese, 2011), the absence of studies that evaluate the impact of post-registration education on recipients of care has been noted in a systematic review (Gijbels, O'Connell, Dalton-O'Connor, & O'Donovan, 2010). Sinclair, Kable, Levett-Jones, and Booth's (2016) systematic review, of the effectiveness of e-learning on health professionals' behaviour and patient outcomes, also identified no studies that examined the effect of online education on recipients of care. Because their review centred only on asynchronous educational offerings that had been examined by randomised or quasi-randomised study designs that measured effectiveness using validated tools, it was limited to seven studies. We have been unable to identify any studies that specifically relate distance midwifery education to possible benefits to women that might accrue. It would be challenging for women themselves to identify whether their midwife's engagement in online education had resulted in them receiving "different" care, so this research has examined the midwives' own perceptions of how the online postgraduate midwifery education offered by OP has shaped their practice, and invited them to consider how this might have benefitted their clients in turn.

METHOD

An online survey was designed to capture both the demographic characteristics of OP's postgraduate midwifery students and their experiences of online study. The survey, although based on one that had previously been developed and used in the OP undergraduate programme, was adapted for both the postgraduate programme and the specific research question relating to midwives' perception of how their practice and women's care were influenced by online study. Midwives were asked a range of questions about specific learning modes within the courses (for example, use of virtual classrooms and online discussion fora) and whether—and how—the courses increased their knowledge, confidence, and cultural competence. Some of these outcomes will be reported in another publication, but the primary focus for this article is on midwives' perceptions of how their education influenced their practice and women's care. The survey was distributed for feedback to the teaching team in the postgraduate programme prior to being included (with no amendments) in the research proposal and the ethics application. The ethics application was approved by the OP Research Ethics Committee in April 2014 (OPREC Ethics #578), following consultation on cultural aspects of the proposal with the OP Kaitohutohu Office. Because both researchers were involved in a teaching capacity in the postgraduate programme, the survey was forwarded by the OP Organisational Research Officer to all students who had been enrolled in any OP postgraduate midwifery courses during 2012 and 2013 (n=117).

An information page at the start of the survey outlined the nature and purpose of the study, giving contact details for the researchers so that any questions could be asked prior to participation. Potential participants were assured of their anonymity and that participation was entirely voluntary. Completion and submission of the online survey constituted consent for participation and respondents were able to withdraw their responses until the closure of the survey by emailing the Organisational Research Officer. Completed surveys were returned online to the Research Officer, and only aggregated data were provided to the researchers for analysis, to protect the anonymity of respondents, thus minimising a potential source of bias. All data were presented to the researchers on an Excel spreadsheet with no identifiable features included; each respondent had only the spreadsheet number alongside their response. Quotes presented reflect this number (e.g. R7). Even where respondents may have included a comment that identified the course they completed, it was not possible for individual midwives to be identified.

Quantitative data were analysed descriptively using counts, frequencies, measures of central tendency (means) and dispersal (ranges). No other statistical tests were applied. Qualitative data were analysed using both Braun and Clarke's 2006 and 2013 models (Braun & Clarke, 2006; Clarke & Braun, 2013). Initial codes were produced by one researcher (CG) to represent what appeared of interest about the phenomenon under study. Some initial codes went on to form two main themes, while others formed sub-themes reflecting the experiences, meanings, and reality of the participants, in response to the questions asked. For example, the initial codes "increased knowledge" and "practitioner confidence" were eventually taken up to form part of the theme "increased knowledge enabling confident discussion". Other initial codes were discarded. The identified themes were then reviewed by both researchers and refined to ensure they accurately reflected participant meanings in the qualitative data. An analysis was then written about each of the identified themes, describing how they were related to each other. Conclusions were drawn via discussion to consensus between the researchers. This paper presents the following themes: Increased knowledge enabling confident discussion, Integration of knowledge into practice, Maintaining currency, and Benefits for women receiving care.

RESULTS

The response rate for the survey was 47% (n=55). This is higher than response rates typically reached for online surveys, which average at around 33% (Nulty, 2008; Watt, Simpson, McKillop, & Nunn, 2002) and the sample was considered representative.

Who are we and who are our learners?

Despite OP being physically located in Dunedin, during the period relevant to the survey the 10 lecturers in our School of Midwifery postgraduate programme were variously located in Dunedin, Motueka, Wellington and Taranaki. The survey respondents were located right across Aotearoa/New Zealand, and also in the Pacific Islands, North America and Europe. They were all registered midwives, all women, with 45% in full-time and 42% in part-time midwifery practice (12% not stated; all figures rounded). The respondents' average age was 46 years, and average length of midwifery practice was 18 years. These midwives worked across a range of practice types, including self-employed practice, employed practice, caseloading employed practice, management, education and research. Yet others were taking the time to study during periods of maternity leave (Figure 1).

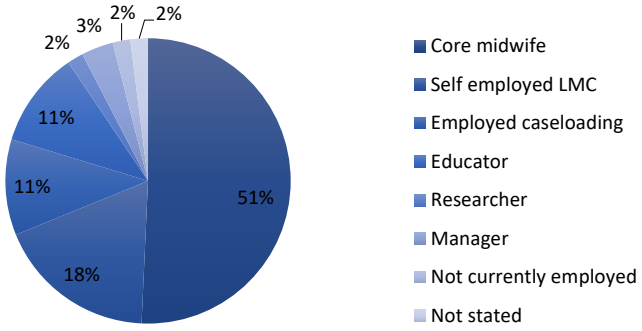

Figure 1. Main midwifery role during period of study

Sixty-two percent of our respondents were first registered as midwives in Aotearoa/New Zealand, with a further 25% reporting first registration in the United Kingdom, 5% in Australia, and the remaining 8% "other" or "not stated". The midwives practised in a range of settings. Of those who reported one main work setting, 75% reported this as urban, and the remaining 25% reported it as being semi-rural, rural and remote rural. Of midwives who worked across multiple work settings, 45% worked across all areas, indicating the wide geographical spread of practice by individual midwives.

Each year, eight practice-focussed and two theory-focussed courses are offered in addition to the Master's thesis option. In 2012 and 2013 there were 53 and 67 enrolments in practice-focussed courses respectively, and 8 and 9 enrolments in theory-focussed courses respectively. The survey did not ask midwives to nominate which course(s) they had completed but 60% (31/52) of respondents were enrolled in more than one course. Thus, most midwives were engaged in courses which related quite directly to their midwifery practice.

Increased knowledge enabling confident discussion

"Increased knowledge enabling confident discussion" was the first of two strong themes which emerged from analysis of the data about how online postgraduate education influenced the participants' midwifery practice. In response to the statement "My knowledge of the subject area has improved as a result of doing the course(s)", which was accompanied by a five-point Likert scale ranging from 1 (greatly improved knowledge) to 5 (learned nothing new), the majority (49/53) of midwives commented that their knowledge of the subject area had increased.

> *I have much better subject knowledge now. (R8)*

> *Definitely increased knowledge and practical info[rmation] to use in practice. (R19)*

> *I consider that I was relatively up to date…however I did gain some new knowledge and it gave me a chance to review the current evidence in relation to... (R21)*

Also mentioned was the frustration participants experienced in practice when best practice was not applied in situations they were either involved in, or witnessed.

> *I thoroughly enjoyed the learning experience. Ironically, some frustration is felt knowing where/when best practice is not applied. (R31)*

In response to the statement "I feel more confident as a midwifery practitioner as a result of doing the course(s)" where respondents rated on a Likert Scale "much more confident" (1) to "no change in confidence" (5), most respondents (47/53) felt that their confidence was increased as a result of their postgraduate study, and that they could confidently state the latest research on a topic, which they felt added to their credibility as practitioners. This related to their interactions with both midwifery and obstetric colleagues. Respondents also described feeling more confident with locating evidence to support their practice and with increased skills for critiquing this evidence.

> *As a result of increased knowledge about the topic I feel more confident in my understanding of the physiology related to the topic, and therefore feel more confident in interpreting results and engaging with other health professionals when consulting. (R21)*

> *I feel more confident in my knowledge base, and as a result, feel more confident when consulting with other health professionals. (R22)*

> *…increased knowledge and confidence to read research and apply it and talk about it to colleagues. (R27)*

> *It has helped me to remain up to date with current research and challenged me to keep my practice evidence based. I have also developed stronger skills in being able to critically examine research, and assess its validity to current practice trends. (R47)*

Integration of knowledge into practice

The second theme which emerged from the data was "integration of knowledge into practice". Midwives were asked to comment on the effect that postgraduate education had had on their midwifery practice, and their perception of how their education might benefit women receiving their midwifery care.

Respondents felt that, as their knowledge had increased as a result of the education they had received their confidence in applying their new knowledge to practice had improved also.

> *My practice has changed so much over this time… (R18)*

> *[I am] motivated to make a difference. I use evidence based care in my practice all the time, and take great pains to differentiate between personal opinion, and evidence based care. (R42)*

I feel I can offer some suggestions backed by research and knowledge [from] my recent studies. (R32)

While studying… SUDI, I was interested in the cultural aspects around bed-sharing and have changed the way I present information to include culture and safe sleep practices. (R50)

Respondents were asked if participating in online postgraduate education had influenced their practice as a midwife. Some (3/48) felt the course content supported their current practice therefore giving no reason to change it.

It has given me deeper knowledge but not changed my practice. (R57)

However the majority (41/48) of respondents felt they had gained information that had a direct benefit to their midwifery practice.

Absolutely. I have developed my research and critique skills and improved my knowledge of specific areas of practice. (R7)

Cohesive integration of pathophysiology into day to day practice. (R10)

I feel it has made me be more diligent in i.e. weight monitoring and management (maternal obesity paper). (R11)

Increased my confidence within my own practice. (R12)

It certainly made me consider research in all my information given to women and how important being up to date with the current research was. (R16)

Maintaining currency

On completion of the postgraduate course they had undertaken, 73% of respondents felt motivated to continue on with postgraduate study in order to learn even more.

I think once your interest is piqued in a subject you will be stimulated to maintain your knowledge. (R21)

The…course has inspired me to continue with a Masters [sic] in Midwifery [degree] specifically looking at this area and maybe do a research project on this. (R19)

Midwives enjoyed having ready access to sources of current information while enrolled in a course.

I am motivated to ensure my knowledge is contemporaneous but it is throughout the period of study that most time is spent researching a subject. This is made so much easier by having access to many sources of the most relevant information. (R31)

Respondents were asked whether the course had provided them with opportunities to reflect on their personal beliefs and how these may influence the care they provided to women. Of the 50 respondents who answered this question, 41 agreed their course resulted in reflection on their own values and beliefs.

…discussion with other midwives made me examine my preconceptions about obesity, its causes and impacts on women and their families. (R41)

Yes, encouraged personal reflection and application all along. (R27)

Yes, and how my beliefs and world view has an impact on others, both good and bad. (R28)

Yes, very much so. Every paper had elements that were self-reflecting. I don't think you can study without taking a little piece of the paper inside you. (R42)

Another respondent stated:

The course challenged stereotypes and highlighted the realities of challenges faced by the many different ethnic and cultural communities in New Zealand. (R47)

She went on to describe how respondents were drawn to consider the rationales women use to make decisions.

Benefits for women receiving care

When asked whether participation in online postgraduate education has benefits for the women receiving their midwifery care, 44 of the 48 respondents who answered the question agreed that it did. Benefits included having up-to-date, evidence-informed knowledge, and an increased ability to share knowledge confidently.

My practice is increasingly evidence based. (R14)

Studying to determine best practice allows a level of confidence when caring for women. (R31)

…my research and critique skills have developed and this will have a wide-ranging effect on my ability to inform my clients and colleagues about research and options for care. (R7)

The postgraduate study has benefitted my women – knowledge, clinical skills and resources I bring to their care has [sic] more depth. (R10)

Respondents felt they had a better understanding of medical conditions and their effect on pregnancy, increased expertise, and, as a result of their study, were able to discuss conditions with accuracy and confidence.

I have more knowledge and skills when caring for women with complex medical conditions. (R37)

The women benefit from the increased level of expertise that I have developed during my education online. (R14)

I have been able to utilise … knowledge whilst providing support during low risk labour/birth. (R31)

I now have a greater understanding of the physiological changes that relate to GDM, and am able to explain this in a simplified manner to the women I care for. This combined with education for women in regard to diet and exercise has resulted in me feeling greater confidence to continue to care for them after having a positive GDM result, without having to hand them completely over to secondary services. (R47)

Postgraduate education benefitting midwifery and medical colleagues was also mentioned, as respondents shared knowledge they had gained.

I have led presentations regarding the topic I based my case study on and also teach others more about the topic as my knowledge has increased hugely. (R37)

I have a position that calls for "practical", on the go, clinical support and education. Having the knowledge on adult education helps me approach every situation customised for the colleague who is learning. (R46)

Most of the qualitative comments provided by the midwives were positive about their experience of online education, and they could articulate how this education had benefitted both themselves, personally and professionally, and also the women in their care. Some midwives commented negatively about some aspects of online study. Overall, 240 individual "positive" and 54 "negative" comments were made across all aspects of the survey. Negative comments typically related to midwives' unfamiliarity with the online environment, or frustration when technical issues, like bandwidth speed, interfered with their ability to be part of discussions. Two midwives suggested that without the virtual classroom discussions and forums they would have found studying this way quite isolating. One midwife found that, although the courses themselves were interesting, the "juggle" of study alongside working and family commitments was difficult. One found access to library resources problematic, and one felt the range of topics on offer at the time did not suit her rural midwifery practice. All of these comments are valuable to reflect upon for the ongoing development of the programme. The "student experience" aspect of online postgraduate study will be addressed more fully in an upcoming publication.

DISCUSSION

The demographic profile of respondents in the OP postgraduate midwifery survey was congruent with that of the midwifery workforce as a whole at this time in Aotearoa/New Zealand in terms of gender and average age (Table 1).

Table 1. Demographic profile of OP survey respondents cf. NZ midwifery workforce (MCNZ, 2013)

	OP survey	%	MCNZ workforce survey	%
Gender	Female	100	Female	99.8
	Male	0	Male	0.2
Ethnicity	Māori	5	Māori	5.1
	Pasifika	0	Pasifika	0.9
	Pākehā (non-Māori)	75	Pākehā (non-Māori)	65.1
	Other	20	Other	28.8
Work type	Self employed	18	Self employed	32.8
	Employed	51	Employed	48.6
	Employed caseload	11	Employed caseload	5.3
	Educator	11	Educator	3.1
	Researcher	2	Researcher	0.3
	Manager	4	Manager	NR
	Not employed	2	Not employed	0.9
	-		Other	9.0
Average age of midwives	46 years		47.4 years	
Average years in practice	18 years		14.7 years	
First registration in NZ	62%		67%	

Our sample had spent slightly longer in the workforce (OP 18 years cf. MCNZ 14.7), and contained more midwives who identified as Pākehā (OP 75% cf. MCNZ 65.1) and fewer who chose "Other" as their first ethnicity (OP 20% cf. MCNZ 28.8). Similar numbers in each group (OP 62% cf. MCNZ 67) had first registered as midwives in New Zealand (MCNZ, 2013). Additionally, this profile is consistent with literature which has identified that successful online learners tend to be female and of mature age (Blum, 1999; Smyth et al., 2012).

Impact on clinical practice

The increased sense of practice confidence and enhanced knowledge attributed to online learning by our study participants are echoed in a number of other studies, which to date have focussed mostly on the practice of health professionals other than midwives. Wong and Abbruzzese's (2011) case study research into online communities of practice with physical therapists identified that, overall, three-quarters of their learners agreed or strongly agreed that online learning had enhanced their sense of shared purpose, their learning, and their clinical decision-making skills. Similarly, Pullen's (2006) mixed method evaluation of online continuing professional education for general practitioners and physicians noted a statistically significant improvement in both self-reported practice performance change ($p<0.05$) and increased knowledge ($p<0.05$).

In the nursing field, Moore et al. (2012) showed that, even one year following completion of an online education package about working with people with mesothelioma, 87.5% of nurses reported ongoing increased confidence, knowledge and a positive impact on their practice from their engagement in online study. Ongoing motivation was a feature reported by Smyth et al. (2012) in their study of post-registration nurses who were studying alongside full-time work. Seven focus groups, comprising 51 nurses (a 35% response rate to their invitation), identified that these nurses highly valued the flexibility of online education, where they could fit study in around their work and family commitments, although some found this invasive on family life. These nurses described feeling increased autonomy and self-responsibility for their learning, and suggested they were strongly motivated to increase their knowledge for enhanced problem-solving and application to practice.

A mixed methods study (Lockyer et al., 2007) of eight nurses providing care to patients with cancer described enhanced confidence in care provision, especially in relation to providing psychological support, and some aspects of technical care. As with this study, increased understanding and use of research in clinical practice featured strongly in the findings of Atack's (2003) study which used focus groups to evaluate the impact of a sixteen-week nursing e-learning course. These participants also described increased knowledge and practice confidence, and, congruent with our own findings, suggested that their interest in pursuing further postgraduate education had been stimulated by their engagement in online learning. A further insight yielded by Atack's study was that these nurses, by studying in their home environments, felt they had modelled lifelong learning to their children, which was a source of pride to them in addition to their successful completion of the course.

A recent New Zealand study (Calvert, Smythe, & McKenzie-Green, 2017) found that, in order to maintain competency in their specific area of practice, midwives needed to first identify their own specific learning needs. These needs were also dependent on the requirements of the women they were working with. The midwives then developed strategies to maintain their knowledge and skills. Engagement in online postgraduate education was one solution towards enabling the midwives to positively affect the care they provided to women.

"Practice transformation" is the process by which midwives develop their knowledge and skill over time (Larkin, 2015). Transformation occurs partly as a result of gaining practical experience, but also from engaging in reflective discussion about practice and from exposure to ongoing educational opportunities. "Transmitting practice" is how midwives, by communicating their

own practice transformation stories and engaging in reflective practice discussions, create a future legacy of initiating change in those around them. Many midwives in our study described how they shared their learning with their practice colleagues and with medical staff in their workplaces, demonstrating practical application of practice transformation ideas. Larkin (2015) has used the term "generativity" to describe how midwives transform and transmit practice in this way. Online educational opportunities, by overcoming some of the geographical barriers to engagement in postgraduate study, provide an important avenue for exercising generativity in the midwifery community.

Benefits to recipients of care: Women and families in our communities

While it is clear that health professionals can articulate improvements in their knowledge, practice confidence, use of research in practice and so on, none of these studies has explicitly explored how these improvements might flow on to make a difference for recipients of their care. One study that came close was that of Lockyer et al. (2007). These authors speculated that the increased ability of nurses to understand the psychological implications for patients of undergoing cancer surgery, might lead to more empathetic care which incorporates more information-sharing. This is an important step in envisioning how practice change resulting from online education might enhance the experience of surgery recipients.

"Transmitting practice" is how midwives, by communicating their own practice transformation stories and engaging in reflective practice discussions, create a future legacy of initiating change in those around them.

Sinclair et al.'s (2016) systematic review concluded that asynchronous e-learning was "at least as effective as traditional learning approaches, and superior to no instruction at all" (p.70) in terms of effective behavioural change in health professionals, but also identified that no literature had described improvements to patient care as a result of e-learning.

Our study has gone a step further by asking midwives to describe how they perceive their online midwifery education has benefitted women in their care. While all midwives are competent upon registration and all midwifery care is evidence-informed, these midwives have described an additional strength of improved confidence with utilising and interpreting evidence as an outcome of their postgraduate study. Their increased knowledge has enabled their conversations with both women and other health professionals to be more evidence-informed, resulting in clearer communication and increased confidence about accurate information-sharing. The midwives shared a number of practice anecdotes relating to how their up-to-date knowledge about hypertension, Sudden Unexpected Death in Infancy (SUDI), diabetes, nutrition, sexually transmitted infections, physiological birth, HIV and so on, had made a difference for a woman in their care. One midwife described how her communication skills had improved. Skilled communication is a cornerstone of the partnership relationship between women and midwives. This study therefore contributes in a small way to reporting outcomes that relate to the recipients of care by highlighting midwives' own perceptions that, as a result of online study, they are more confident and have improved practice knowledge, enabling enhanced communication with women, and other health practitioners they collaborate with.

STRENGTHS AND LIMITATIONS OF THE STUDY

This study has some notable strengths, including the representativeness of our sample and the lack of ambiguity in our survey questions, which resulted in a good response rate (by online survey standards) and most fields in the survey being completed accurately. Qualitative responses were extensive. Limitations include that we are unable to know how those who chose not to participate might have felt about their experiences of online education. It is possible our participants comprise a motivated group of enthusiastic learners. We have identified that focus groups, to explore the emergent themes more closely, could be a fruitful mechanism for further research. These could also enable us to identify further topics that the profession would like us to develop as future courses. Understanding how learners' previous experiences of online learning might impact their study would lend additional insights to our work.

Implications for practice

It is likely that for registered midwives, evaluation of any form of postgraduate education would elicit similar responses in relation to increased knowledge, practice confidence and a necessarily subjective perception of improved care for women and their families. We are not suggesting distance education as a substitute for more traditional methods of learning such as workshops and face-to-face courses, which will continue to suit some midwives better, as well as some providers of their education. Our contribution to the landscape of ongoing education for midwives is to suggest that, despite some limitations, online delivery of education is effective, and improves accessibility for midwives.

CONCLUSION

The survey respondents were very clear that the online postgraduate midwifery education they had engaged in does inform midwifery practice, and therefore the care that women in Aotearoa/New Zealand receive. In their opinion, the additional knowledge the midwives gained had positive benefits for the women and families for whom they provided care. Being delivered online also enabled midwives to engage more easily with postgraduate midwifery education, through it being accessible to those for whom accessing educational opportunities is challenging, whether through distance, availability or practice commitments. Online postgraduate midwifery education is an effective option for ongoing practice improvement and can contribute to practice transformation and transmission, keys to ongoing professional development for the whole midwifery community.

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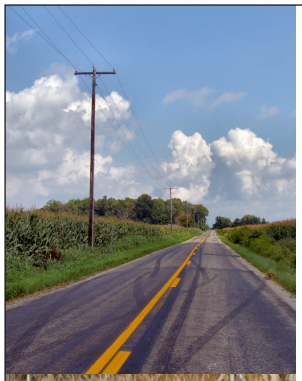

Rural Student Midwifery Grant

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 practise 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 third year of the programme in 2018.

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 a third year student of an approved New Zealand Bachelor of Midwifery programme for 2018*
- *Applicant must intend to practise as a rural midwife in New Zealand on graduation. Preference may be given to those intending to practise as an LMC.*

To apply, applicants must:

- *demonstrate a commitment to rural midwifery practice on graduation*
- *complete the application form and ask two referrees to complete the relevant form. One referee must be a lecturer at the midwifery school in which the student is enrolled and one a midwife who the student has had a clinical placement with.*

Further information and application forms are available on the College website www.midwife.org.nz

NB: Only one grant will be awarded per annum. The Midwifery Student Rural Grants Advisory Committee will award the grant.

Applications must be submitted via email to nzcom@nzcom.org.nz attention Alison Eddy: by 26th February 2018.

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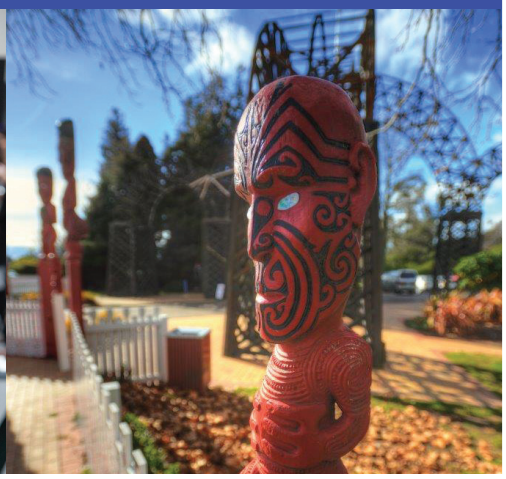

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Women's value in society, the work of mothers and midwives are all intrinsically linked.

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MMPO – 20 years and beyond …

The MMPO celebrated its 20th birthday on Sunday 15 October 2017. Reflecting on this significant milestone, there is a real sense of pride to all concerned that the MMPO has stayed true to the same principles and values since its modest beginnings in 1997. Quite a challenge really when everything else in the world is asking you to move in the opposite direction.

It continues to be an interesting and busy year so far. Driven by a common sense of purpose and within a strong social culture, our people are working hard and are fully committed to improving the MMPO service that our midwives experience. We are working on a few initiatives to ensure our service meets the needs of midwives in the 21st century, primarily in the area of technology, but also in other ways that can make your midwifery life easier.

It is important to note that we have managed to do this more easily because of our ongoing relationship with the New Zealand College of Midwives (as sole shareholder), and the fact that we are still 100% midwifery owned and supported. We take the time to more deeply understand the challenges and issues facing midwives today.

In saying this, we will also continue to ensure the other benefits of the MMPO to its membership and the wider audience, including;

- Helping members to maintain, develop and improve New Zealand midwifery (through quality data collection). This data was recently used to inform aspects of the Co Design Funding and Payment Model, and also support Workforce Reporting
- Continuing to be strongly aligned with professional standards, quality assurance and service improvement to help keep members safe
- Helping members to navigate between the various facets of midwifery care, supporting the flow of a natural and open conversation between the midwife and woman
- Maintaining strong and trusted national and regional relationships with key interacting organisations

Rest assured that the MMPO possess the necessary experience, skills and knowledge, built up over the past 20 years, to align and protect New Zealand midwifery's unique vocational sense of purpose and the autonomous nature of midwifery practice for the next 20 years.

"A system set up by midwives, for midwives for now and in the future."

MMPO
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20 years on from the inception of the MMPO by the New Zealand College of Midwives, its objectives remain basically the same as those published back in the September 1997 issue of Midwifery News.

- To ensure midwives and consumers determine what makes a quality midwifery service
- To have a structure that supports and safeguards midwives
- To maintain the professional role of the College, enabling it to position, develop and service the midwifery profession

Roll forward to 2017, and our team are still committed to the above, as well as helping and supporting every community based Midwife in any way we can by:

- Providing a holistic user focused practice management system for member midwives
- Negotiating, administering and supporting midwife led Section 88 contracts and claiming for members
- Helping with infrastructure challenges including the availability of a National Paging Solution
- Access to face to face business related workshops
- Providing free access to Language Line – allowing members to provide accurate and professional safe care through effective communication
- Listing midwifery vacancies on our website free of charge for midwife members

Set up by midwives, for midwives for now and in the future.

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