



AOTEAROA NEW ZEALAND RESEARCH

Exploring the midwifery workplace environment in Aotearoa New Zealand over the three years 2019-2021

Lesley Dixon^{A,B} • Janine H Clemons^B • Tago Mharapara^B

^A Corresponding author: lesleydixon6@gmail.com

^B Auckland University of Technology | Te Wānanga Aronui o Tāmaki Makau Rau, Aotearoa New Zealand

ABSTRACT

Background: A global and national shortage of midwives has made retaining the current workforce in Aotearoa New Zealand increasingly important. Understanding the contemporary workplace environment is essential for retention.

Aim: To explore midwives' work environment in Aotearoa New Zealand over three consecutive years (2019-2021).

Method: A cross-sectional study was undertaken using an online survey in three consecutive years (2019-2021). The survey gathered demographic data, paid and unpaid work data, work settings and working hours. The survey tools used to describe midwives' workplace conditions were: Quantitative Workload Inventory, Job Satisfaction Scale, Pay Satisfaction Scale and Work-Life Balance Scale.

Findings: The 1766 total participant responses, distributed sequentially across the three years as $n = 758$, 506 and 502, represented 18% of all registered midwives. Overall, the midwives reported high levels of job satisfaction but low levels of pay satisfaction. Assuming significance is $p < .05$, variance analyses identified that job satisfaction (Mean [$M = 4.31$; Standard Deviation [SD] 0.94), pay satisfaction ($M = 2.53$; SD 1.1), and work-life balance ($M = 3.21$; SD 1.10) were significantly higher and workload lower ($M = 4.31$; SD 1.12) for 2020 when compared to 2019 and 2021. Job satisfaction levels for caseloading midwives ($M = 4.22$; SD 0.9) and those in other mixed roles ($M = 4.17$; SD 1.01) were significantly higher than for midwives working in secondary ($M = 3.81$; SD 0.98) and tertiary ($M = 3.77$; SD 1.01) units. Quantitative Workload Inventory reported significantly higher mean scores for midwives working in tertiary ($M = 5.35$; SD 0.88) and secondary ($M = 4.84$; SD 1.03) settings when compared to those working in caseloading ($M = 4.09$; SD 1.05), primary unit ($M = 4.19$; SD 1.3) and other mixed role ($M = 4.32$; SD 1.24) settings.

Conclusion: Overall, midwives reported high job satisfaction, but this was alongside high workloads and low pay satisfaction. When work settings were compared, midwives working in secondary and tertiary hospitals reported higher workloads and fewer working hours than those working in primary and other mixed role settings. High workloads and low job satisfaction are risks to workforce sustainability.

Keywords: midwives, work environment, workload, job and pay satisfaction, work-life balance

INTRODUCTION

Midwives have a pivotal role in providing safe and effective maternal and newborn care, yet globally there are significant workforce shortages (United Nations Population Fund, International Confederation of Midwives, & World Health Organization, 2021). In Aotearoa New Zealand, there is an estimated shortfall of 1050 midwives (full-time equivalent), which is considered to be a 40% deficit from the current workforce (Te Whatu Ora | Health New Zealand, 2023). Recruitment of midwives is challenging when there is a national and global workforce shortage. The model of midwifery care in Aotearoa New Zealand is relatively unique across

the globe, contributing to low recruitment levels for overseas-trained midwives (Te Tatau o te Whare Kahu | Midwifery Council, 2024). It is relatively difficult for overseas-trained midwives to be able to practise in Aotearoa New Zealand, without needing additional education specific to the Aotearoa New Zealand context. For those without previous health degrees and considering midwifery as a career, the qualification is a full 480-point, four-year degree. In addition, midwives are leaving the workforce or moving overseas at a higher rate than can be replaced through recruitment alone (Chittock, 2022). Therefore, the retention of the current workforce is the most cost-effective means of addressing workforce pressures

Published online June 2025

Dixon, L., Clemons, J. H., & Mharapara, T. (2025). Exploring the midwifery workplace environment in Aotearoa New Zealand over the three years from 2019-2021. *New Zealand College of Midwives Journal*, 61, Article 256104. <https://doi.org/10.12784/nzcomjnl.256104> © 2025 New Zealand College of Midwives | Te Kāreti o ngā Kaiwhakawhānau ki Aotearoa. ISSN 1178-3893

(Moncrieff et al., 2023). An understanding of the midwifery work environment is essential for considering strategies to support midwifery retention.

Globally, there appear to be significant challenges for midwives within their work environment, leading to high burnout and low job satisfaction levels (Hansson et al., 2022). These challenges include high workload, time pressures, exposure to traumatic events, lack of autonomy, lack of resources and lack of professional recognition, as well as some personal factors such as length of time in the workforce (Albendin-Garcia et al., 2021; Hanafin et al., 2020; Sidhu et al., 2020). A study exploring the midwifery work environment and retention in the United Kingdom identified high levels of stress, anxiety and depression, along with burnout (Hunter et al., 2019). An international overview of the prevalence of burnout amongst the midwifery workforce, which included 27 articles, found the highest levels of burnout in Australian, Western Canadian and Senegalese midwives, with the lowest levels amongst Dutch and Norwegian midwives (Sidhu et al., 2020). The review found that midwives working in midwifery continuity of care (COC) models reported lower burnout when compared to midwives working in other settings.

In Aotearoa, the maternity model of care is unique in several ways when compared to other countries, with 95% of women registering for some or all of their maternity care with a local lead maternity carer (LMC; Health NZ | Te Whatu Ora, 2024). The majority of LMCs are midwives and contracted to provide COC throughout the pregnancy, labour and birth and up until six weeks after birth (Primary Maternity Services Notice, 2021). The LMCs do not charge a fee but instead lodge claims for service against the national maternity contract, working as self-employed contractors. Midwives whose primary role is caseloading LMC care represent 31% of the total midwifery workforce; while 46.6% of midwives work mainly as employees in 8- and 12-hour rostered shifts at primary, secondary or tertiary-level hospitals (Health NZ | Te Whatu Ora, 2024; Te Tatau o te Whare Kahu | Midwifery Council, 2023). Within this employed workforce is a small percentage of caseloading midwives (2.6% of the total) who work with whānau from conception through to six weeks post birth, but their service is part of their regional health service and their employment contracts do not require them to be on-call for labour and birth; this 24-hour service is instead provided by the rostered midwives at the local hospital (Te Tatau o te Whare Kahu | Midwifery Council, 2023). Of the remaining midwives who identified a midwifery role, 13% (of the total) work in a mixture of roles such as education and management (Te Tatau o te Whare Kahu | Midwifery Council, 2023), classified in this study as “other mixed roles”. In order to contrast and compare work context, the percentage of midwives working in a caseloading model is quantified as 31% self-employed plus 3% employed, a total of 34%.

Aotearoa research on midwives' responses to their dynamic work environments reveals a range of wellbeing concerns (Clemons et al., 2021; Crowther et al., 2022; Dixon et al., 2017; Gilkison et al., 2017; Mharapara et al., 2022; 2024). Studies have found that stress and depression were high for all midwives, but employed midwives had higher levels of work- and personal-related burnout and experienced lower levels of autonomy, professional recognition and empowerment when compared to LMC (self-employed/community) midwives (Dixon et al., 2017). Hospital midwives are integral to maternity care and provide unique and specific skills but they may often feel invisible and undervalued (Gilkison et al., 2017). Understanding the characteristics of work that contribute

to midwives' wellbeing and sustainability in all practice settings, and how this may change over time, is essential if we are to retain midwives within the profession.

AIM

This research aimed to explore the midwifery work environment in Aotearoa New Zealand over three consecutive years from 2019 to 2021.

METHOD

This cross-sectional study used an online survey repeated over three consecutive years (2019-2021). The survey was distributed through an email invitation by the New Zealand College of Midwives to all midwifery members at a similar time each year over the three-year period. Inclusion criteria therefore required being a midwife, having access to the survey (internet, mobile phone or computer access) and agreement to participate in research. The survey included questions that identified the individual's perception of personal and situational constraints within their work and how much these impacted their wellbeing. The survey also included demographic questions related to age, gender, ethnicity, work setting and paid hours of work. Work outcome scales included the Quantitative Workload Inventory (Spector & Jex, 1998), Job Satisfaction Scale (Brayfield & Rothe, 1951), Pay Satisfaction Scale (Spector, 1985) and Work-Life Balance Scale (Brough et al., 2014). Participants were excluded if large portions of the survey were incomplete.

Tools used within the survey

Quantitative Workload Inventory (QWI): Assesses the amount or quantity of work in a job, as opposed to the qualitative workload, which is the difficulty of the work (Spector & Jex, 1998). The scale is composed of four questions using a 6-point Likert scale and had a Cronbach's alpha of 0.91 for this cohort, suggesting good reliability for the scale.

The Cronbach's alpha is a statistical test which measures the internal consistency (reliability) of a set of survey items. It measures the average covariance between pairs of items and the overall variance of the total measure score. Higher scores demonstrate internal consistency of the items in the scale and values above 0.7 are considered acceptable.

Job Satisfaction (JS) Scale: A 5-item scale developed by Brayfield and Rothe (1951) used to measure perceptions of job satisfaction using a 6-point Likert scale. This scale is a reliable and commonly used measure of job satisfaction in organisational behaviour research (Rafferty & Griffin, 2009). The JS scale Cronbach's alpha was 0.83 for this cohort.

Pay Satisfaction (PS) Scale: A 4-item scale developed by Spector in 1985 also uses a 6-point Likert scale. The PS scale had a Cronbach's alpha of 0.71 for this cohort.

Work-Life Balance (WLB) Scale: A 4-item scale which describes the individual's subjective perceptions of the balance between their work and other aspects of their life (Brough et al., 2014). This scale uses a 5-point Likert scale. The Cronbach's alpha for this scale was 0.85 for this cohort.

Analysis

Data were screened and cleaned, and demographic responses were divided into specific groups to support clarity. Midwives often work in more than one work setting, so a second question asked in which role the midwife worked the most paid hours in one week. This was

used to identify the primary work setting. For analysis purposes, midwives who reported working as caseloading self-employed LMCs and those who reported being employed by a maternity hospital to provide caseload care had their responses collapsed into one variable – caseloading – so that comparisons could be made with non-caseloading midwives working in primary, secondary and tertiary hospital settings. Those working in “other” settings included midwives who reported working as educators, managers or midwifery leaders.

Scales were reverse scored where required, summed and divided by the total scale score to identify the mean score. Comparisons of means were undertaken using a series of Analysis of Variance (ANOVA) tests. Statistical significance was determined as $p < .05$. ANOVA is a statistical test which compares the variation between data sample groups to the variation within each specific group (Pallant, 2013). When the between-group variance is high and the within-group variance is low, it provides evidence that the means of the groups are statistically significantly different. Within the ANOVA, the F -value identifies the ratio of *between* sample means, versus the variation *within* the sample means. The larger the F -value, the greater the variation between the sample means in relation to the variation within the sample means. This suggests greater evidence of difference between the group means. The effect size is used to demonstrate the practical significance of the differences in samples. Cohen’s d criteria were used to denote the effect size – cutoffs are: 0.2 = small effect, 0.5 = medium effect and 0.8 = large effect (Pallant, 2013).

Research considerations

Ethics approval was received from Auckland University of Technology (AUT) Ethics Committee (Ethics Application: 19/33 Midwifery Work & Wellbeing (MidWoW) Study). The online survey was presented as a link, available only after informed consent was confirmed. All responses were anonymous for each of the three years. However, where participants chose to enter into a gift voucher draw (a small departmental fund for TM was made available for this use), their contact details were volunteered but this data was disaggregated and did not affect the anonymity of their survey responses. Data is held in long term storage and kept confidential on a private, encrypted drive where access is controlled by researchers TM and JC. Data storage follows the AUT data management policy specified within the AUT ethics approval process.

This three-year MidWoW project was the first in a series of research studies. The authors of this study stem from the original research group and whakapapa to the United Kingdom (LD), Canada (JC) and Zimbabwe (TM). This early study collected a large quantity of data from midwives across Aotearoa, blind to any cultural context. Where demographic data were collected, this was done to determine how the MidWoW data aligned to the annual workforce data collected by the regulatory authority, Te Tatau o te Whare Kahu | Midwifery Council. The MidWoW survey instrument used previously validated, internationally recognised, wellbeing measures. Research findings from this study have led to the development of midwifery wellbeing measures that are more contextual to Aotearoa. Ongoing work, assisted by Health Research Council funding (HRC 21-872), is using culturally specific methodologies to explore the midwifery work environment and which consider tangata whenua, the indigenous Māori people of this land, and the principles of Te Tiriti o Waitangi, the Treaty of Waitangi, as understood and signed by Māori, and our position as a Pacific nation.

FINDINGS

Demographic responses

The number of responses for each year ranged from 758 in 2019 to 502 in 2021 (Table 1). The ethnicity of the groups for each year was similar over the three years, with 63.9% of the total cohort identifying as NZ European and 7.4% as Māori. Among the three age categories, most midwives were aged 40-59 years (46.2% to 48.2% across the three years).

Table 1. Demographics of samples per cohort year

Year	2019		2020		2021		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Work setting								
Caseloading LMC	250	33.0	222	43.9	212	42.2	684	38.7
Caseloading employed	36	4.7	25	4.9	22	4.4	83	4.7
Primary unit	47	6.2	50	9.9	29	5.8	126	7.1
Secondary unit	101	13.2	80	15.8	110	21.9	291	16.4
Tertiary unit	72	9.5	67	13.2	74	14.7	213	12.0
Other	77	10.2	62	12.3	55	11	194	10.9
Missing*	175	23.1	0	0	0	0	175	9.9
Paid work hours								
≤ 24 hours	144	19.0	139	27.5	134	26.7	417	23.6
25-32 hours	206	27.2	118	23.3	141	28.1	465	26.3
33-40 hours	264	34.8	165	32.6	145	28.9	574	32.5
≥ 41 hours	144	19.0	83	16.4	78	15.5	305	17.3
Missing	0	0.0	1	0.2	4	0.8	5	0.3
Ethnicity**								
NZ European	410	65.2	256	63.4	256	62.4	922	63.9
Other European	127	20.2	83	20.5	76	18.5	286	19.8
Māori	40	6.4	35	8.7	32	7.8	107	7.4
Pacific Peoples	3	0.5	4	1.0	7	1.7	14	1.0
African	5	0.8	2	0.5	4	1.0	11	0.8
Asian	8	1.3	7	1.7	11	2.7	26	1.8
Latin American	1	0.2	1	0.2	2	0.5	4	0.3
Middle Eastern	2	0.3	0	0.0	1	0.2	3	0.2
Other	33	5.2	16	4.0	21	5.1	70	4.9
Missing	129	17.0	102	20.2	92	18.3	323	18.2
Gender								
Female	630	83.1	398	78.7	409	81.5	1437	81.4
Male	1	0.1	2	0.4	0	0.0	3	0.1
Other	1	0.1	3	0.6	2	0.4	6	0.3
Missing	126	16.6	103	20.4	91	18.1	320	18.2
Age								
20-39 years	168	22.2	92	18.2	88	17.5	323	18.3
40-59 years	360	47.5	234	46.2	242	48.2	836	47.3
≥ 60 years	86	11.3	71	14.0	75	14.9	231	13.1
Missing	144	19.0	109	21.5	97	19.3	376	21.3
Total	758	100	506	100	502	100	1766	100

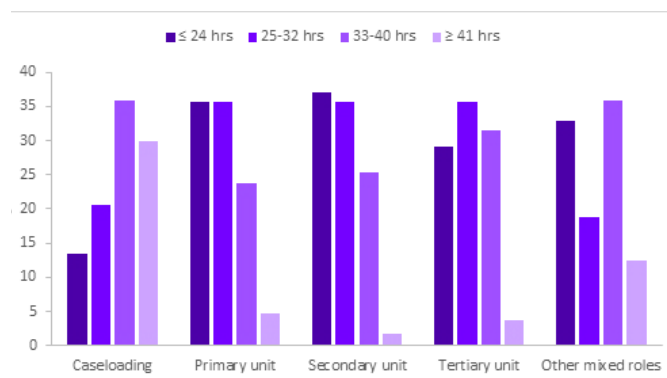
* Response was required within the 2020 and 2021 surveys, therefore no missing data for 2020 and 2021

** Ethnicity percentages were calculated excluding the missing data to support comparison with Te Tatau o te Whare Kahu | Midwifery Council workforce reports

Many of these demographic questions were at the end of the survey and had lower response rates than the questions at the beginning of the survey. The demographics for each cohort year were similar to the workforce data for each year (Midwifery Council | Te Tatau o te Whare Kahu, 2019, 2020, 2021) and survey responses were received from across the country. The demographic data suggests that the responses may still broadly represent the midwifery workforce.

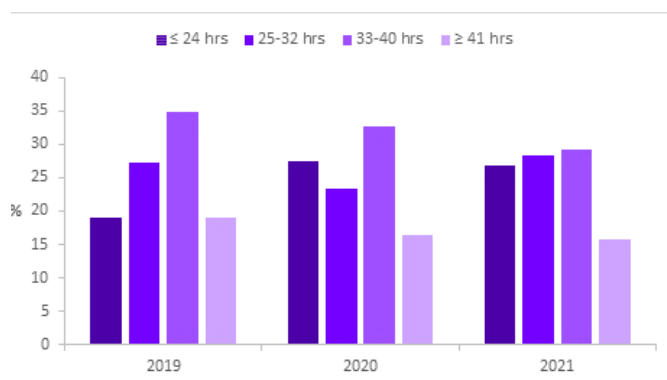
Paid work hours were reviewed using work setting (Figure 1), with percentages calculated using the whole cohort as the denominator. Respondents most commonly worked 33 to 40 hours per week (32.5%). Most caseloading midwives (65.9%) were working full-time, between 33 and 40 hours (35.9%), and ≥ 41 hours (30.0%). Midwives employed in secondary units most commonly worked part-time (37.1%), or ≤ 24 hours. In tertiary units, most midwives worked over 25 hours per week (67.2%), with 35.7% working between 25 and 32 hours and 31.5% working between 33 and 40 hours per week. For those in the other mixed roles category, more midwives reported working either part-time, ≤ 24 hours (32.8%), or full-time, between 33 and 40 hours (35.9%) than other hours. Caution is needed when interpreting this finding due to the different midwives who responded to the survey each year and the large volume of missing data for work setting in 2019. At this time a response to the question was not mandatory but became a required field in the two later surveys.

Figure 1. Paid work hours per week by work setting for the total cohort (n = 1766)



The respondents identified different paid work hours per week over the three years of the survey (Figure 2). The proportion of midwives working full-time (33-40 hours) in 2019 (34.8%) reduced to 32.7% in 2020 and reduced further to 29.1% in 2021. Those working part-time, which was classed as ≤ 32 hours, increased proportionally.

Figure 2. Paid work hours per week for cohort over the three consecutive years (2019-2021)



The survey asked the midwives how many hours they spend on unpaid midwifery activities in a typical week (Table 2) and provided examples of what this might be, such as meetings, training, development or supporting colleagues. Between 14.5% (2019) and 16.5% (2021) reported no unpaid midwifery activity; however, many respondents spent up to 2 hours (31.3% in 2019, 28.7% in 2020 and 30.5% in 2021) or 3-8 hours (33.8% in 2019, 31.2% in 2020 and 31.4% in 2021) per week on unpaid midwifery work.

Table 2. Unpaid midwifery work per week and other responsibilities

Year	2019		2020		2021	
	n	%	n	%	n	%
Unpaid midwifery work*						
None	105	14.5	74	15.4	75	16.5
≤ 2 hours	226	31.3	138	28.7	139	30.5
3-8 hours	245	33.8	150	31.2	143	31.4
9-15 hours	101	13.9	78	16.2	74	16.2
≥ 16 hours	46	6.3	40	8.3	24	5.3
Total	723	100	480	100	455	100
Primary responsibility for:						
Childcare	330	43.5	228	45.1	197	39.2
Care for elderly people	90	11.9	67	13.2	69	13.7
Care for disabled people	28	3.7	19	3.8	25	5.0
Household cleaning duties	689	90.9	463	91.5	447	89.0
Education course	144	19.0	90	17.8	89	17.7
Other paid employment	91	12.0	73	14.4	68	13.5
Voluntary work (at least 5-10 hours weekly)	84	11.1	77	15.2	75	14.9

* For example: meetings, training, development, supporting colleagues

A further set of questions explored other responsibilities that the respondent may have had outside of midwifery work (Table 2). The majority of midwives were responsible for household cleaning duties (total cohort n = 1599, 90.5%) and this was largely unchanged for each of the three years surveyed (90.9% in 2019, 91.5% in 2020, 89% in 2021). When asked if they had primary responsibility for childcare at home, 42.9% (n = 755) responded affirmatively. This varied across the years (43.5% in 2019, 45.1% in 2020, 39.2% in 2021). Smaller proportions had primary responsibility for care for elderly people (range 11.9% in 2019 to 13.7% in 2021) and care for disabled people (range 3.7% in 2019 to 5.0% in 2021). There were similar proportions over the three years of those undertaking other paid work (12% to 14.4%), unpaid (voluntary) work (11.1% to 15.2%) and education courses (17.7% to 19%).

Having primary responsibility for childcare also varied depending on the work setting (data not in table): 47.1% (n = 361) for caseloading midwives, 45.2% (n = 57) for primary unit midwives, 41.2% (n = 120) for secondary unit midwives, 36.6% (n = 78) for tertiary unit midwives, and 34% (n = 73) for other mixed roles.

Work outcome scale responses

Responses to the JS scale identified high levels of agreement (*often*, *very often* and *always*) for each of the statements of the scale (Table 3). Overall, 75.5 % of the respondents reported they liked working at their practice or organisation, 71.2% felt real enjoyment in their work, and a further 69.9% were enthusiastic about their job most days.

The PS scale demonstrated high levels of disagreement to the two positively worded statements (*disagree slightly*, *disagree moderately* and *disagree very much*; Table 3), with 78.3% disagreeing that they were satisfied with their chances of a pay increase and 74.8% disagreeing that they were being paid a fair amount for their work. For the negatively worded questions, 87.8% agreed that pay increases were too few and far between, and 80.8% agreed that what they earned left them feeling unappreciated.

For the WLB scale, results were more mixed (Table 4), with 48.1% agreeing that they had a good work-life balance, and 35.5% disagreeing. There were 44.4% who agreed that their work and non-work life was balanced and 38.3% disagreed. Similarly, 43.6% agreed that their balance was about right and 37.5% disagreed.

The QWI scale measured work intensity (Table 5), with 56.6% of the cohort reporting that their work required them to work very hard *one to two times* or *several times a day*. Working very fast was required *one to two times* or *several times a day* for 53.7% of respondents. There were 45.1% who reported that their job often left little time to complete tasks (*one to two times* or *several times a day*), and 39% who often had more work than they could accomplish (*one or two times* or *several times a day*).

For each of the four survey scales, ANOVA revealed statistically significant differences between years, while post-hoc Tukey HSD tests determined that the year 2020 was statistically different than 2019 and 2021 for all four scales (Table 6). The ANOVA revealed a statistically significant difference in the JS scores for the three

Table 3. Participant responses for the Job Satisfaction and Pay Satisfaction scales for the total cohort

JS Scale/Likert Scale items	Never		Rarely		Sometimes		Often		Very often		Always		Missing	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Most days I am enthusiastic about my work	16	1.1	92	6.1	349	23.0	526	34.7	433	28.5	101	6.7	249	14.1
I feel fairly satisfied with my present job	30	2.0	136	9.0	396	26.1	452	29.8	401	26.4	103	6.9	248	14.0
In general, I like working at my practice/organisation	22	1.5	69	4.5	281	18.5	493	32.5	476	31.4	176	11.6	249	14.1
I feel real enjoyment in my work	17	1.1	70	4.6	349	23.0	487	32.1	459	30.3	134	8.8	250	14.2
I consider my job rather pleasant	22	1.5	103	6.8	405	26.7	467	30.8	413	27.2	106	7.0	250	14.2

PS Scale/Likert Scale items	Disagree very much		Disagree moderately		Disagree slightly		Agree slightly		Agree moderately		Agree very much		Missing	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Provide a rating based on the last three months (90 days):														
I am being paid a fair amount for the work I do	629	41.6	306	20.2	196	13.0	176	11.6	170	11.2	35	2.3	254	14.4
Pay increases are too few and far between	71	4.7	44	2.5	63	4.2	205	13.5	334	22.0	794	52.3	255	14.4
I feel unappreciated ... about what I earn	90	5.9	73	4.8	122	8.0	268	17.7	322	21.2	635	41.9	256	14.5
I feel satisfied with my chances for pay increases	626	41.5	326	21.6	230	15.2	203	13.5	95	6.3	29	1.9	257	14.6

Table 4. Participant responses for the Work-Life Balance Scale for the total cohort

WLB Scale/Likert Scale items	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Missing	
	n	%	n	%	n	%	n	%	n	%	n	%
When I reflect over the past three months (90 days):												
I currently have a good work-life balance	180	12.0	352	23.5	247	16.5	557	37.2	163	10.9	267	15.1
I have difficulty balancing work and non-work	154	10.3	411	27.4	289	19.3	473	31.6	171	11.4	268	15.2
I feel that the balance is about right	152	10.2	409	27.3	282	18.8	556	37.1	98	6.5	269	15.2
I believe that my work and non-work life are balanced	178	11.9	395	26.4	260	17.4	550	36.8	113	7.6	270	15.3

Table 5. Respondent data for the Quantitative Workload Inventory for the total cohort

QWI/Likert Scale items	Never		Less than once/month		1-2 times/month		1-2 times/week		1-2 times/day		several times/day		Missing	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
How often does your job:														
Require you to work very fast?	12	0.8	59	3.8	156	10	497	31.8	308	19.7	531	34.0	203	11.5
Require you to work very hard?	3	0.2	28	1.8	176	11.3	469	30.1	311	20.0	570	36.6	209	11.8
Leave you with little time to complete tasks?	33	2.1	125	8.0	254	16.3	446	28.5	285	18.2	420	26.9	203	11.5
How often do you have to do more work than you can actually accomplish?	78	5.0	214	13.7	319	20.4	343	21.9	225	14.4	384	24.6	203	11.5

cohort years ($F(2, 921.0) = 23.2, p < .001$). Despite reaching statistical significance, the effect size was small (0.02) in post-hoc comparisons, which indicated that the mean score in 2020 ($M = 4.31, SD 0.94$) was significantly different to the mean scores for 2019 ($M = 3.98, SD 0.96$) and 2021 ($M = 3.88, SD 0.98$). Similarly, the ANOVA and post hoc comparisons identified statistically significant differences for the three cohort years for the PS Scale, ($F(2, 883.9) = 24.4, p < .001$), with the mean score for 2020 ($M = 2.53, SD 1.1$) statistically different in 2019 ($M = 2.08, SD 0.97$) and 2021 ($M = 2.1, SD 1.0$). Again, similarly, for the WLB Scale, the ANOVA identified statistically significant differences for the three cohort years ($F(2, 917.9) = 6.35, p < .001$), with a mean score for 2020 ($M = 3.21, SD 1.10$) statistically different to 2019 ($M = 2.99, SD 1.09$) and 2021 ($M = 3.00, SD 0.65$), with a small effect size. Finally, the ANOVA for QWI revealed statistically significant differences for the three cohort years ($F(2, 952.8) = 4.39, p = .013$), with the QWI in 2020 ($M = 4.31, SD 1.12$) statistically different in 2019 ($M = 4.48, SD 1.15$) and 2021 ($M = 4.53, SD 1.1$).

ANOVA tests were also used to explore the differences in responses to the four scales according to the work setting of the midwife (Table 7). The ANOVA for the JS scale revealed a statistically significant difference in the JS scores for the different work settings

($F(4, 395.6) p < .001$). The post-hoc tests revealed a statistically significantly different mean for midwives whose work setting was caseloading ($M = 4.22, SD 0.9$) and other mixed roles ($M = 4.17, SD 1.01$) when compared to primary unit ($M = 3.9, SD 0.99$), secondary unit ($M = 3.81, SD 0.98$) and tertiary unit ($M = 3.77, SD 1.01$). The ANOVA for the PS Scale found a statistical difference in response ($F(4, 404.5) p < .001$), with the Tukey post-hoc test identifying the mean for the other mixed roles group ($M = 2.67, SD 1.03$) was significantly higher than that of the caseloading ($M = 2.20, SD 1.03$), primary unit group ($M = 2.17, SD 1.00$), secondary unit group ($M = 2.12, SD 1.00$) and tertiary unit group ($M = 2.26, SD 1.11$). The ANOVA for the WLB score demonstrated a statistical difference in response ($F(4, 413.1) p < .001$) with the Tukey post-hoc test identifying the mean for the caseloading group ($M = 2.78, SD 0.98$) as significantly lower than the primary unit ($M = 3.48, SD 0.80$), secondary unit ($M = 3.26, SD 0.92$), tertiary unit ($M = 3.37, SD 0.90$) and other mixed roles ($M = 3.07, SD 0.97$) groups. Finally, the ANOVA for the QWI found a statistical difference in response ($F(4, 410.9) p < .001$), with the post-hoc test identifying that the mean for the tertiary unit ($M = 5.35, SD 0.88$) and secondary unit ($M = 4.84, SD 1.03$) groups were significantly higher than the caseloading ($M = 4.09, SD 0.98$), primary ($M = 4.19, SD 1.3$) and other mixed roles ($M = 4.32, SD 1.23$) groups.

Table 6. ANOVA comparing the three cohort years (2019-2021) for four work outcome scales

Scale/Year	2019		2020		2021		F**	Effect size
	M	SD	M	SD	M	SD		
JS Scale	3.98	0.96	4.31*	0.94	3.88	0.98	2, 921.0 = 23.5	0.02
Responses range 1-6 with a higher mean indicating a positive response (satisfaction)	n = 662		n = 426		n = 430			
PS Scale	2.08*	0.97	2.53*	1.1	2.1*	1.0	2, 883.9 = 24.4	0.33
Responses range 1-6 with a higher mean indicating a positive response	n = 662		n = 422		n = 428			
WLB Scale	2.99	1.09	3.21*	1.10	3.00	1.00	2, 917.9 = 6.35	0.009
Responses range 1-5 with a higher mean indicating a positive response	n = 657		n = 417		n = 425			
QWI	4.48	1.15	4.31*	1.12	4.53	1.1	2, 952.8 = 4.49	0.005
Responses range 1-6 with a higher mean indicating a positive response (high workload)	n = 766		n = 448		n = 440			

Notes:

* $p < 0.05$ in the post-hoc Tukey HSD test

** The Welch test for equality of means has been used due to violation of the assumption of homogeneity of variance

Table 7. ANOVA comparing work settings for four work outcome scales

Scale/Work setting	Caseloading		Primary unit		Secondary unit		Tertiary unit		Other mixed roles		F**	Effect size
	M	SD	M	SD	M	SD	M	SD	M	SD		
JS Scale	4.22*	0.9	3.95	0.99	3.81	0.98	3.77	1.01	4.17*	1.01	4, 395.6 = 13.85	0.04
	n = 659		n = 110		n = 252		n = 184		n = 161			
PS Scale	2.20	1.03	2.17	1.00	2.12	1.00	2.26	1.11	2.67*	1.03	4, 404.5 = 8.08	0.01
	n = 655		n = 111		n = 251		n = 184		n = 159			
WLB Scale	2.78*	0.98	3.48	0.80	3.26	0.92	3.37	0.90	3.07	0.97	4, 413.1 = 28.6	0.07
	n = 646		n = 111		n = 251		n = 183		n = 157			
QWI	4.09	1.05	4.19	1.3	4.84*	1.03	5.35*	0.88	4.32	1.24	4, 410.9 = 77.5	0.15
	n = 683		n = 113		n = 261		n = 187		n = 157			

Notes:

* $p < 0.05$ in the post-hoc Tukey HSD test

** The Welch test for equality of means has been used due to violation of the assumption of homogeneity of variance

DISCUSSION

This study has explored the work environment for three different cohorts of midwives in Aotearoa New Zealand over a three-year period (2019 through to 2021). The work environment and, specifically, good working conditions can contribute to wellbeing and sustainability. But gaining an understanding of the reality of midwifery work within the various different work settings can be challenging. These survey results provide an insight into the work environment for the different work settings of midwives over the three years of the surveys.

Overall, our respondents reported high job satisfaction but also high workloads and dissatisfaction with their pay. It appeared that, in 2020, the midwives reported better job satisfaction, work-life balance and pay satisfaction when compared to responses from the 2019 and 2021 cohorts. Similarly, the midwifery workload, as measured by the QWI, was lower in 2020 than in the other two years. The global COVID-19 pandemic caused disruption to health systems and resulted in a national lockdown throughout Aotearoa from March to May of 2020. This was followed by Auckland regional lockdowns in August to September 2020 and February to March 2021. Internationally, and within Aotearoa New Zealand, maternity services reduced the number of face-to-face consultations for antenatal and postnatal care and increased online and telephone consultations (Crowther et al., 2022; Hartz et al., 2022). In order to reduce the risk of infection, fewer support people were allowed to access the maternity facility and hospital stays were reduced (Crowther et al., 2022; Tam et al., 2024). In many countries staff shortages occurred due to midwives contracting the virus, being unable to work in patient-focused roles or being required to take a stand down period, which increased the workload and caused stress and anxiety (Schmitt et al., 2021; Sweet, 2022). Aotearoa had fewer cases per capita of COVID-19 infection and lower mortality when compared to other countries (Mathieu et al., 2024). Thus, the changes to the work environment designed to reduce infection transmission may also have had a positive impact on the workload of midwives at the time the 2020 survey was taken.

During the pandemic, there were also reports of professional resilience, collaboration and camaraderie among midwives working in COC models in Australia, which buffered some of the challenges experienced by those working within hospitals (Bradfield et al., 2022). In addition, the New Zealand government recognised midwives as essential service providers required to keep maternity clients safe during that rapidly evolving situation. Professional recognition has been identified as important to the emotional wellbeing of midwives (Dixon et al., 2017; Mharapara et al., 2022). Similarly, high levels of meaningfulness in their work have also been associated with job satisfaction for midwives (Hansson et al., 2022). Potentially, being recognised as an essential worker by their clients during a crisis may have resulted in higher self-reported levels of esteem. Midwives were recognised as valuable members of the healthcare team. Therefore, job satisfaction, professional recognition and meaningfulness may have been the potential drivers for some of the improved responses for the 2020 cohort (Mharapara et al., 2022).

Working hours and workload

Due to many factors, including the varying client caseload sizes, some of the caseloading midwives in our study reported working in excess of 40 hours per week. Despite these self-reported high work hours, our study found a higher mean job satisfaction for midwives working in a caseloading setting but a lower mean response for their work-life balance scale. These findings are reflected in both

national and international studies that found working within a context of COC supported better emotional health for the midwife despite the reduced work-life balance (Dixon et al., 2017; Fenwick et al., 2018; Sidhu et al., 2020).

Midwives working in secondary and tertiary hospitals reported fewer working hours and higher workloads than caseloading midwives or midwives working in primary units, which was consistent across the three years of the survey. These hospital facilities are required to provide acute and urgent maternity care, with the numbers of people needing care often fluctuating and the need to respond to emergencies interrupting their care provision. The results may therefore be reflective of the acuity of care provision within these facilities, and working part-time (< 33 hours per week) may be a potential way of managing the challenges of a high workload, often in the context of understaffing. Long periods of high workload without respite may be detrimental to health and sustainability. A previous study of the Aotearoa midwifery work environment found that employed midwives had higher levels of work-related and personal-related burnout when compared to self-employed midwives (Dixon et al., 2017). High workload, low staffing levels, inability to provide quality care, and lack of support from their managers were reasons given by midwives in a UK survey exploring why midwives leave the profession (Barker, 2016). These issues are also associated with higher burnout levels (Hanafin et al., 2020; Hunter et al., 2019). The same concerns have been identified within nursing, with high workloads associated with increasing intention to leave the profession (Holland et al., 2019). Holland et al. (2019) suggest that these work demands can be mitigated by workplace policies and practices that prioritise workers' wellness, along with greater involvement in workplace decisions and more organisational support.

Gender inequity and additional responsibilities

Midwifery is a predominantly female workforce and most of the midwives who responded identified additional family tasks and responsibilities. The majority of our cohort stated they had the primary responsibility for cleaning duties in the home; a large proportion identified that they had the primary responsibility for childcare within their family; and some were also caring for elderly parents or a disabled person. Childcare has historically been disproportionately expected of women and, while societal norms are shifting, this expectation persists, impacting gender equality in both the home and workplace (International Labour Organisation, 2024). The unequal share of care responsibilities disproportionately affects women and significantly impacts their career options and ability to work, as well as the hours they are able to work (Mussida & Patimo, 2020). An international report analysing job quality found that, across the countries measured, women earned significantly less than men; they also worked fewer paid hours but more unpaid hours (Eurofound and International Labour Organization, 2019). Another study concluded that women were over-represented in jobs with shorter hours due to the additional care work they undertake in the home (Dinh et al., 2017). In their investigation of thresholds for maximum weekly work hours beyond which mental health declines, Dinh et al. (2017) found that thresholds decreased as domestic responsibilities and constraints increased. Due to the unequal division of domestic labour, this affected women more than men. The additional home/caring responsibilities reported by the midwives in our study may have had an effect on the number or specific hours some midwives could work.

Our study found a lower proportion of the midwives working in tertiary, secondary and other mixed roles settings reporting childcare

responsibility. These roles require shift work with rosters covering a 24-hour period, which raises the question of whether midwives with children are less able to fulfil shift work requirements. Shift work is often associated with circadian misalignment and self-reported insufficient sleep, which can lead to adverse effects on the individual and compromise health and safety (Hulsege et al., 2023). A Cochrane review explored whether changes to shift rotations and the duration and frequency (compressed versus spread out) of shifts improved sleep quality, sleep duration and sleepiness amongst shift workers (Hulsege et al., 2023). The review found that, to date, the evidence is uncertain and of low quality, resulting in the recommendation that more high-quality studies are needed to explore shift work and its effects on the workers. We would suggest that more studies exploring the impact of shift work on family responsibilities are also required.

Almost half of all caseloading midwives reported having primary childcare responsibility. The choice of women to work in self-employment has long been noted as a financial strategy and a way to manage family responsibilities (Boden, 1999; McManus, 2001; Patrick et al., 2016), with the responsibility to care for children having a strong influence on employment choices. Within midwifery, continuity of care can provide autonomy over schedule, workload, work style (e.g., offering home birth), work partners and practice arrangements. This work autonomy may support the provision of childcare if there is also sufficient family support and may offset the unpredictability of being continuously on-call.

One way to attract and retain midwives in hospital roles may be to promote a child-friendly, supportive culture and enable shifts that can work with family responsibilities. Incorporating family-friendly working environments and supportive workplace policies and practices may go a long way toward attracting and retaining midwives in the secondary and tertiary hospital environments.

STRENGTHS AND WEAKNESSES

Online survey research has many advantages in that it is low cost, self-administered and provides participants with control over when, where and how they participate. However, it also has the potential for a variety of sources of error such as coverage error, sampling error, measurement error and non-response error. The survey was distributed via the New Zealand College of Midwives membership database, thereby reducing the risk of coverage error. Although different cohorts of midwives responded over the three-year period, a comparison with 2019-2021 midwifery workforce data (Midwifery Council | Te Tatau o te Whare Kahu, 2019; 2020; 2021) demonstrated that the responses were from cohorts who were generally representative of the working population. The survey included a number of well-known, reliable and validated scales over a three-year period to explore different facets of the working environment of midwives, thereby reducing the risk of measurement error. Non-response error was mitigated by the follow-up procedure and missing responses have been reported. However, it is not possible to know if there are true differences or trends in the results due to the differing cohorts and missing data for some questions.

CONCLUSION

This study explored the work environment for three different cohorts of midwives in Aotearoa New Zealand over a three-year period (2019 through to 2021). Overall, our respondents reported high job satisfaction but also high workloads and dissatisfaction with their pay. A comparison of the responses by year found that the means for job satisfaction, pay satisfaction, work-life balance

and workload were higher for the second year of the study (2020) than for the prior (2019) and final (2021) years. This coincided directly with the year of the greatest COVID-19 restrictions. A comparison of work settings found the midwives working in tertiary and secondary care settings reported higher workloads and fewer working hours when compared to those working in primary unit, caseloading or other mixed roles settings. High workloads and job dissatisfaction are risks to the sustainability of the workforce.

DECLARATION OF INTEREST

The authors declare that there are no conflicts of interest.

KEY POINTS

- An understanding of the midwifery work environment can identify and improve retention strategies at a time of global midwife shortages.
- This study found that work setting influenced job satisfaction, pay satisfaction, workload and work-life balance.
- Midwives working in tertiary and secondary hospital environments reported higher workloads and fewer working hours; those working in caseloading reported more working hours, more childcare responsibility and higher job satisfaction.

REFERENCES

- Albendin-Garcia, L., Suleiman-Martos, N., Canadas-De la Fuente, G., Ramirez-Baena, L., Gomez-Urquiza, J., & De la Fuente-Solana, E. (2021). Prevalence, Related Factors, and Levels of Burnout Among Midwives: A systematic review. *Journal of Midwifery & Women's Health*, 66(1), 24-44.
- Barker, K. (2016). Reasons why midwives leave. *British Journal of Midwifery*, 24(12), Article 826.
- Boden, R. Jr (1999). Flexible Working Hours, Family Responsibilities, and Female Self-Employment. Gender Differences in Self-Employment Selection. *The American Journal of Economics and Sociology*, 58(1), 71-83.
- Bradfield, Z., Hauck, Y., Homer, C., Sweet, L., Wilson, A., Szabo, R., Wynter, K., Vasilevski, V., & Kuliukas, L. (2022). Midwives' experiences of providing maternity care during the COVID-19 pandemic in Australia. *Women and Birth*, 35(3), 262-271.
- Brayfield, A., & Rothe, H. (1951). An index of job satisfaction. *Journal of Applied Psychology*, 35(5), 307-311.
- Brough, P., Timms, C., O'Driscoll, M., Kalliath, T., Siu, O.-L., Sit, C., & Lo, D. (2014). Work-life balance: A longitudinal evaluation of a new measure across Australia and New Zealand workers. *The International Journal of Human Resource Management*, 25(19), 2724-2744.
- Chittock, N. (2022, June 7). *Burned out or leaving for overseas: Midwifery sector in downward spiral, says union*. [Radio broadcast]. Radio New Zealand. <https://www.rnz.co.nz/news/national/468623/burned-out-or-leaving-for-overseas-midwifery-sector-in-downward-spiral-says-union>
- Clemons, J., Gilkison, A., Mharapara, T., Dixon, L., & McAra-Couper, J. (2021). Midwifery Job Autonomy in New Zealand: I do it all the time. *Women and Birth*, 34(1), 30-37.
- Crowther, S., Maude, R., Zhao, I., Bradford, B., & Gilkison, A. (2022). New Zealand maternity and midwifery services and the COVID-19 response: A systematic scoping review. *Women and Birth*, 35(3), 213-222.
- Dinh, H., Strazdins, L., & Welsh, J. (2017). Hour-glass ceilings: Work-hour thresholds, gendered health inequities. *Social Science Medicine*, 176, 42-51.
- Dixon, L., Guilliland, K., Pallant, J., Sidebotham, M., Fenwick, J., McAra-Couper, J., & Gilkison, A. (2017). The emotional wellbeing of New Zealand midwives: Comparing responses for midwives in caseloading and shift work settings. *New Zealand College of Midwives Journal*, 53, 5-14.

- Eurofound and International Labour Organization. (2019). *Working conditions in a global perspective*. Publications Office of the European Union, Luxembourg, and International Labour Organization.
- Fenwick, J., Lubomski, A., Creedy, D., & Sidebotham, M. (2018). Personal, professional and workplace factors that contribute to burnout in Australian midwives. *Journal of Advanced Nursing*, 74(4), 852-863.
- Gilkison, A., McAra-Couper, J., Fielder, A., Hunter, M., & Austin, D. (2017). The core of the core: What is at the heart of hospital core midwifery practice in New Zealand? *New Zealand College of Midwives Journal*, 53, 30-37.
- Hanafin, S., Cosgrove, J., Hanafin, P., Brady, A.-M., & Lynch, C. (2020). Burnout and its prevalence among public health nurses in Ireland. *British Journal of Community Nursing*, 25(8), 370-375.
- Hansson, M., Dencker, A., Lundgren, I., Carlsson, I.-M., Eriksson, M., & Hensing, G. (2022). Job satisfaction in midwives and its association with organisational and psychosocial factors at work: A nation-wide, cross-sectional study. *BMC Health Services Research*, 22, Article 436. <https://doi.org/10.1186/s12913-022-07852-3>
- Hartz, D., Tracy, S., Pairman, S., Yates, A., Renard, C., Brodie, P., & Kildea, S. (2022). Midwives speaking out on COVID-19: The International Confederation of Midwives global survey. *PLoS One*, 17(11), Article e0276459. <https://doi.org/10.1371/journal.pone.0276459>
- Health New Zealand | Te Whatu Ora. (2024). *Report on Maternity: Web Tool*. <https://tewhatuora.shinyapps.io/report-on-maternity-web-tool/>
- Holland, P., Tham, T., Sheehan, C., & Cooper, B. (2019). The impact of perceived workload on nurse satisfaction with work-life balance and intention to leave the occupation. *Applied Nursing Research*, 49, 70-76.
- Hulsegge, G., Coenen, P., Gascon, G., Pahwa, M., Greiner, B., Bohane, C., Wong, I., Liira, J., Riera, R., & Pachito, D. (2023). Adapting shift work schedules for sleep quality, sleep duration, and sleepiness in shift workers. *Cochrane Database of Systematic Reviews*, 9(9), Article CD010639. <https://doi.org/10.1002/14651858.CD010639.pub2>
- Hunter, B., Fenwick, J., Sidebotham, M., & Henley, J. (2019). Midwives in the United Kingdom: Levels of burnout, depression, anxiety and stress and associated predictors. *Midwifery*, 79, Article 102526. <https://doi.org/10.1016/j.midw.2019.08.008>
- International Labour Organization. (2024, March 6). *These occupations are dominated by women* [Online post]. <https://ilostat.ilo.org/blog/these-occupations-are-dominated-by-women/>
- Mathieu, E., Ritchie, H., Rodes-Guirao, L., Appel, C., Gavrilov, D., Giattino, C., Hasell, J., Macdonald, B., Dattani, S., Beltekian, D., Ortiz-Ospina, E., & Roser, M. (2024, September 13). Coronavirus Pandemic Country Profile. Our World in Data. <https://ourworldindata.org/coronavirus>
- McManus, P. (2001) Women's participation in self-employment in Western industrialized nations. *International Journal of Sociology*, 31(2), 70-79. <https://doi.org/10.1080/15579336.2001.11770229>
- Mharapara, T., Ravenswood, K., Clemons, J., Kirton, G., & Greenslade-Yeats, J. (2024). Enhancing midwives' occupational well-being: Lessons from New Zealand's COVID-19 experience. *Health Care Management Review*, 49(3), 210-219. <https://doi.org/10.1097/HMR.0000000000000406>
- Mharapara, T., Staniland, N., Stadler, M., Clemons, J., & Dixon, L. (2022). Drivers of job satisfaction in midwifery—A work design approach. *Women and Birth*, 35(4), e348-e355.
- Midwifery Council | Te Tatau o te Whare Kahu. (2019). *2019 Midwifery Workforce Survey*. <https://midwiferycouncil.health.nz/>
- Midwifery Council | Te Tatau o te Whare Kahu. (2020). *2020 Midwifery Workforce Survey*. <https://midwiferycouncil.health.nz/>
- Midwifery Council | Te Tatau o te Whare Kahu. (2021). *2021 Midwifery Workforce Survey*. <https://midwiferycouncil.health.nz/>
- Moncrieff, G., Downe, S., Maxwell, M., & Cheyne, H. (2023). Mapping factors that may influence attrition and retention of midwives: A scoping review protocol. *BMJ Open*, 13(10), Article e076686.
- Mussida, C., & Patimo, R. (2020). Women's Family Care Responsibilities, Employment and Health: A tale of two countries. *Journal of Family and Economic Issues*, 42(3), 489-507.
- Pallant J. (2013). *SPSS Survival Manual* (5th ed.). Allen & Unwin.
- Patrick, C., Stephens, H., & Weinstein, A. (2016) Where are all the self-employed women? Push and pull factors influencing female labor market decisions. *Small Business Economics*, 46, 365-390. <https://doi.org/10.1007/s11187-015-9697-2>
- Primary Maternity Services Notice Section 88 of The New Zealand Public Health and Disability Act 2000, § Section 88 (2021). <https://www.health.govt.nz/publication/primary-maternity-services-notice-2021>
- Rafferty, A., & Griffin, M. (2009). Job satisfaction in organizational research. In D. A. Buchanan & A. Bryman (Eds.), *The Sage handbook of organizational research methods* (pp. 196-212). Sage Publications.
- Schmitt, N., Mattern, E., Cignacco, E., Seliger, G., König-Bachmann, M., Striebach, S., & Ayerle, G. (2021). Effects of the Covid-19 pandemic on maternity staff in 2020—A scoping review. *BMC Health Services Research*, 21, Article 1364.
- Sidhu, R., Su, B., Shapiro, K., & Stoll, K. (2020). Prevalence of and factors associated with burnout in midwifery: A scoping review. *European Journal of Midwifery*, 4, Article 4. <https://doi.org/10.18332/ejm/115983>
- Spector, P. (1985). Measurement of human service staff satisfaction: Development of the Job Satisfaction Survey. *American Journal of Community Psychology*, 13(6), 693-713.
- Spector, P., & Jex, S. (1998). Development of four self-report measures of job stressors and strain: Interpersonal Conflict at Work Scale, Organizational Constraints Scale, Quantitative Workload Inventory, and Physical Symptoms Inventory. *Journal of Occupational Health Psychology*, 3(4), 356-367.
- Sweet, L. (2022). COVID-19 Special Issue—The Impact of COVID-19 on women, babies, midwives, and midwifery care (Ed). *Women and Birth*, 35(3), 211-212.
- Tam, M., Davis, V., Ahluwalia, M., Lee, R., & Ross, L. (2024). Impact of COVID-19 on access to and delivery of sexual and reproductive healthcare services in countries with universal healthcare systems: A systematic review. *PLoS One*, 19(2), Article e0294744. <https://doi.org/10.1371/journal.pone.0294744>
- Te Tatau o te Whare Kahu | Midwifery Council. (2023). *2023 Midwifery Workforce Survey and Non-Practising Survey*. <https://midwiferycouncil.health.nz/>
- Te Tatau o te Whare Kahu | Midwifery Council. (2024). *2024 Midwifery Workforce Survey and Non-Practising Survey*. <https://midwiferycouncil.health.nz/>
- Te Whatu Ora | Health New Zealand. (2023). *Health Workforce Plan 2023/24*. <https://www.tewhatuora.govt.nz/publications/health-workforce-plan-202324>
- United Nations Population Fund, International Confederation of Midwives, & World Health Organization. (2021). *The State of the World's Midwifery 2021*. https://www.unfpa.org/sites/default/files/pub-pdf/21-038-UNFPA-SoWMy2021-Report-ENv4302_0.pdf