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Received: 19 November 2023 | Revised: 16 January 2024 | Accepted: 2 May 2024

DOI: 10.1111/birt.12841

SYSTEMATIC REVIEW

BIRTH ISSUES IN PERINATAL CARE WILEY

Indigenous maternal and infant outcomes and women's experiences of midwifery care: A mixed-methods systematic review

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Funding information
Alberta Health Services (AHS), Maternal, Newborn, Child and Youth Strategic Clinical Network™ (MNCY SCN™)

Abstract

Background: The impact of midwifery, and especially Indigenous midwifery, care for Indigenous women and communities has not been comprehensively reviewed. To address this knowledge gap, we conducted a mixed-methods systematic review to understand Indigenous maternal and infant outcomes and women's' experiences with midwifery care.

Methods: We searched nine databases to identify primary studies reporting on midwifery and Indigenous maternal and infant birth outcomes and experiences, published in English since 2000. We synthesized quantitative and qualitative outcome data using a convergent segregated mixed-methods approach and used a mixed-methods appraisal tool (MMAT) to assess the methodological quality of

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included studies. The Aboriginal and Torres Strait Islander Quality Appraisal Tool (ATSI QAT) was used to appraise the inclusion of Indigenous perspectives in the evidence.

Results: Out of 3044 records, we included 35 individual studies with 55% (19 studies) reporting on maternal and infant health outcomes. Comparative studies ($n = 13$) showed no significant differences in mortality rates but identified reduced preterm births, earlier prenatal care, and an increased number of prenatal visits for Indigenous women receiving midwifery care. Quality of care studies indicated a preference for midwifery care among Indigenous women. Sixteen qualitative studies highlighted three key findings - culturally safe care, holistic care, and improved access to care. The majority of studies were of high methodological quality (91% met ≥80% criteria), while only 14% of studies were considered to have appropriately included Indigenous perspectives.

Conclusion: This review demonstrates the value of midwifery care for Indigenous women, providing evidence to support policy recommendations promoting midwifery care as a physically and culturally safe model for Indigenous women and families.

KEYWORDS

aboriginal, cultural safety, health services, Indigenous midwifery, Indigenous population, midwifery care, Torres Strait Islander

1 | BACKGROUND

Across Canada in the late 19th into the 20th century, Indigenous midwifery was taken away and criminalized. Indigenous midwives and women's healing work were relegated to women's domestic work through legislated hierarchical medicalization, and assimilation attempts, which continues today through the system of settler colonialism.[1] Similar challenges to midwifery services occurred in the United States, Australia, and elsewhere.[2,3] Despite this history, Indigenous Peoples have displayed remarkable resiliency. There has been a recent resurgence of Indigenous healing and well-being practices, including Indigenous midwifery with calls for increased access to midwives.[4-6] For many Indigenous Peoples around the world, birthing on or near traditional territories in the presence of family and community is of foundational cultural, spiritual, and social importance. It is a pathway toward strong and healthy families.[7]

In Canada and elsewhere, current reproductive health services do not meet the needs of Indigenous families and communities.[7] Midwifery may address this gap by improving perinatal care and well-being, and bringing birth back to Indigenous communities to reduce birth trauma, systemic racism, and child apprehension.[7-10] However, there has been little research to comprehensively and systematically review outcomes of midwifery care and/or Indigenous midwifery for Indigenous pregnant women* in comparison to other forms of pre- and postnatal care. We conducted a mixed-methods systematic review guided by two questions:

1. What are the impacts of midwifery care (pre- and postnatal and birth) provided to Indigenous women on maternal and infant health outcomes?
2. What are Indigenous women's experiences with midwifery care?

By synthesizing this information, we have summarized the existing evidence for Indigenous and scholarly communities and health systems around the world on the influences of midwifery services for Indigenous women and their communities.

2 | METHODS

We define midwifery from a Western health perspective as a set of holistic woman-centered healthcare practices for the provision of care and support during the perinatal period. Indigenous midwives specifically contribute a

*[1]In this review, we refer to pregnant and postpartum people as pregnant women. We recognize and respect that not all pregnant and postpartum people identify as a woman.

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broader community and family influence and are considered an essential part of the solution to addressing reproductive injustices inflicted upon Indigenous women and communities.[7,11]

2.1 | Research oversight

Our research was originally conceptualized, and research questions identified through engagement sessions with Indigenous communities and health professionals in the province of Alberta, Canada. Two Indigenous knowledge holder groups provided guidance and input at four points in the research process in person and by way of email. In partnership with research allies (RTO and SM), five Indigenous grandmothers of Cree, Dene, Blackfoot and Métis ancestry from across three treaty areas in Alberta came together to form the Grandmothers' Wisdom Network in 2018 to share knowledge and contribute to priorities for research, policy, and practice in maternal and child health. The Network offered an Indigenous lens in validating the cultural appraisal tool choice at the inception of the review and critical interpretations of findings when results were presented before drafting the manuscript. An Indigenous Strategic Steering Group led by Indigenous academics and healthcare practitioners (a physician, midwife, birth support worker, and health system manager) reviewed presented and written results and provided critical interpretation of findings on two occasions providing an emphasis on the language used to present the background, results and discussion.

2.2 | Protocol and search strategy

We followed an a priori protocol[12]; any deviations are reported in Appendix S1. Findings are reported after the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Appendix S1).[13] We developed the search strategy (Appendix S2) in collaboration with a medical research librarian who implemented the search. Search terms combined subject headings and keywords for concepts related to Indigenous populations and midwifery. The following databases were searched in March 2021 and again in April 2023 for relevant studies indexed from January 2000: Ovid Medline In-Process & Other Non-Indexed Citations and Ovid Medline (1946 to present), Ovid PsycINFO (1987 to present), CINAHL by means of EBSCOhost (1937 to present), Global Health by way of EBSCOhost (1910 to present), Sociological Abstracts (2000 to present), Indigenous Collection (Informit) and the iPortal Indigenous Studies Portal Research Tool from the University of Saskatchewan. We also searched ProQuest Dissertations and Theses Global to identify gray literature and hand-searched the reference lists of all included studies and any relevant reviews and overviews to identify additional relevant records. We imported our search results to EndNote reference management software (*v*. X9, Clarivate Analytics) and removed duplicates.

2.3 | Study selection

All records were transferred to Microsoft Office Excel (v. 2016, Microsoft Corporation, Redmond, WA) and title and abstracts were screened by two independent reviewers (LB, SE, or DM). Full texts were retrieved for any 'include' or 'unsure' citations and underwent further assessment for eligibility. Any reviewer disagreements were resolved by means of a third reviewer (SE). Detailed inclusion and exclusion criteria are available in the protocol.[12] Briefly, to be included, studies had to be written in English and report on maternal and infant health outcomes related to Indigenous women's midwifery care. We included studies describing Indigenous women's' firsthand experiences[14] with midwifery care to ensure perspectives of Indigenous Peoples were captured.

2.4 | Data extraction

One reviewer (LB) extracted data from each included record using a form developed by the research team (Microsoft Excel, 2016), and a second reviewer (SE or DM) verified 25% of the extracted data for accuracy and completeness. Any disagreements were resolved by way of consensus. We collected data on study characteristics (i.e., author, year, country, funding source, study design), participant characteristics (i.e., inclusion and exclusion criteria, sample size, age distribution, ethnicity, Indigenous affiliation, setting), characteristics of the midwifery programs or interventions and data collection methods. We relied upon the terms used in the studies, which were in accordance with the types of service provision in the study location and populations (e.g. Indigenous, Aboriginal). Historical or concurrent comparison groups most often referred to standard care consisting of physician-led and/or Western midwifery care offered in the public system as opposed to midwifery care with specific provisions for Indigenous People or provided by Indigenous midwives. For quantitative studies, we extracted outcome data related to maternal and infant birth outcomes. For qualitative studies, we extracted all relevant data identified as "findings" or "results" by study authors and transferred

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these verbatim to a Microsoft Office Word (v. 2016, Microsoft Corporation, Redmond, WA) document.[15]

2.5 | Data synthesis

Using a convergent segregated mixed-methods approach, quantitative and qualitative evidence were analyzed separately; then, the resultant quantitative and qualitative evidence were integrated.[15,16] The quantitative component assessed maternal and infant birth outcomes, breastfeeding, and quantity and quality of prenatal/antenatal care. The qualitative component considered studies that explored Indigenous women's experiences, views or opinions about the care they received from midwives. Qualitative research findings were pooled using the meta-aggregation approach, in which equivocal and unequivocal findings were used to develop themes.[17,18] For the final integration of the quantitative and qualitative evidence, a narrative contiguous approach was used at the interpretation level in the discussion section.[19]

2.6 | Quality assessment

Methodological quality of included studies from a Western academic perspective was completed using the Mixed Methods Appraisal Tool (MMAT).[20] Two reviewers (LB and SE) independently assessed the quality of each included study and disagreements were resolved by means of third-party adjudication (DM).

To appraise studies for the inclusion of Indigenous perspectives, we used the Aboriginal and Torres Strait Islander Quality Appraisal Tool (ATSI QAT).[21] Two reviewers (DM and AP) independently applied the ATSI QAT Guidebook 14 criteria, each judged as either yes, partial, unclear or no. Disagreements were resolved by means of consensus with a third independent reviewer (SE). Studies received a score out of 14 based on the number of questions that received a yes judgment and were then rated as poor (≤3 yes), moderate (4–8 yes), or good (≥9 yes).

We did not exclude studies based on quality assessment scores so as to provide a comprehensive representation of birth outcomes and any Indigenous women's experience or information needs related midwifery care. However, we privileged comparative study designs when describing results and implications.

3 | RESULTS

Figure 1 shows the flow of articles through the selection process. Of 3044 unique records retrieved by the search, we assessed the full text of 198 and included 37 articles stemming from 35 individual studies.

3.1 | Study characteristics

Characteristics of included studies are summarized in Table 1 and detailed in Appendix S3. Studies were categorized as quantitative ($n=12$), qualitative ($n=16$) or mixed methods ($n=7$). Included studies were published between 2000 and 2022 (mean year = 2014). Most took place in Australia ($n=21$) followed by Canada ($n=8$), New Zealand ($n=3$), and Mexico ($n=3$). In total, over 15,000 women (study range 129–2726) participated in the quantitative studies and over 300 participated in the qualitative studies (study range 4–108).

3.2 | Main findings

Nineteen studies (seven using mixed methods) reported infant and maternal health outcomes, including neonatal mortality, preterm birth, low birthweight, childbirth complications, and attendance at prenatal and postnatal appointments (Tables 2 and 3). All studies focused on Indigenous populations or communities. Two studies included some non-Indigenous women in their study sample[22,23] and one study included non-Indigenous populations as comparators.[24] Fifteen studies used a retrospective cohort design. Two[22,23] used a prospective cohort design, one[25] was a cross-sectional study, and one used a cluster randomized controlled trial design.[26] Four studies provided descriptive comparison data without statistical testing.[27-30] Four programs included some of the same participants across studies, the Malabar Community Midwifery Link service,[27,31] the Aboriginal Family Birthing Program Services,[32-34] Midwifery Services,[28,35] and Birthing on Country or Birthing in our Community Service.[22,23,36,37] Five quantitative studies explicitly identified that all or some of their midwives were Indigenous[26,28,29,38,39] and/or included Indigenous midwifery students.[22,29,40] Some midwives partnered with physicians to provide shared care or care to high-risk patients. Most, but not all, midwifery programs for Indigenous communities reported having Aboriginal support workers, liaisons, or cultural brokers as part of the midwifery services. Other workers supported addressing social determinants of health, antenatal, postpartum, childcare, or breastfeeding. Community Elders and Indigenous grandmothers also provided knowledge and support for traditional practices. Some programs were co-designed,[22,23,28,29,32,34,38,41] controlled or governed[22,23,38] by communities. Although

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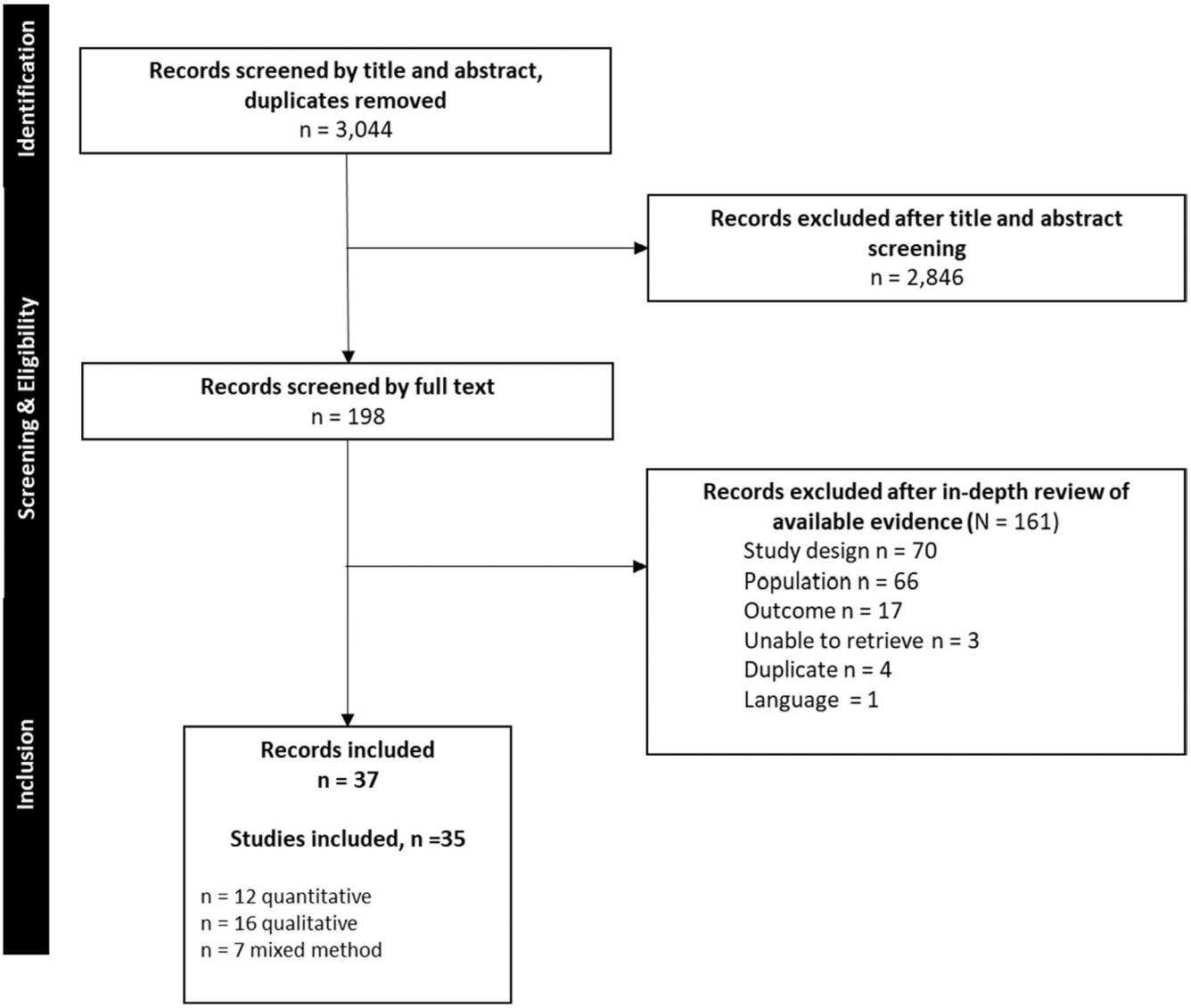

FIGURE 1 PRISMA diagram.

we included descriptive studies in the review, the focus of the results is on those studies that provided statistical testing of comparison groups (n=13). Comparisons of outcomes between groups, when made in the studies, were to standard care (historical or contemporary) as defined in that jurisdiction (e.g., Western/general public midwifery care, as opposed to midwifery care specifically targeted for Indigenous Peoples/communities and/or physician care).

3.2.1 | Indigenous maternal and infant health outcomes and quality of care ($n = 19$)

Mortality

Nine studies reported on perinatal or neonatal mortality[23,26,27,29,30,31,35,41,42] and one on maternal death.[30] For the six studies with comparison groups, no significant differences were reported between midwifery and either concurrent standard or pre-post midwifery care.[23,26,31,35,41,42]

Preterm birth, low-birthweight, and NICU admission

Fifteen studies reported on preterm birth. Of 10 studies with comparison groups and statistical testing, two studies with overlapping historical populations reported ~50% reductions in preterm birth with midwifery compared with standard care with ORs 0.50 (95% CI 0.31–0.89) after propensity matching[22] and AOR 0.53 (95% CI 0.32–0.88).[23] A third study found a significant decrease ($p < 0.05\%$) in preterm birth for an Aboriginal Maternity Group Practice compared with contemporary and historical controls, 9.1% versus 15.9% versus 15.3%, respectively.[38] The remainder of the comparative studies found no significant difference

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TABLE 1 Overview of characteristics of the studies included in the review ($n = 35$).

Study design, *n* (%)	Country, *n* (%)	Setting, *n* (%)	Data collection method, *n* (%)	Quality appraisal, *N* > 80% MMAT score	ATSI QAT Appraisal
• Quantitative: 12 (34) • Qualitative: 16 (46) • Mixed-method: 7 (20)	• Australia, 21 (60) • Canada, 8 (23) • New Zealand 3 (8.5) • Mexico3 (8.5)	• Community, 20 (57) • Healthcare setting, 5 (14) • Not reported, 10 (29)	• Survey/ questionnaire, 5 (14) • Interview, 22 (63) • Focus group, 6 (17) • Health assessment, 1 (3) • Documents, 2 (6) • Health data (charts or database), 15 (43) • Indigenous methods, 1 (3)	• 12 quantitative • 15 qualitative • 5 mixed-method	• 22 Poor • 8 Moderate • 5 Good

Abbreviations: ATSI QAT, Aboriginal and Torres Strait Islander Quality Appraisal Tool; MMAT, Mixed-Methods Appraisal Tool.

in preterm births comparing midwifery care to standard care.[31,33,35,36,37,41,43]

Thirteen studies, including three with no comparison testing,[27,29,30] reported low-birthweight (LBW) rates. Of 10 studies with comparison groups, one found increased odds of LBW (AOR 3.6 [95% CI 1.02–12.9])[31] and the remaining nine found no differences between standard and midwifery care.[23,33,35,36,37,38,41,42,43]

Eight studies reported on NICU admission rates. Two reported a significant reduction in NICU admissions associated with midwifery care[23,43] with one reporting a 31% reduction in odds for NICU admission (AOR 0.69 [95% CI 0.51–0.94]).[23] There were no significant differences reported in the other comparative studies.[31,36,37]

Breastfeeding

Breastfeeding rates at discharge from hospital were reported in six studies.[23,27,29,31,36,43] Kildea (2021) reported significantly increased odds (AOR 1.34 [95%CI 1.06–1.70]) of exclusive breastfeeding at discharge for Midwifery on Country Services compared with standard physician-led care.[23] No other comparative studies reported significant differences in breastfeeding, comparing midwifery to other forms of care.[31,36,43]

Childbirth complications

Twelve studies reported various childbirth complications. No differences were reported for midwifery compared with other forms of care in five of eight studies with comparison groups.[23,31,37,38,41] Significant decreases in perineal trauma for midwifery patients were reported in two studies[36,43] and one study reported significantly reduced odds (OR 0.35 [95% CI 0.14–0.92]) of serious childbirth complications with Indigenous midwifery compared with Western standard care.[26]

Care visits

Eleven studies reported on first attendance at prenatal appointments.[22,23,24,25,27,33,34,36,38,41,42] Three comparative studies found no differences compared with standard care.[22,33,38] One study found a significant decrease ($p = 0.02$) in gestational age at the first prenatal visit,[42] and another study found significantly more women ($p = 0.01$) received prenatal care in the first trimester.[41] Kildea (2021) reported greater odds of first contact within the first trimester (AOR 1.5 [95% CI 1.151.96]) with midwifery compared with standard care as did Brown (2016) (AOR 2.05; 95% CI1.0, 6.3) for those attending a regional program.[23,34]

Nine studies reported the number of prenatal visits.[23,25,29,33,34,36,37,42,43] All seven comparative studies reported statistically significant increases in the number of prenatal visits compared with other forms of care.[23,33,34,36,37,42,43] For example, Kildea (2021) reported

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TABLE 2 Comparative studies with testing: maternal and infant outcomes ($n = 12$ of 19 total studies).

Author/quality appraisal	Name/type of program/year	Comparator	Mortality	Preterm birth	Low birth weight	Breastfeeding	NICU admission	Complications[a]
Bertilone 2015 MMAT 100% ATSI Moderate	Aboriginal Maternity Group Practice Program (AMGPP) community-based antenatal program (2011/2012)	Two control groups (historic & contemporary) eligible for standard antenatal services	NR	↓	↔	NR	NR	↔
Gao 2014 MMAT 100% ATSI Poor	Midwifery Group Practice (MGP) in Northern Territory, Australia (2004–2006) (2009–2011)	Aboriginal women in both Baseline and Cohort 1	NR	↔	↔	NR	↔	↔
Hartz 2019 MMAT 100% ATSI Poor	Malabar Community Midwifery Link Service—multidisciplinary wrap-around services, and MW care for Aboriginal and Torres Strait Islander (2007–2014)	Standard Care— national and state outcomes (NSW perinatal datasets)	↔	↔	↑	↔	↔	↔
Jan 2004 MMAT 80% ATSI Poor	The Daruk Aboriginal Medical Services Programme (1990–1996)	Standard Care—public mainstream antenatal services accessed by Aboriginal women	↔	NR	↔	NR	NR	NR
Kildea 2012 MMAT 100% ATSI Moderate	The Murri Clinic for all risk status women (2004–2009)	Standard Care—Indigenous women who access Midwifery/MD care	NR	↔	↔	↔	↓	↓
Kildea 2016 MMAT 100% ATSI Good	Darwin-based Enhance Midwifery Group Practice (MGP) Cohort 2 in northern Australia (2009–2011)	Midwifery Group Practice (MGP) Baseline Cohort 1 (2004–2006)	NR	↔	↔	↔	↔	↓
Kildea 2019 MMAT 80% ATSI Moderate	Birth in Our Community (BiOC) Community co-designed and controlled, including Indigenous midwifery education (2013–2017)	Standard Care—other services for Midwifery/MD care	NR	↓	NR	NR	NR	NR
Kildea 2021 MMAT 100% ATSI Good	Birth in Our Community (BiOC) Community co-designed and controlled, including Indigenous midwifery education (2013–2019)	Standard Care—public not community-controlled Midwifery/MD care	↔	↓	↔	↑	↓	↔
Middleton 2017 MMAT 40% ATSI Poor	Aboriginal Family Birthing Program (AFBP) across South Australia (2010–2012)	Other models of care – major city services, other South Australia maternity services	NR	↔	↔	NR	NR	NR

(Continues)

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TABLE 2 (Continued)

Author/quality appraisal	Name/type of program/year	Comparator	Mortality	Preterm birth	Low birth weight	Breastfeeding	NICU admission	Complications[a]
Reeve 2016 MMAT 100% ATSI Poor	Midwifery outreach in Fitzroy Valley in Western Australia Baseline Cohort 1 (2009–2011)	Midwifery outreach in Fitzroy Valley in Western Australia Cohort 0 (2007–2009)	↔	↔	↔	NR	NR	↕
Sarmiento 2022 MMAT 20% ATSI Moderate	Traditional Midwifery support program trial in Guerrero State, southern Mexico (2016–2017)	Western Midwives and Western health care traditions	↔	NR	NR	NR	NR	↓
Simonet 2017 MMAT 100% ATSI Poor	Hudson Bay midwife-led maternity care program (1989–2000)	Western physician-led maternity care in Ungava Bay	↔	↔	↔	NR	NR	NR

Note: ↑ = significantly increased; ↓ = significantly decreased; ↔ = no statistically significant difference.

Abbreviations: ATSI, Aboriginal and Torres Strait Islander quality appraisal tool; MMAT, Mixed-Methods study appraisal Tool; NR, not reported.

[a]Complications include postpartum hemorrhaging, perineal tears, use of forceps, convulsions, or unplanned cesarean section.

that the odds of attending more than four prenatal appointments were significantly higher (AOR 1.82 [95% CI 1.28–2.58]) for midwifery compared with standard care.[23] Jan identified a significantly greater number of visits ($p < 0.01$) and Middleton reported a higher percentage of women receiving a more adequate number of prenatal visits ($p < 0.01$) for midwifery care compared with women attending other services.[33,42]

Quality of prenatal care as perceived by Indigenous women's was examined using surveys in three studies.[25,32,34] One study comparing an Aboriginal community-controlled midwifery program with Aboriginal health workers to standard care found greater odds (AOR 3.0 [95% CI 1.5–6.0]) of rating the care as very good.[32]

3.2.2 | Indigenous women' experiences

Sixteen studies were included in our meta-aggregative review. Qualitative studies evaluated Indigenous women' experiences with Western midwifery and Indigenous community designed midwifery care practices through semi-structured interviews and focus group discussions.

Qualitative findings describing the influence of midwifery care for Indigenous women are shown in Table 4. In the initial step of our synthesis, 24 individual findings were identified, of which plausibility evaluation assessed 46% (11/24) of the findings as unequivocal and 54% (13/24) as equivocal.[17,18] The 24 findings were grouped into nine descriptive categories: "authentic relationships," "trust," "communication," "respect for identities and cultures," "continuity of care," "multilayered supports," "cultural supports," "advocacy and autonomy,", and "accessibility." Integration of the categories produced three overall synthesized findings: "culturally safe care," "caring for the whole person," and "enhanced access to care," which are described below.

Cultural safety for Indigenous women ensued from positive relationships, trust, respectful and open communication, recognition and respect for their cultures, and continuity of care with their midwives, and provided a safe space for Indigenous women to express their own choices for care. Indigenous women felt safe and free of judgment when they could access Indigenous knowledge and practices as needed.

Caring for the whole person includes holistic support that encompasses physical, psychological, emotional, and spiritual aspects of Indigenous women. Support systems catering to Indigenous women's diverse individual needs throughout pregnancy and the postpartum period provided a comprehensive model of care that took into consideration Indigenous ways of knowing. Indigenous women valued the role that midwives played in bridging

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TABLE 3 Comparative studies with testing: prenatal care and experience ($n = 10$ of 19 total studies).

Author/quality appraisal	Name/type of program/year	Comparator	Earlier first visit	Number of visits	Quality of prenatal care
Bertilone 2015 MMAT 100% ATSI Moderate	Aboriginal Maternity Group Practice Program (AMGPP) community-based antenatal program (2011/2012)	Two control groups (historic & contemporary) eligible for standard antenatal services	↔	NR	NR
Brown 2016 MMAT 100% ATSI Moderate	Aboriginal Family Birthing Program (AFBP) across South Australia in both metro and regional areas (2011–2013)	Standard Care: Public midwifery group care, mainstream regional and rural Aboriginal public services	NR	↑	↑
Gao 2014 MMAT 100% ATSI Poor	Midwifery Group Practice (MGP) in Northern Territory, Australia Cohort 1 (2009–2011)	Aboriginal mothers in both Baseline (2004–2006)	NR	↑	NR
Jan 2004 MMAT 80% ATSI Poor	The Daruk Aboriginal Medical Services Programme (1990–1996)	Standard Care—public mainstream antenatal services accessed by Aboriginal women	↑	↑	NR
Kildea 2012 MMAT 100% ATSI Moderate	The Murri Clinic for all risk status women (2004–2009)	Standard Care—Indigenous women who access Midwifery/MD care	NR	↑	NR
Kildea 2016 MMAT 100% ATSI Good	Darwin-based Enhance Midwifery Group Practice (MGP) Cohort 2 in northern Australia (2009–2011)	Midwifery Group Practice (MGP) Baseline Cohort 1 (2004–2006)	↑	↑	NR
Kildea 2019 MMAT 80% ATSI Moderate	Birth in Our Community (BiOC) Community co-designed and controlled, including Indigenous midwifery education (2013–2017)	Standard Care—other services for Midwifery/MD care	↔	NR	NR
Kildea 2021 MMAT 100% ATSI Good	Birth in Our Community (BiOC) Community co-designed and controlled, including Indigenous midwifery education (2013–2019)	Standard Care—public not community-controlled Midwifery/MD care	↑	↑	NR
Middleton 2017 MMAT 40% ATSI Poor	Aboriginal Family Birthing Program (AFBP) across South Australia (2010–2012)	Other models of care – major city services, other SA maternity services	↔	↑	NR
Reeve 2016 MMAT 100% ATSI Poor	Midwifery Outreach in Fitzroy Valley in Western Australia Cohort 1 (2009–2011)	Midwifery Outreach in Fitzroy Valley in Western Australia Cohort 0 Baseline (2007–2009)	↑	NR	NR

Note: ↑ = significantly increased; ↓ = significantly decreased; ↔ = no statistically significant difference.

Abbreviations: ATSI, Aboriginal and Torres Strait Islander quality appraisal tool; MMAT, Mixed-Methods study appraisal Tool; NR, not reported.

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TABLE 4 Qualitative findings of Indigenous women's experience and information needs related to midwifery care.

Finding	Category	Synthesized finding
Indigenous women appreciated midwives who were friendly, "nice to talk to", caring, non-judgmental, and allowed sufficient time during appointments (E) Indigenous women voiced their desire to have a deep, personal, kin-based, and/or reciprocal relationship with their midwife(s), built on shared understandings and experiences, regardless of identity (E)	Authentic relationships	Culturally safe care
When midwives supported Indigenous women in their choices and did not make assumptions, they felt comfortable and respected (U) When Indigenous women felt comfortable and trusting, they readily provided information to and sought information from their midwives (E) Midwives offering guidance that reflects the individual identities and life situations contributed to established trust and a sense of control for Indigenous women (E)	Trust	
Midwives who actively listened to Indigenous women's needs helped create a more positive experience based on empowerment (U) Good communication involved clear, straightforward explanations and an effort by midwife(s) to ensure Indigenous women understood medical and other pregnancy-related information (E)	Communication	
Indigenous women felt culturally safe when their midwives created room for and supported respect for their choices, experiences, and identities (U) For some Indigenous women, a demonstrated recognition and respect of their cultures would have made a significant difference to their experience (E) Midwives demonstrating cultural awareness contributed to Indigenous women feeling comfortable and safe (U)	Respect for identities and cultures	
Having a known midwife or the same midwife throughout pregnancy made for a better pregnancy experience for Indigenous women (U) Relationships and trust between Indigenous women and their midwife(s) developed over time and after a series of visits (U)	Continuity of care	
Indigenous women felt getting their physical needs met before and during labor were enhanced by having a midwife (U) Midwives providing psychological and emotional support filled a major gap in routine Western clinical care and made Indigenous women feel calm, safe, relaxed, and respected (U) Indigenous women appreciated midwifery care that extended to the postpartum period outside the hospital setting to support families (E) Midwives provide individualized support that meets the unique needs of diverse Indigenous women, beyond what is provided in routine Western clinical care (U)	Multilayered supports	Caring for the whole person
Respecting and incorporating Indigenous cultural and spiritual supports helped Indigenous women feel confident, enhanced their self-esteem, and improved their sense of well-being (E) Indigenous women commonly stated that yarning or talking through information face to face was their preferred way of learning new pregnancy-related health information (U)	Cultural and spiritual supports	
Indigenous women felt empowered when midwives advocated for them in the mainstream health care context (e.g., in hospitals, with physicians and nurses) and helped to navigate the health system (E) Accessing practical reproductive health knowledge and resources was equally important to accessing Indigenous knowledge and practice (E) Having a midwife helped Indigenous women to gather sufficient information to make informed choices during their pregnancy and birthing experiences, rather than feeling pressured to accept treatments (E)	Advocacy and autonomy	
Having a midwife helps some Indigenous women remain within their community to give birth, resulting in less stress and prevents separation from family, culture, and the community as a result of being sent away for a birth (E) Midwifery care was often easier and more available for Indigenous women to access than routine Western perinatal care, was flexible and proactive, and led to connections or partnerships with other medical supports (U) Midwifery care settings provide more welcoming physical environments (E)	Accessibility	Enhanced access to care

Note: U, unequivocal—findings accompanied by an illustration that is beyond reasonable doubt and therefore not open to challenge. E, equivocal—findings accompanied by an illustration lacking clear association with it and therefore open to challenge.

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FIGURE 2 Themes associated with Indigenous women's experiences. *Artwork is the original work of Tom Crier, a Cree artist, designed to specifically and meaningfully visualize the qualitative themes. [Colour figure can be viewed at wileyonlinelibrary.com]

the gap between Indigenous knowledge and practice, and Western healthcare systems. Advocating for their needs, therefore, empowered Indigenous women to make informed choices with their midwives.

The availability of midwifery care within communities reduced physical, financial, and healthcare accessibility barriers for Indigenous women. Enhanced access to healthcare and in-community services was seen as highly valuable. Midwifery approaches to care were not rushed, and women rarely had to wait for their visits. Indigenous women valued opportunities to have family present and 24/7 support.

These synthesized findings were not mutually exclusive. Working together, these facets of midwifery care can provide strong support for Indigenous women (Figure 2). When comparing qualitative findings from Western midwifery and Indigenous midwifery care (delivered by an Indigenous midwife), Indigenous women were less concerned about the Indigenous status of midwives, but rather accessing throughout their pregnancy the same midwife who was well qualified, experienced, and with good listening skills. Some Indigenous women felt relationships and cultural safety could be furthermore enhanced through Indigenous midwives who may speak the same language, share similar values and worldviews, have better understandings of Indigenous history and context, and potentially share validating experiences. The qualitative findings, however, also indicate that non-Indigenous midwives can help to improve culturally safe care.

3.2.3 | Quality appraisal

The majority (91%) of included studies were of good quality and met at least 80% of the MMAT[20] criteria (Appendix S4). Thirty-one met 80% or 100% of the MMAT criteria, two met 60%, one met 40% and one met 20%. Appendix S5 displays quality appraisal results from the

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ATSI QAT. Five studies were deemed to be of good quality. Eight studies were considered moderate quality, and the remaining were of poorer quality. Of the five highest-quality studies, all but one was published after 2015. Seven studies published between 2009 and 2016 did not receive a "yes" judgment on any of the ATSI QAT items.

In examining the overall criteria for individual items in the ATSI QAT tool, the highest percent of "yes" judgments were for items related to research responding to a community need ($n=13$), community engagement ($n=14$), Indigenous leadership in research ($n=14$), and using a strengths-based approach ($n=13$). Three criteria with the most "no" judgments were negotiating agreements for access to Indigenous intellectual and cultural property ($n=32$), negotiating agreements for protection of Indigenous intellectual and cultural property ($n=32$), and Indigenous ownership and control over data collection and management ($n=32$).

4 | DISCUSSION

This review was undertaken to describe the influence midwifery care could have in supporting Indigenous women throughout the perinatal period. While the systematic review used a Western paradigm, Indigenous perspectives were employed in the cultural appraisal of included articles and through critical interpretation of the integrated results (quantitative and qualitative) by Indigenous partners. Key maternal and infant health outcomes of mortality, low birthweight, and childbirth complications were equivalent between midwifery care and standard care. Midwifery care was associated with more women attending care in the first trimester, an increase in total number of prenatal care visits, increased patient satisfaction, reduced risk of preterm birth and NICU admission, and increased exclusive breastfeeding rates at discharge compared with standard care. The inclusion of qualitative data enriches those findings and illustrates that Indigenous women have positive experiences with midwifery care when it is culturally safe, accessible, and encompassing of physical, psychological, emotional, and spiritual aspects of well-being. This review verifies the safety of midwifery care and highlights positive outcomes for Indigenous women and their infants.

Despite midwifery care being evidence-based and guided by national and territorial professional guidelines, misconceptions, lack of awareness, and personal beliefs about the risk and safety of midwifery care remain pervasive among families and care professionals.[44,45] Numerous studies pooling non-Indigenous population data refute such myths, showing that for low-risk women, midwifery care provides benefits for women and babies (e.g. decreases in epidurals, episiotomies or instrumental births, preterm birth, and neonatal mortality) and is not associated with an increase in adverse outcomes.[46-48] In fact, the UK's National Institute for Health and Care Excellence Guidelines indicated that giving birth with the support of a midwife is safer than giving birth in a traditional hospital ward for low-risk pregnancies.[49] Moreover, midwifery has a healthcare cost-saving effect compared with physician care.[47,50] This is also true of some midwifery programs for Indigenous women.[37,42] The findings of the current systematic review indicate that midwifery care leads to more positive pregnancy outcomes and experiences for Indigenous women. Therefore, midwifery is a viable option in the face of ongoing disparities in perinatal health and outcomes for Indigenous women. Nevertheless, access to midwives in Canada and elsewhere is limited, especially in rural and remote settings, and midwives have not been fully integrated into health systems. The conflict between midwives and obstetricians over philosophy, autonomy, professional territory, and work style, as well as longstanding institutional procedures (such as payment mechanisms that privilege physician-provided and hospital-based services) persist and impede availability and access to midwifery care.[44,51,52] This is exacerbated in many Indigenous communities that face additional systemic and social barriers resulting from historical colonization and ongoing settler colonialism that furthermore limits access to quality perinatal healthcare.[5,53,54]

Our review's findings confirm what similar studies have found in that midwifery care enhances cultural safety and supports increased access to midwives (both Indigenous and non-Indigenous).[55,56] Safety is a major issue for Indigenous women, and anti-Indigenous racism continues to be systemically prevalent in healthcare systems, academic medicine, and the education of healthcare practitioners.[57] Many Indigenous women want better access to midwifery care and desire perinatal care that is culturally safe, free of discrimination and racism, accessible in their community, flexible and patient-centered, and that privileges Indigenous healing and pregnancy practices.[58,59] Indigenous midwives play an important role in anti-Indigenous racism, advocating for Indigenous families, cultural reclamation, Indigenous sovereignty, women's autonomy and self-determination over their pregnancies, and providing holistic and safe care that encompasses a more accurate Indigenous worldview of health and well-being.[6,7,60,61,62] Indigenous midwives have a better understanding of the ongoing traumas and realities of Indigenous women and as such, can help furthermore reduce fear of Western healthcare and provide an avenue for intergenerational healing.[63] However, distinguishing care provision and outcomes specifically by Indigenous midwives was not possible in this review due

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to limitations in program descriptions and study designs. Also, the short-term outcomes described in the included studies miss the potential value of Indigenous midwives as leaders of reproductive justice in communities and their influence on reducing birth trauma, systemic racism, and child apprehension.[64]

Before damaging colonial practices, Indigenous women gave birth in their own Nations with physical, emotional, psychological, and spiritual support from family, other community members, and local midwives who used land-based knowledge and practice.[65] Birth and pregnancy are celebrated across Indigenous cultures, and midwifery provides an opportunity to honor each birth as a spiritual and ceremonial journey.[65] Indigenous Peoples are the experts in their own context, and making space for Indigenous ways of knowing within Western healthcare is not only an act of reconciliation but a means to improve health and well-being. Our findings indicate midwives can help create and protect a sacred space of trust for Indigenous women and families.

4.1 | Strengths and limitations

We employed a rigorous and comprehensive search strategy, leading to the systematic evaluation of the quality and risk of bias of included studies. In an effort to mitigate continuation of settler colonial policies that harm Indigenous women through research and to increase transparency, we appraised the quality of included studies from an Indigenous perspective. Furthermore, we invited members of local Indigenous communities to provide an Indigenous-specific lens to our methods and interpretation of findings.

Given the nature and design of included studies, we were limited in our ability to compare across studies as few studies included appropriate control groups or only compared data to historical controls. However, only four studies scored <80% on the MMAT thus the results reported for comparative studies were not substantially influenced by poor methodology for their study designs. Descriptions of standard and midwifery care varied across studies, therefore, results should be interpreted in light of those differences. Poor reporting quality of many studies on the ATSI QAT may have contributed to implicit biases influencing both analysis and interpretation.

4.2 | Future research directions

Community-driven and co-designed strategies to improve Indigenous maternal and infant health outcomes that are responsive and relevant to Indigenous communities and Peoples are urgently needed.[66] Development of policies, interventions, and care models that include a comprehensive understanding of Indigenous Peoples' experience and perspective of healthcare are also required.[59] More Indigenous led research by Indigenous scholars is needed to articulate the influence of Indigenous midwifery. In addition, further research to better understand how to meaningfully cultivate collaboration between physician and midwifery models of care and remove barriers to midwifery for Indigenous women is warranted. Indigenous-informed approaches to midwifery research are progressing as more recent reporting of studies demonstrated more Indigenous values, ethics, and principles. Another noteworthy gap is the limited number of studies specifically stating how Indigenous intellectual and cultural property, and ownership over data collection and management were protected, necessitating a focus on the importance of meaningful engagement and relationship building with Indigenous communities in midwifery research.

4.3 | Conclusions

Midwifery care for Indigenous women is safe and effective, and is associated with improved maternal and infant outcomes compared with standard care. Furthermore, Indigenous women benefit from midwifery care through enhanced cultural safety, informed choice, and holistic care and support which contributes to positive care outcomes. Promoting and providing better access to midwifery care for Indigenous women may help reduce disparities in perinatal health and outcomes for Indigenous Peoples, relieve current stress on our healthcare systems, enhance cultural safety, catalyze Indigenous sovereignty, and the bringing of birth back to Indigenous communities.

ACKNOWLEDGMENTS

We would like to thank the Grandmothers' Wisdom Network in Alberta for their guidance and advice on cultural appraisal of articles. We also are in appreciation of our Indigenous Strategic Steering Group for providing support with interpretation of the review findings and to acknowledge consultation provided by Nadia Houle BSc.(Kin), D. Ac, Birthworker Kihew Awasis Wakamik. This work has also been enriched by the perspective and professional expertise of Indigenous and non-Indigenous midwives on the team. We would like to thank Tom Crier for his beautiful artwork contribution to this work.

FUNDING INFORMATION

This work was supported by the Alberta Health Services (AHS), Maternal, Newborn, Child and Youth Strategic Clinical Network™ (MNCY SCN™).

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data are available upon reasonable request to the corresponding author and approval from Indigenous Strategic Steering Group.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: McNeil D, Elliott SA, Wong A, et al. Indigenous maternal and infant outcomes and women's experiences of midwifery care: A mixed-methods systematic review. *Birth*. 2025;52:173-188. doi:10.1111/birt.12841

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