RESEARCH ARTICLE

The Perspectives And Experiences Of Indigenous Women With Gestational Diabetes Mellitus: A Systematic Review And Meta-Synthesis Of Qualitative Research

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ABSTRACT

Indigenous women are at higher risk for developing gestational diabetes mellitus (GDM); however, there are no systematic reviews that primarily study the perspectives and experiences of Indigenous women with GDM (without comorbid disorders). Therefore, the aim of this study is to understand the barriers and facilitators to positive health outcomes among Indigenous women with GDM. To further analyze this issue, a systematic review and meta-synthesis was conducted using OVID (Medline) and CINAHL databases. Searches were limited to four countries: Australia, Canada, New Zealand, and United States. Six key themes were identified, including 3 barriers and 3 facilitators to positive health outcomes. Based on the results of this study, recommendations to address this inequity include incorporating positive communication, reciprocal exchange, family, community, and culturally relevant education into GDM treatment.

INTRODUCTION

As of December 17, 2020, South Africa (SA) had GDM is glucose intolerance with first onset or diagnosis during pregnancy [1]. GDM prevalence is higher in certain ethnic groups, including Indigenous women [2-4]. The term Indigenous describes populations with distinct languages and cultures that pre-date colonial societies [5]. Among Indigenous populations, prior research has studied the etiology of GDM [6-8] and the experiences of women with GDM [9-12]. Nevertheless, a systematic review of the perspectives and experiences in these papers has not been published. Therefore, the purpose of this paper is to answer the research question: What perspectives do Indigenous women with GDM have on the barriers and facilitators to positive health outcomes? Positive health outcomes are defined as functioning well on a physical, mental, and social level [13].

METHODOLOGY

This systematic review and qualitative meta-synthesis explored the perspectives of 96 Indigenous women from 7 studies. The study population was established through database searches using OVID (Medline) and CINAHL, revealing 4261 articles to be reviewed. All abstracts and full-texts were screened independently and in duplicate by 5 authors. Articles were included if they were conducted in Australia, Canada, New Zealand,

or the United States. For a comprehensive list of inclusion and exclusion criteria, see Table 1.

Table 1. Inclusion and Exclusion Criteria

Inclusion or Exclusion	Criteria
Inclusion	Primary qualitative studies or primary mixed-methods studies
	Focused on the perspectives of Indigenous women with GDM
	Published in peer-reviewed journals
	Published within the last 10 years
	Conducted in the following countries of interest: Canada, United States, Australia, and New Zealand
Exclusion	Primary quantitative research or secondary research
	Only focused on caregiver or physician perspectives
	Focused on adolescent or high-risk pregnancies
	Focused on non-Indigenous primary subjects, non-pregnant Indigenous women, or pregnant women with previous T2DM or other comorbid disorders during pregnancy.

Searches were limited to studies published between January 1, 2010 and January 2, 2020 due to the high volume of literature found, and searches were completed in January 2020. For a full list of search terms, see Appendix 1.

Each full-text article was analyzed in duplicate, where each author independently extracted textual evidence. Guided by grounded theory (14), a coding process was employed to break down this evidence into key themes. The authors co-developed a final list of themes that emphasized the significance of findings across a larger number of studies using inductive [15] and constant comparison approaches [16]. The primary findings of the articles were analyzed without re-interpretation.

RESULTS

Figure 1. PRISMA Diagram

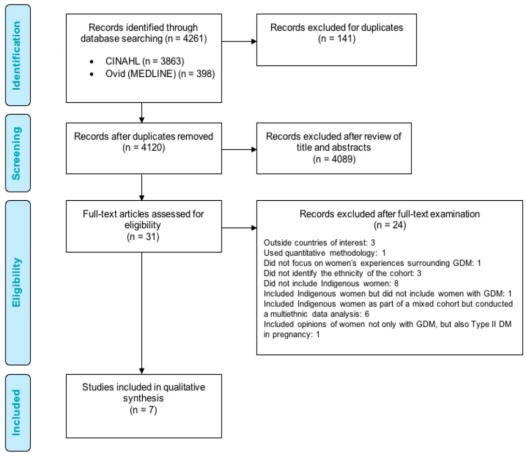

Table 2. Demographic data of studies

Reference Number	Methodology	Setting and Population	# of participants
9	Interviews and Thematic Analysis	Aboriginal women Winnipeg, Manitoba, Canada	29
17	Interviews, focus groups and thematic analysis	Mi'kmaq women Nova Scotia, Canada	9
18	Interviews and focus groups	First Nations and Metis women Winnipeg, Manitoba, Canada	29
19	Interviews and Content Analysis	Aboriginal and Torres Strait Islander women Cairns, Far North Queensland, Australia	7
20	Narrative data and interviews	Maori women Northland, New Zealand	10
21	Interviews, constant comparison method	American Indian and Alaskan Native women Portland, Oregon and Denver, Colorado, United States	5
22	Observations and semi-structured interviews	Algonquin women Quebec, Canada	7
Total participants			96

The analysis revealed 6 key themes, including 1) Feelings of Stress and Fear; 2) Financial, Transportation, Screening/Prevention Barriers; 3) Inadequate Patient Education, and 3 facilitators: 1) Positive Communication and Reciprocal Exchange; 2) Family and Community Ties; 3) Culturally Relevant Education.

Barriers to Positive Health Outcomes

i) Feelings of Stress and Fear

The women in this study reported experiencing psychological barriers, such as feelings of stress and fear, at each stage of the healthcare process from diagnosis, to treatment, and postpartum care [9, 17]. When awaiting the results of diagnostic tests, the women felt overwhelmed because they were unaware of what was happening to their bodies, and after receiving the GDM diagnosis, many felt scared because they did not know the long-term effects of GDM [17]. Additionally, GDM management, often involving insulin and diet changes, exacerbated their negative emotions [9,17]. Some women reported that they felt like they were on "emotional roller coasters" due to physiological changes caused by insulin [17] and dieting created unhealthy relationships with food [9]. Also, prolonged feelings of stress contributed to postpartum depression in some women [9,17].

ii) Financial, Transportation, and Screening/ Prevention Barriers

Most participants relied on welfare that did not provide sufficient income to purchase nutritious foods [17]. Additionally, transportation barriers prevented women from accessing GDM management services [17-19]. Furthermore, although Indigenous women have a higher risk for developing GDM, there is a lack of vigilant GDM screening and prevention for this population [20]. Undiagnosed GDM adversely affects the long-term health outcomes of women, which can lead to complications, such as premature births [20].

iii) Inadequate Patient Education

Most women may not have knowledge of what GDM is prior to their diagnosis. This can create barriers for them to access preventable measures to decrease their risk of developing GDM [21]. This lack of knowledge is primarily due to inadequate patient education because healthcare providers sometimes provide unclear diagnoses [18-19]. For instance, several women recall that their healthcare providers never explained what GDM was [17,19]. At times, healthcare providers educated their patients, however, women found that their providers' communication was confusing or complex [9,17-19]. Women reported that their providers struggled to communicate the long-term risks of GDM [17]. provided unclear educational resources [18,20] and did not clearly explain test results [20].

Facilitators to Positive Health Outcomes

i) Positive Communication and Reciprocal Exchange

Positive communication which encompasses sincerity [17-18], understanding [17], and respect [17-18], is integral to cultivating trust between patients and their healthcare providers [17-18,20]. When healthcare providers took initiative to interact with their patients, the women in the studies reported the experience of stronger bonds with their care providers and thus, were more likely to engage in healthy behaviours [20]. Moreover, reciprocal exchange facilitates trust. This occurs when healthcare providers actively listen to the perspectives of their patients and respect that they are in control of their own bodies [18]. This ultimately encourages patients to express their opinions and concerns about their health [18].

ii) Family and Community Ties

Many Indigenous women in the studies described that family support was crucial to successful GDM management [22]. Family members encouraged healthy eating and physical activity, which directly affected the likelihood of successful GDM management and positive health outcomes [21-22]. Families with vegetable gardens were more likely to have a balanced diet [17], and women were more likely to go on walks when they could do so with family members [22] Community support also helped the women manage GDM [17,21-22]. The women more frequently implemented health advice if it came from trusted community members [17]. Members of the community, including community nurses and health centers, prioritized building trust with the women by providing culturally relevant care. They upheld traditional Indigenous knowledge by facilitating cooking classes, where women learned about Indigenous cooking practices [17].

iii) Culturally Relevant Education

Effective patient education is culturally tailored to the women's needs [21]. Culturally relevant education is important because Indigenous women do not always identify with Western medicine, which is centered on a biomedical approach [21]. Therefore, successful GDM treatment should incorporate Indigenous practices into educational resources [21]. To accomplish this goal, some women suggested implementing forest diabetes camps, where healthcare providers could discuss GDM while performing activities like snowshoeing [22]. Since being in the forest is important in many

Indigenous traditions, forest diabetes camps are culturally relevant [22].

DISCUSSION

This review demonstrates how poor patient-doctor interactions deter Indigenous women from accessing healthcare [17-19]. Similarly, a 2016 review documented how the impact of colonization on patient-provider relationships negatively impacted Indigenous women's maternal health experiences [23]. Additional studies have reported how a lack of cultural competency contributes to negative patient-provider interactions [24-25]. This review also examines how family and community ties, positive communication, and culturally relevant care help Indigenous women with GDM achieve positive health outcomes [17-18, 20-22]. A 2015 review of healthcare services for Indigenous wellbeing documented similar facilitators [26].

Limitations include the lack of inclusion of grey literature, and the inability to consult with Indigenous researchers regarding the search strategy and data analysis. Nonetheless, most of the included studies strictly adhered to the Ownership, Control, Access and Possession (OCAP) Principles for Indigenous Research, reinforcing the credibility of this review. The authors relied solely on the interpretations of the included studies, which prioritized patient perspectives and Indigenous worldviews. The studies included in this review also surveyed Indigenous women from various countries, thereby encompassing perspectives from geographically and culturally diverse regions.

CONCLUSION

This systematic review presents the perspectives of Indigenous women with GDM, revealing barriers and facilitators within the healthcare system and community. Creating a system rooted in positive communication, reciprocal exchange, and culturally relevant education which also incorporates family and community into GDM management must be a priority to ensure better health outcomes for Indigenous women on a global scale.

APPENDIX 1

Search Strategy executed in CINAHL

Search	Query	Results
1	(MH "Indigenous Peoples") OR (MH "Health Services, Indigenous") OR (MH "Indigenous Health") OR (MH "Aboriginal Australians") OR (MH "Indigenous*") OR (MH "Native Americans") OR (MH "Congress of Aboriginal and Torres Strait Islander Nurses") OR (MH "Aboriginal Nurses Association of Canada") OR (MH "Inuit")	22, 248
2	(MH "Aboriginal Australians") OR (MH "Indigenous Health") OR (MH "Congress of Aboriginal and Torres Strait Islander Nurses") OR (MH "Aboriginal Nurses Association of Canada") OR (MH "Native Americans") OR "Aborigin*"	15,342
3	(MH "Labor Stage, First") OR (MH "Pregnancy Trimester, First") OR (MH "National Association of Pediatric Nurse Associates and Practitioners") OR "First Nation*" OR (MH "National Association of Nurse Practitioners in Reproductive Health") OR (MH "National Association of Neonatal Nurses") OR (MH "Infant, Premature") OR (MH "Diabetes Mellitus, Gestational") OR (MH "Canadian Nurses Association") OR (MH "Australian Neonatal Nurses Association")	35,373
4	(MH "Indigenous Peoples") OR "First people" OR (MH "Minority Groups") OR (MH "Maori") OR (MH "Inuit") OR (MH "Indigenous Health") OR (MH "Ethnic Groups") OR (MH "Diabetes Educators") OR (MH "Aboriginal Australians")	44,304
5	(MH "Native Americans") OR (MH "Indigenous Peoples") OR "Native" OR (MH "Indigenous Health") OR (MH "Health Services, Indigenous") OR (MH "Aboriginal Australians") OR (MH "Congress of Aboriginal and Torres Strait Islander Nurses") OR (MH "Aboriginal Nurses Association of Canada") OR (MH "Inuit")	30,059
6	(MH "Ethnic Groups") OR "Ethnic groups" OR (MH "Oppressed Group Behaviour") OR (MH "Minority Groups") OR (MH "Inuit") OR (MH "Health Services, Indigenous") OR (MH "Ethnology") OR (MH "Cultural Diversity") OR (MH "Cultural Competence") OR (MH "Cultural Bias") OR (MH "Acculturation")	62,102
7	(MH "Inuit") OR "Inuit"	532
8	(MH "Minority Groups") OR (MH "Ethnic Groups") OR "Oceanic ancestry group" OR (MH "Samoa") OR (MH "Pacific Islands") OR (MH "Medically Underserved") OR (MH "Inuit") OR (MH "Independent State of Samoa") OR (MH "Health Services, Indigenous") OR (MH "Ethnology") OR (MH "Arctic Regions")	45,609
9	(MH "Human") OR "Human"	2,158,379
10	(MH "Women") OR "Woman" OR (MH "Female")	1,788,090
11	(MH "Female") OR "Female" OR (MH "Women") OR (MH "Mothers")	1,815,552
12	(MH "Pregnancy") OR "Pregnan*" OR (MH "Pregnancy Complications")	215,570
13	(MH "Pregnancy Trimesters") OR (MH "Pregnancy in Diabetes") OR (MH "Pregnancy Trimester, Third") OR (MH "Pregnancy Trimester, Second") OR (MH "Pregnancy Trimester, First") OR "Gestation" OR (MH "Expectant Mothers") OR (MH "Fetal Macrosomia")	39,542
14	"Gravida"	5,242
15	(MH "Prenatal Care") OR (MH "Prenatal Diagnosis") OR (MH "Prenatal Nutritional Physiology") OR "Prenatal"	47,788
16	(MH "Prenatal Care") OR "Antenatal"	23,730
17	(MH "Diabetes Mellitus, Gestational") OR "Gestational Diabetes"	8,293
18	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8	130,719
19	S9 OR S10 OR S11	2,738,281
20	S12 OR S13 ORS14 OR S15 OR S16	232,740
21	S17 AND S18 AND S19 AND S20	3,863

Search Strategy executed in OVID MEDLINE

Search	Query	Results
1	"Indigenous".mp or Health Services, Indigenous/ or Oceanic Ancestry Group/	39,450
2	Indians, North American/ or Oceanic Ancestry Group/ or aboriginal*.mp, or Health Services, Indgenous/	28,847
3	Indians, North American/ or First Nation*.mp	17,905
4	First People.mp	80
5	Native.mp or Population Groups/	211,871
6	Ethnic groups.mp or Ethnic Groups/	80,044
7	Inuit.mp or Inuits/	4,591
8	Oceanic ancestry group.mp or Oceanic Ancestry Group/	9,928
9	Human.mp or Humans/	18,747,648
10	Woman.mp or Women/	223,985
11	Female/	8,513,060
12	Pregnancy/ or pregnan*/mp	985,049
13	Gestation.mp or Pregnancy/	895,790
14	Gravida.mp or Pregnancy/	862,305
15	Prenatal Care/ or Prenatal.mp or Prenatal Education/	169,502
16	Prenatal Care/ or Antenatal.mp	54,902
17	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8	339,067
18	9 or 10 or 11	19,769,667
19	12 or 13 or 14 or 15 or 16	1,043,734
20	Gestational diabetes.mp or Diabetes, Gestational/	15,988
21	17 and 18 and 19 and 20	402
22	Limit 21 to English Language	398

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