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Ottawa prenatal educator e-survey: Experiences and perceptions of public health nurses and allied childbirth educators

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Abstract:

BACKGROUND: Prenatal education provides opportunities for health promotion of healthy behaviors and risk reduction. Quality and coherence with prenatal health promotion best practices depend on an individual class instructor. The objective of our study was to document the experiences, practices, and perceptions of our diverse Ottawa, Canada community of prenatal educators.

MATERIALS AND METHODS: In this quantitative, mixed methods e-survey conducted in Ottawa, Canada, prenatal educators were asked to describe their prenatal class settings, delivery formats, content, perceptions of pregnant women, and recommendations. Data were analyzed by descriptive statistics and thematic content analysis.

RESULTS: Respondents included public health nurses and a diverse group of "allied childbirth educators" (ACE). Topics related to pregnancy, labor, and postpartum issues were well addressed; however, established and emerging risks to pregnancy were omitted. Nurses were more likely to discuss lifestyle risks to pregnancy and general prenatal health promotion, whereas ACE respondents emphasized informed consent and individualized counseling. Women marginalized by social exclusion including Indigenous women, immigrants, and women with disabilities were perceived as missing from prenatal educational settings.

CONCLUSIONS: Heterogeneity of prenatal education provides opportunities for collaboration; however, established and emerging risk factors to pregnancy are neglected topics. Addressing the needs of diverse communities of pregnant women requires timely, evidence-based, inclusive, and culturally safe delivery of prenatal health promotion.

Keywords:

Health promotion, pregnancy, pregnant women, prenatal education, public health

Introduction

Prenatal education is provided by local and national public health agencies in Canada[1,2] and the United States (US).[3] In North America, about 33% of pregnant women and their partners, predominantly primiparous, comprise prenatal classes.[4-6] Prenatal education topics typically include healthy prenatal behaviors, prenatal risks, pregnancy complications, labor options, postpartum care, and available community resources.[1,7] Increasingly, prenatal health information is accessed through diverse channels such as clinical care visits, in-person and online classes, pregnancy circles, and traditional print and online media, including mobile health applications ("apps").[5,8-10] Effective prenatal education may contribute to the establishment of healthy maternal behaviors, which in turn can reduce the risk of adverse maternal–fetal outcomes.[11]

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Ottawa, Ontario, is an advantageous setting to investigate experiences and perceptions of prenatal instructors as it is the bilingual (English and French), diverse capital city of Canada and home to 934,243 residents – 46.7% of whom are girls and women of reproductive age (15–49 years).[12] Ottawa has been the setting for several studies that identified barriers to prenatal education, including language (immigrant communities,[13] Francophone communities),[14] transportation, and perceived stigma reported by pregnant adolescents.[15] Following the establishment of the 2009 Institute of Medicine Gestational Weight Gain (GWG) guidelines,[16] Ottawa-based studies have evaluated women's GWG information sources,[17] collaboratively developed a culturally safe, online app for urban Indigenous women,[18] and evaluated women's receptiveness to features of the *SmartMoms Canada* app, which promotes physical activity and appropriate GWG.[10]

Although North American agencies routinely conduct maternity-related experience surveys,[4,5] few studies have examined the experiences of prenatal instructors. As the landscape of prenatal education has expanded to include online e-classes,[7] the field of prenatal instruction has similarly diversified over the past several decades to include "allied childbirth educators" (ACE) along with public health nurses.[1] It is unknown how these prenatal educators address established and emerging risks to pregnancy. The objective of this study was to survey our diverse Ottawa community of prenatal educators to document their experiences and perceptions.

Materials and Methods

Data collection

Prenatal educators in Ottawa, Canada, recruited through purposive sampling, social media, and snowball sampling were invited to complete an online survey (Simple Survey – Montreal, QC) from May 1, 2017, to December 1, 2017. Respondents confirmed their role as prenatal class instructors working in the Ottawa region between 2006 and 2016 and provided informed consent to participate. The survey, comprised both closed and open-ended questions, included the following topics:[1] class settings, delivery formats, class content, perceptions of pregnant women, recommendations, and demographics. Ethical approval for this study was obtained from the University of Ottawa Research Ethics Board (file H01-16-03) and Ottawa Public Health Research Ethics Board (file #220-16).

Analysis

Responses to closed survey questions were analyzed by descriptive statistics, with $P < 0.05$ considered statistically significant. Open-ended questions were coded by at least two members of the research team and analyzed using thematic content analysis to identify major themes.[19] Respondents were categorized as either nurses or ACE based on self-reported job titles.

Results

The survey sample was comprised of mostly female participants; 10 nurses and 11 ACEs [Table 1]. Most participants were university educated (bachelor degree and/or masters' degree) and were currently (19/21). Experience working as a prenatal educator ranged from 1–5 years (7/21) to over 21 years (3/21). Nurses were primarily employed by the municipal public health agency (7/10), whereas most ACE respondents (7/11) identified self-employment or commercial agency employment.

Prenatal education format and content

Group format prenatal classes were perceived as effective by most nurses (80%) compared to ACE respondents (36%; $P = 0.044$, Chi-square) who identified a range of formats including one-on-one and tailored, individualized interactions. ACEs and nurses similarly identified pain management during labor, breastfeeding techniques, and questions about labor/birth/delivery as pregnant women's most frequent questions to educators.

None of our participants identified online prenatal courses as the ideal prenatal education format. Respondents described the advantages of online prenatal health courses as affordable, accessible, and discreet; however, face-to-face prenatal education and counseling were considered to be either "essential" or "important" (ACE: 100%, nurses 90%) in contrast to online education (ACE: 27%, nurses: 50%). All respondents uniformly expressed reservations about online prenatal health courses which were perceived by prenatal educators to be uninteresting, contain only superficial and rapidly outdated content, and limited the role of partners in the prenatal education experience.

Table 1: Professional titles of survey participants

Professional title	#Respondents
ACE respondents*	11
Childbirth educator	5
Doula	6
Lactation consultant	2
Prenatal yoga instructor	1
Registered massage therapist	2
Restorative exercise therapist	1
Social worker	2
Nurse respondents	10
Public health nurse	8
Registered nurse	1
Registered practical nurse	1

*Many respondents identified multiple professional accreditations/titles.
ACE=Allied childbirth educator

"If online health courses are an alternative option to face-to-face classes, I have no reservation. If online replaces face-to-face, I would have something to say about that because I place high value on the power of connection that is possible in face-to-face settings." – Restorative exercise specialist/social worker.

"Engaging in only online prenatal education limits the resources of the new family. Many woman[sic]*/couples benefit from connecting with other people who have been or who are in the same situation they are in. With face to face prenatal education, connections are made that can benefit the woman/couple prenatal and postnatal. I know people can connect on line, but I believe there is still incredible value in face to face support and interaction."* – Public health nurse.

ACE and nurse respondents were remarkably similar in their discussions of pregnancy and post-pregnancy health topics [Figure 1]. Nurses were more likely to discuss health promotion [Figure 2] and pregnancy risks [Figure 3]; however, outdoor/indoor exposures, occupational exposures, and GWG were poorly addressed by both groups. Nurses acknowledged that online prenatal class delivery had resulted in changes to prenatal content discussed.

"Since going online, we are unable to dialog about the nutrition, smoking and preterm labour" – Public health nurse.

"We no longer discuss lifestyle issues— only labour and birth, breastfeeding, and infant health issues in immediate postpartum" – Public health nurse.

Established infectious disease risks to pregnancy were poorly addressed by respondents in their prenatal settings, with 82% of ACE and 60% of nurses, indicating that this was not typically addressed with pregnant women [Table 2]. Promotion of the influenza vaccine during pregnancy was only discussed by three nurses and no ACE ($P < 0.05$; Chi-square). Similarly, with the exception of mental illness, ACEs and nurses reported that neither chronic conditions nor disability challenges were part of their prenatal education content [Table 2]. Most respondents reported coverage of emotional health and social support topics; however, intimate partner violence was not well addressed [Figure 4].

Prenatal educator resources

Nurses were significantly more likely to use employer-provided resources (ACE: 2/11, nurses: 8/10; $P < 0.01$, Chi-square), whereas ACE respondents reported

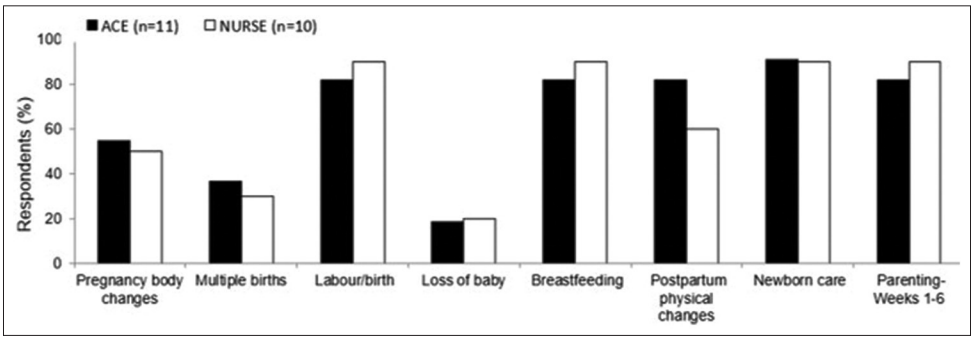

Figure 1: Pregnancy, labor, and birth. Respondents were asked to identify all pregnancy and early parenting topics addressed in their prenatal education settings. Labor/birth was described as stages of labor, comfort measures, and medical interventions. Newborn care included safety measures (screening, health, safe sleep, equipment). Parenting – Weeks 1–6 included infant care, attachment, relationships, and birth control. ACE = Allied childbirth educator

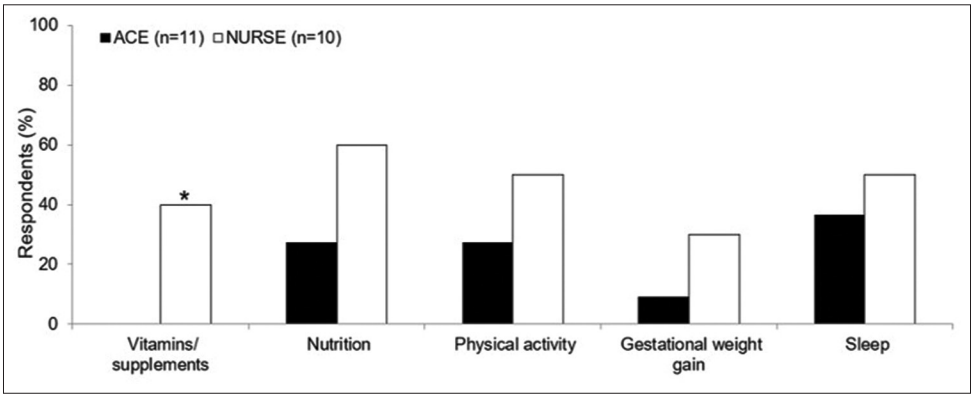

Figure 2: Prenatal health promotion. Respondents were asked to identify prenatal topics addressed in their prenatal education settings. Shown here are the respondents' reported coverage of established protective factors for a healthy pregnancy. *$P < 0.05$, Chi-square; ACE = Allied childbirth educator

Table 2: Infectious, chronic conditions and disabilities discussed in prenatal settings

Topics	ACE (*n*=11)	Nurse (*n*=10)
Infectious diseases and pregnancy		
STIs (e.g., HIV, herpes, gonorrhea)	1	1
Seasonal Influenza ("the flu")	0	1
Flu vaccine	0	3*
Zika virus	0	0
Toxoplasmosis	2	3
Chickenpox	0	1
Fifth disease	0	1
Malaria	0	0
Hepatitis	0	1
Infectious disease topics not addressed	9	6
Chronic conditions/disabilities and pregnancy		
Diabetes	1	2
HIV	0	1
Cancer	0	1
Physical disabilities (e.g., multiple sclerosis, impaired mobility)	0	0
Sensory impairments (e.g., visually or hearing impaired)	1	1
Autoimmune diseases (e.g., lupus, Grave's disease, Crohn's disease)	0	0
Mental illness (e.g., anxiety disorders, depression, schizophrenia)	4	6
Chronic conditions/disabilities not addressed	6	3

*P<0.05, Chi-square analysis. ACE=Allied childbirth educator, STI=Sexually transmitted infection, HIV=Human immunodeficiency virus

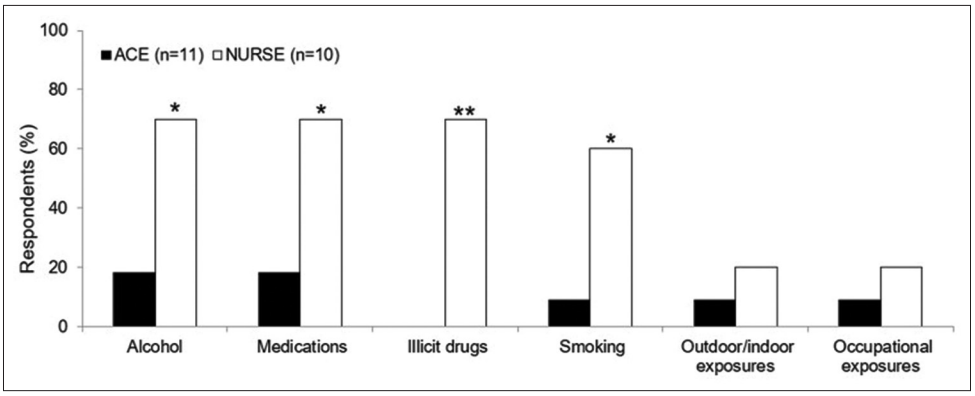

Figure 3: Risks to prenatal health. Respondents were asked to identify prenatal topics addressed in their prenatal education settings. Shown here is the respondents' reported coverage of established risk factors for adverse pregnancy outcomes. *P < 0.05, Chi-square; **P < 0.01, Chi-square. ACE = Allied childbirth educator

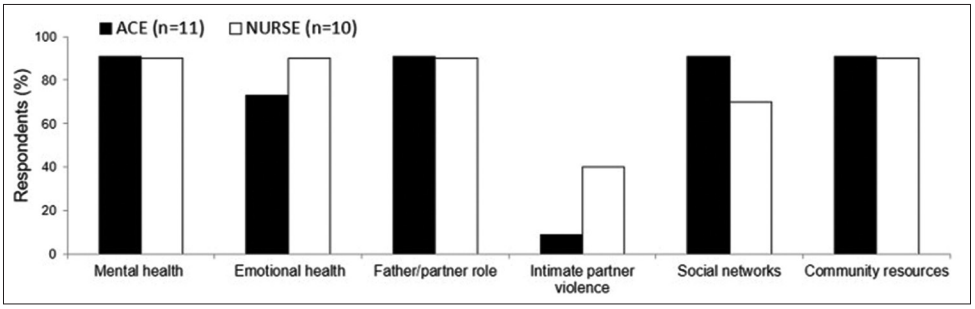

Figure 4: Emotional health and social supports. Respondents were asked to identify emotional health/relationship topics addressed in their prenatal education settings. Mental health included anxiety, depression, and postpartum depression. Fathers/partners' role included concerns and content for father/partner. Social networks were defined as friends, family, and coworkers. ACE = Allied childbirth educator

greater consultation of World Health Organization materials (ACE: 9/11, nurses: 3/10; $P < 0.05$, Chi-square). Many respondents used government-generated resources along with medical society/association information. ACE respondents were more likely than nurses to collaborate with local community groups and other prenatal class providers (ACE: 8/11, nurses: 2/10; $P < 0.05$, Chi-square). Respondents reported no

or minimal collaborations with police, social services/children's aid society, universities/colleges, and Planned Parenthood.

Prenatal class characteristics, barriers

Partnered-pregnant women were identified as typical prenatal class participants [Table 3]. While ACE respondents generally provided prenatal education in groups of 5–10, nurses reported larger class sizes (10–15+). Both ACEs and nurses identified broad age ranges for class participants who were typically first-time mothers with singleton pregnancies. Only ACE respondents (64%) reported class participants having conceived through assisted reproductive technologies (nurses: 0; $P = 0.0020$, Chi-square).

Women marginalized by Indigenous status, citizenship, race/ethnicity, physical ability, and age were perceived as missing from prenatal interventions [Table 4]. ACE reported significantly lower prenatal participation from women of low socioeconomic status (SES) compared to nurse respondents ($P < 0.05$, Chi-square). Primary barriers to prenatal class attendance were identified as language, limited time, childcare, and transportation – the latter reported primarily by ACE respondents [$P < 0.05$, Chi-square; Table 5].

Ottawa prenatal educators perceived communities that are socially-excluded due to systemic racism and colonialism, and young/teen mothers at greatest risk for adverse outcomes. Pregnant women marginalized by poverty, lack of education, Indigenous or citizenship status, disability, and language barriers were identified as at risk for adverse obstetrical outcomes.

> *"The high risk clients and often missed population when it comes to prenatal education are new immigrants, visible minorities and aboriginal women. It would be great to create online prenatal classes in different languages* and/or *find a way to reach these high risk clients and offer in person prenatal education."* – Public health nurse.

> *"Black women and immigrant women - racism plays out everywhere, including the prenatal health settings. Stats show that infant mortality is higher among Black women"* – Restorative exercise specialist/social worker.

While nurses considered SES as a major barrier for pregnant adolescents, ACE respondents suggested that young women lack independence and autonomy:

> *"Teen moms. In my experience as a doula, younger mothers are often not taken seriously when they have a concern."* – Doula/childbirth educator.

> *"Teen mothers. They are not typically given all of their options by hospital staff. Instead, they are told what to do …"* – Doula.

Recommendations

ACE respondents desired greater collaboration with prenatal healthcare providers.

> *"Obstetricians should be recommending good prenatal classes and doula[s] to their clients."* – Doula.

> *"Work with OB/GYN to encourage attending classes - birth is just one tiny piece of what being a parent is! Same with family physicians. Midwives do a good job*

Table 3: Prenatal class characteristics reported by prenatal educators

Characteristics	ACE (*n*=11)	Nurse (*n*=10)
Mix (pregnant women in couples, with friends/family members, alone)	2	2
Mostly pregnant woman accompanied by their partner	8	8
Mostly pregnant woman attending alone	1	0
Class size		
5-10 attendees	7**	0
10-15 attendees	1	4
15+attendees	2	5
Variable class size (small to large)	1	1
Gestational characteristics		
Singleton pregnancies	10	9
Twin or multiple pregnancies	3	0
Planned conception through sexual intercourse	9	5
Unplanned conception through sexual intercourse	7	1
Conception through assisted reproductive technologies	7**	0
First-time mother	8	8
Mothers (multigravida or para1) who have not attended classes in the past	5	4
Mothers (multigravida or para1) who have attended classes in the past	3	0
Other (please specify) _____	1	1

**P=0.0020, Chi-Square. ACE=Allied childbirth educator

Table 4: Groups of Ottawa women reported to be typically absent from prenatal classes

Absent groups	ACE (*n*=11)	Nurse (*n*=10)
Aboriginal women	7	10
Immigrant women	6	7
Women from visible minority communities	3	7
Francophone women	4	4
Low SES women	3	8*
LGBTQ women	6	6
Women over the age of 40 years	3	3
Single women	5	6
Teen women	6	9
Women with a physical disability	9	10
Women with a mental illness	3	3
Women who live in rural communities	3	6
Women with hearing impairments	0	2
Unsure	1	0

*P<0.05, Chi-Square. ACE=Allied childbirth educator, SES=Socioeconomic status, LGBTQ=Lesbian, gay, bisexual, transgender, queer

Table 5: Instructors' perceived barriers preventing pregnant women from attending prenatal classes

Barriers	ACE (*n*=11)	Nurse (*n*=10)
Lack of childcare	4	2
Language (mother tongue other than English/French)	8	7
Limited time	6	4
Limited transportation	9*	4
Prenatal class schedule conflicts	7	5
Unable to commit to multiple prenatal class sessions	5	3
Perceived discrimination	1	5
Perceived racism	1	2
Lack of a partner	3	7
Lack of accommodation for disabilities	2	2
Prefers to attend specialized/targeted prenatal classes or pregnancy circles	3	2
Prefers to attend hospital-based prenatal classes	2	1
Prefers to use commercial prenatal classes	2	1
Prefers to use online prenatal classes	2	0
Receives prenatal health promotion from a healthcare provider (e.g., midwife, physician)	2	2

*P<0.05, Chi-Square. ACE=Allied childbirth educator

and the system allows more time to be spent with [the] parent-to-be." – Lactation consultant.

Both nurses and ACE recommended that prenatal classes should be more inclusive and tailored to accommodate the needs of single women, non-English speakers, and at-risk communities.

"As there are more and more older women without partners having children, it would be good to have prenatal classes that are not geared toward couples." – Registered massage therapist/doula.

"Provide prenatal education in Canadian context with client[']s culture." – Public health nurse.

Respondents encouraged prenatal classes targeted to specific groups with emphasis on the class dynamics to enable interpersonal exchanges in small-group settings.

"Offering a variety of class options/online and in person. People are looking for ways to connect and keep relationship after sessions." – Doula/childbirth educator.

"Make [it] more inclusive, have face to face groups, interactive approach, have the educators trained in group dynamics (which is a m[a]jor lack right now)" – Registered nurse.

ACE participants articulated apparent tensions between their more "holistic," "birth as a natural process" philosophy, and the more medicalized models used by nurses and other health practitioners.

"Dialogues … around the concept of 'medical authority' would be good. Also, ways in which the healthcare system is problematic - how policy lags behind best practice,… how people have lost innate knowledge and abilities with the hospitalization of birth." – Registered massage therapist/doula.

ACE encouraged discussion around informed consent and medical paternalism along with greater emphasis on normal newborn development and behavior, parental support, and the value of integrating independent prenatal educators.

> *"The informed choice process is missing. Most women don't know that they have a right to not consent to interventions"* – Restorative exercise specialist/social worker.

> *"Birth is often perceived as scary for women[.] More information on the normalcy of birth and how to avoid intervention. As well as promoting healthy positive birth."* –Lamaze/prenatal yoga instructor.

A female nurse admitted that the local health agency, "*… messages are very medical model focussed* [sic]. *We should be mindful of and respectful of the multitude of believes* [sic] *and values that exist in our global community*." Several nurses recommended greater emphasis on lifestyle risks to pregnancy, mental health, choices about healthcare providers, and perinatal sexuality.

> "*There should be a session just on mental health before during and after birth for future moms and their partners. Drugs and Substance misuse in general. Nutrition. Prenatal and postnatal medical follow-up/different tests/ difference between having a midwife and MD*" – Nurse.

Discussion

Our study of Ottawa prenatal educators revealed both similar and distinct ACE/nurse-reported prenatal class characteristics, experiences, and perceptions. Although pregnancy, labor, and postpartum topics were well addressed, established and emerging risks to pregnancy were omitted. Lifestyle risks to pregnancy and general prenatal health promotion were more often discussed by nurses, whereas ACE respondents provided a holistic approach, with emphasis on the individual.

Prenatal care guidelines typically subsume prenatal education and promotion within the larger scope of healthcare interventions, such that it is typically healthcare providers with access to emerging prenatal health information.[3,20,21] However, it is more often prenatal educators, many of whom are not healthcare professionals and therefore lack specialized training in emerging prenatal health risks, who will provide prenatal education. Prenatal instructors' diversity of experience, practice, philosophy, and training is recognized as a determinant of the quality of prenatal education.[5]

Our respondents were passionate about their roles as prenatal educators, preferring face-to-face interactions over online formats for prenatal education. Women in several studies report interactions with other pregnant women as one of the benefits of classes,[1,14] i.e., seeking to share experiences of labor, birth, and motherhood[22] and engage in peer support.[23] Commercially available online prenatal resources, promoted by Canadian public health agencies, provide broadly comprehensive and evidence-based promotion of prenatal health topics. Recognizing that newer generations of women rely on social media for human connection and interaction, hybrid-format prenatal classes which blend social media/apps with traditional face-to-face prenatal classes are novel solutions.[24]

Prenatal education content

Promotion of a wide range of prenatal topics, including lifestyle risks to pregnancy, adherence to GWG guidelines, and warning signs related to obstetrical complications, is associated with adoption of health behaviors during pregnancy.[3,11,16] Most prenatal educators reported little to no coverage of GWG or physical activity topics in their prenatal interactions [Figure 2], consistent with two Canadian studies which determined that GWG promotion was primarily obtained from books/internet and, to a lesser extent, health professionals, but not from prenatal classes.[17,25] Excessive GWG is associated with gestational diabetes, preeclampsia, macrosomia, and related birth complications[25] such that GWG should be greater emphasized in prenatal classes.

Pregnancy represents an established vulnerability to acute respiratory infections, including seasonal influenza and SARS[26] and undoubtedly to emerging coronaviruses such as MERS and COVID-19, although data are limited. Prenatal promotion of seasonal influenza vaccination appears to be a major gap, as less than a third of the nurses and none of the ACE respondents indicated prenatal class coverage [Table 2]. Seasonal influenza is associated with increased morbidity and mortality in pregnant women,[26] with the recommendations for annual influenza immunization for all women pregnant or planning to conceive by both the CDC[3] and Public Health Agency of Canada.[2] Prenatal educators have the potential to bridge public health agencies' health risk communication of both established (e.g., sexually transmitted infections, influenza) and emerging infectious diseases (e.g., COVID-19).

Communities at risk

Social exclusion, Indigenous and immigration status, physical disability, and adolescent age were among the characteristics of women absent from Ottawa prenatal classes, as identified by our respondents and consistent with previous studies.[13,27] Although community and public health delivery of prenatal education aimed to reduce barriers,[2] disparities in service utilization persist.

Women with disabilities face a number of barriers during pregnancy including informational, attitudinal, and physical.[28,29] Almost all Ottawa respondents reported that women with physical disabilities were absent from their prenatal education settings; however, failure to accommodate physical disabilities was not recognized as a major participation barrier [Table 5]. Prenatal education can facilitate access to information and resources, recognizing that informational barriers and stigma often lead to late onset of prenatal care.[29]

The experiences of Indigenous women in Canada include social exclusion and intergenerational trauma from residential schools and colonialism such that access to culturally safe prenatal care and education is a significant challenge.[2,18,30] Recommendations to implement the Truth and Reconciliation Commission's Calls to Action emphasize cultural competency training;[2] however, cultural safety further acknowledges power differentials in the provider relationship and includes trust building.[30] This concept of cultural safety should be further framed for ethnic, immigrant, and refugee communities for the provision of prenatal education.

Interprofessional prenatal education

As described, the field of prenatal education is diverse – comprised healthcare professionals and increasingly the heterogeneous group of ACE. Ottawa ACE respondents advocated for recognition of their contributions to prenatal education and recommended interprofessional referrals and collaborations. ACE respondents were more critical of the biomedical approach to birth, emphasizing that the concept of informed consent, as related to refusing medical interventions, was an important knowledge gap for most pregnant women. Our findings document divergent professional philosophies, consistent with a North American study which reported that nurses' positive attitudes toward doulas were contingent on their acceptance of biomedical doctrine.[31] Interprofessional models of maternity care, including roles for doulas and childbirth educators, are increasingly recognized as beneficial to the promotion of physiologic birth, reduced interventions, better engagement of diverse communities, and improvement of health equity.[20,32]

Limitations

Our sample of prenatal educators is not representative; however, the number of active, full-time public health nurse instructors in Ottawa is about four in any given year, with at least 45 unique, ACE-domain educators estimated from online websites in Ottawa. Prenatal education typically does not include individualized healthcare providers,[1] although the experiences of midwives and physicians, as well as pregnant women, would have provided valuable perspectives to our evaluation of Ottawa prenatal education. Finally, the ACE group was heterogeneous, with many respondents identifying multiple job titles and certifications and unique educational/employment histories; however, this reflects the current lack of standardization among ACE professionals.

Conclusions

Both groups of Ottawa prenatal educators similarly emphasize pregnancy, labor, and postpartum issues to predominantly primigravid women carrying singleton pregnancies, despite the heterogeneous training of ACE respondents. Nurses were more likely to discuss lifestyle risks to pregnancy and general prenatal health promotion. GWG, promotion of the influenza vaccine, and environmental/occupational risks to pregnancy were not well addressed. Recognition of the diversity of prenatal educators in our communities is a first step toward interprofessional collaborations, which in turn can improve the quality of prenatal education and better address the needs of women at risk of adverse obstetrical outcomes.

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Conflicts of interest

There are no conflicts of interest.

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