Comparison of Maternity Experiences of Canadian-Born and Recent and Non-Recent Immigrant Women: Findings From the Canadian Maternity Experiences Survey

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Abstract

Objective: To compare the maternity experiences of immigrant women (recent, ≤ 5 years in Canada; non-recent > 5 years) with those of Canadian-born women.

Methods: This study was based on data from the Canadian Maternity Experiences Survey of the Public Health Agency of Canada. A stratified random sample of 6421 women was drawn from a sampling frame based on the 2006 Canadian Census of Population. Weighted proportions were calculated using survey sample weights. Multivariable logistic regression was used to estimate odds ratios comparing recent immigrant women with Canadian-born women and non-recent immigrant women with Canadian-born women, adjusting for education, income, parity, and maternal age.

Results: The sample comprised 7.5% recent immigrants, 16.3% non-recent immigrants, and 76.2% Canadian-born women. Immigrant women reported experiencing less physical abuse and stress, and they were less likely to smoke or consume alcohol during pregnancy, than Canadian women; however, they were more likely to report high levels of postpartum depression symptoms and were less likely to have access to social support, to take folic acid before and during pregnancy, to rate their own and their infant's health as optimal, and to place their infants on their backs for sleeping. Recent and non-recent immigrant women also had different experiences, suggesting that duration of residence in Canada plays a role in immigrant women's maternity experiences.

Conclusion: These findings can assist clinicians and policy-makers to understand the disparities that exist between immigrant and non-immigrant women in order to address the needs of immigrant women more effectively.

Key Words: Emigration, immigration, Canada, postpartum period, perinatal, pregnancy, newcomer, maternity care

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Résumé

Objectif : Comparer les expériences de maternité vécues par des femmes immigrantes (immigration récente, ≤ 5 ans au Canada; immigration non récente > 5 ans) à celles qui ont été vécues par des femmes nées au Canada.

Méthodes : La présente étude était fondée sur des données issues de l'Enquête canadienne sur l'expérience de la maternité de l'Agence de la santé publique du Canada. Un échantillon aléatoire stratifié de 6 421 femmes a été tiré d'un cadre d'échantillonnage fondé sur le Recensement de la population canadienne de 2006. Les proportions pondérées ont été calculées au moyen

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de coefficients de pondération d'échantillon d'enquête. Une régression logistique multivariée a été utilisée pour estimer les rapports de cotes comparant les femmes dont l'immigration était récente aux femmes nées au Canada, ainsi que ceux qui comparaient les femmes dont l'immigration n'était pas récente aux femmes nées au Canada, tout en neutralisant l'effet exercé par l'éducation, le revenu, la parité et l'âge maternel.

Résultats : L'échantillon était composé de 7,5 % de femmes dont l'immigration était récente, de 16,3 % de femmes dont l'immigration n'était pas récente et de 76,2 % de femmes nées au Canada. D'après leurs réponses à l'enquête, les immigrantes ont vécu moins de sévices physiques et de stress que les Canadiennes; de plus, elles étaient moins susceptibles de fumer ou de consommer de l'alcool pendant la grossesse que ces dernières. Cependant, elles étaient plus susceptibles de signaler des taux élevés de symptômes de dépression postpartum et étaient moins susceptibles d'avoir accès à du soutien social, de prendre de l'acide folique avant et pendant la grossesse, d'indiquer que leur santé et celle de leur enfant étaient optimales, et de positionner leurs enfants sur le dos au coucher. Des différences ont également été constatées entre les femmes dont l'immigration était récente et celles dont l'immigration n'était pas récente, laissant ainsi entendre que la durée de résidence au Canada jouait un rôle dans la façon dont les immigrantes vivent leur maternité.

Conclusion : Ces résultats pourraient aider les cliniciens et les décideurs à comprendre les disparités qui existent entre les immigrantes et les femmes non immigrantes, et ce, afin de répondre aux besoins des immigrantes de façon plus efficace.

INTRODUCTION

According to 2006 Canadian Census data, 19.8% of Canada's total population is foreign-born.[1] This is the highest proportion observed during the past 75 years and represents an increase of 13.5% in the foreign-born complement during the period 2001 to 2006.[1] Given that a vast majority of newcomers are young families and women in their childbearing years,[1] the rapid growth of the immigrant population in Canada has implications for planning and delivery of maternal-child health care services to meet the needs of this group.

Immigrant women have unique influences on their perinatal health and birth outcomes. Concepts that aim to explain the risk differentials between immigrant and non-immigrant women include the "healthy migrant effect" (e.g., recent immigrant women have lower risks of some adverse birth outcomes than non-immigrant women)[2]; acculturation (i.e., over time, risks of adverse birth outcomes become similar to those of non-immigrant women)[3]; and the epidemiological paradox (of immigrant women with lower socioeconomic status having better birth outcomes than those with higher socioeconomic status).[2] However, the nature of the maternal/infant health differences between immigrant and non-immigrant women is not always well understood or straightforward.[2] For example, some studies have demonstrated that the healthy migrant effect may be limited to specific countries of birth[4,5] or to particular neonatal outcomes.[3] Other studies and reviews have suggested that an increase in perinatal risk over time may be a result of acculturation involving the adoption of poor health behaviours,[6,7] while others have found no such association.[8]

Given the lack of understanding of the mechanisms underlying the differences between recent immigrant, non-recent immigrant, and non-immigrant women,[9] comparing immigrant and non-immigrant women's experiences and health behaviours during pregnancy and postpartum may enable clinicians and policy-makers to understand and address these differences more fully. However, few studies have described the maternity experiences of immigrant women[10–13] or compared experiences between immigrant and non-immigrant women.[14–18] Much of the focus of previous studies has been on postpartum experiences of new mothers,[15,16,18] and very few have considered the broader spectrum of maternity experiences.[17] These studies have highlighted the heterogeneity of immigrant women's maternity experiences and issues[16] and have proposed that such experiences be explored among subgroups of immigrant women (e.g., by their duration of residence).[16] Given that different health care systems may offer different challenges for immigrant childbearing women, comparison of the prenatal and postpartum experiences of recent and non-recent immigrant with those of non-immigrant women in the Canadian context is warranted. Therefore, the purpose of this study was to compare the experiences, characteristics, and health behaviours of recent and non-recent immigrant women with those of Canadian-born women using population-based data from the Canadian Maternity Experiences Survey.

ABBREVIATIONS

EPDS	Edinburgh Postnatal Depression Scale
LICO	low-income cut-off level
MES	Maternity Experiences Survey
SIDS	sudden infant death syndrome

METHODS

The Maternity Experiences Survey of the Public Health Agency of Canada was designed to provide insight into Canadian women's knowledge, experiences, and practices during pregnancy, birth, and the first six

months postpartum.[19,20] A stratified random sample of 8542 women who had recently given birth was drawn from a sampling frame (n = 58 972) based on the 2006 Canadian Census of Population.[20] Given that recent immigrant women were one of the particular groups of interest, the sampling strategy involved oversampling of this population. Women were eligible for the study if they were 15 years of age or over, had delivered a live, singleton infant, and were living with their infant at the time of the interview. Women living on First Nations reserves or in institutions at the time of the survey were excluded for operational reasons.[20] A detailed description of the sampling process, questionnaire development, survey methodology, and information on data quality and data weighting is reported elsewhere.[20–22]

Data were collected by trained female interviewers from Statistics Canada using computer-assisted telephone interviews conducted in English and French. A glossary of key survey terms that had been translated into Arabic, Korean, Mandarin, Russian, Spanish, Tamil, Urdu, and Vietnamese was also available to the interviewers.[20] Interviews conducted in these languages were completed by interviewers who were fluent in these languages and had access to the translated glossaries of terms. The response rate was 78% (n = 6421), with most mothers (96.9%) interviewed five to nine months postpartum.[20]

Definition of Selected Variables

The variables examined in this study are defined in Tables 1 to 5, and include demographic characteristics (Table 1); psychosocial factors (Table 2); health behaviours (Table 3); pregnancy, delivery, and postpartum experience (Table 4); and health care utilization and satisfaction (Table 5). Household low-income cut-off levels are constructed by Statistics Canada and represent the household income level at which a family may be in straitened circumstances because it has to spend a substantial proportion of its income on food, clothing, and housing.[23] Postpartum depression was defined by a score of 13 or higher on the Edinburgh Postnatal Depression Scale.[24] The EPDS has been psychometrically evaluated in several developed and developing countries.[25] For the measure of stressful life events, women were asked to indicate whether they had personally experienced any of 13 stressful life events during the 12-month period before the birth of their baby from a modified version of the Newton and Hunt scale (Table 1).[26] Our definition of high stress as three or more stressful life events and low stress as fewer than three events was based on the distribution of numbers of stressful life events experienced by most women in the US-based Pregnancy Risk Assessment Monitoring System using the same instrument.[27]

Data Analysis

A recent immigrant was defined as a woman who was born outside Canada who had resided in Canada for five years or less at the time of survey completion. A non-recent immigrant was a woman born outside Canada who had resided in Canada for more than five years. For each variable, weighted proportions were calculated using survey sample weights, with the weighted sample representing 75 863 women. For demographic variables, 95% confidence intervals for the weighted proportions were reported. For all other variables, we used logistic regression to calculate odds ratios comparing (a) recent immigrant women with Canadian-born women and (b) non-recent immigrant women with Canadian-born women. In multivariable logistic regression analyses, we adjusted for education level (lower than high school versus high school or higher), income (at or below LICO, above LICO, missing LICO), and parity (primiparous versus multiparous) at the time of the interview, as well as maternal age at the time of the birth. Aside from the household income variable, variable-level data were missing for less than 5% of all records.[20] Therefore, missing cases were not included in these analyses. However, because immigrant women had more missing income data than Canadian-born women, we included those with missing income data in our regression analyses. The BOOTVAR 3.0 for SAS Program (Statistics Canada, Ottawa) was used to calculate variance estimates and coefficients of variation for prevalence and 95% confidence intervals for odds ratios. Coefficients of variation ≤ 16.5% were considered to be reliable estimates; those between 16.6% and 33.3% were marginal and those > 33.3% were unreliable because of the high level of error inherent in the estimate. Statistical significance for all analyses was set at $P < 0.05$. Analyses were conducted using SPSS V.16.0 (IBM Corp., Armonk NY).

The research protocol was reviewed by Health Canada's Science Advisory Board and Research Ethics Board, and the Federal Privacy Commissioner. Approval was received from Statistics Canada's Policy Committee prior to implementation.

RESULTS

Demographic characteristics of our sample are described in Table 1. Our total weighted sample of 75 863 women comprised 7.5% recent immigrant (n = 5703), 16.3% non-recent immigrant (n = 12 355) and 76.2% Canadian-born (n = 57 805) women, with roughly one half of the recent and non-recent immigrants being born in Asia. Compared with Canadian-born women, a higher proportion of recent and non-recent immigrant women were primiparous, had

Table 1. Comparison of demographic factors for recent immigrant women, non-recent immigrant women, and Canadian-born women, using weighted proportions

	Recent immigrant (weighted n = 5703)		Non-recent immigrant (weighted n = 12 355)		Canadian-born (weighted n = 57 805)	
Demographic factors	Weighted %	95% CI	Weighted %	95% CI	Weighted %	95% CI
Maternal age, years						
≤ 19	*	*	1.2†	0.5 to 1.9	3.5	3.3 to 3.8
20 to 34	83.9	80.2 to 87.6	70.6	67.6 to 73.6	81.1	80.1 to 82.0
≥ 35	15.5	11.9 to 19.1	28.3	25.3 to 31.2	15.5	14.5 to 16.4
Region of birth‡						
America	14.2	10.7 to 17.7	22.1	19.3 to 24.8	—	—
Europe	14.5	11.1 to 18.0	21.6	18.8 to 24.3	—	—
Africa	12.6	9.2 to 15.9	9.2	7.2 to 11.1	—	—
Asia	57.6	52.5 to 62.6	46.5	43.3 to 49.7	—	—
Maternal education						
≥ High school	92.1	89.3 to 94.9	93.0	91.3 to 94.8	92.3	91.6 to 93.0
< High school	7.9†	5.1 to 10.8	7.0	5.2 to 8.7	7.7	7.0 to 8.4
Income, $						
< 20 000	15.0	11.4 to 18.6	10.4	8.4 to 12.5	7.8	7.1 to 8.5
20 000 to 39 999	29.3	24.5 to 34.1	19.0	16.2 to 21.8	15.4	14.4 to 16.4
40 000 to 80 000	29.8	25.1 to 34.5	32.3	29.2 to 35.4	38.8	37.4 to 40.2
> 80 000	10.5	7.3 to 13.7	31.0	27.9 to 34.1	33.8	32.5 to 35.1
Missing income	15.4	11.8 to 19.1	7.3	5.5 to 9.0	4.2	3.7 to 4.8
Household income						
> LICO level	43.0	38.1 to 48.0	64.4	61.2 to 67.6	77.7	76.5 to 78.8
≤ LICO level	36.7	31.9 to 41.5	25.1	22.0 to 28.1	15.3	14.3 to 16.2
Missing LICO data	20.3	16.2 to 24.3	10.6	8.5 to 12.6	7.1	6.3 to 7.8
Place of residence						
Urban	93.8	91.4 to 96.2	90.1	89.0 to 92.9	79.2	78.1 to 80.3
Rural	6.2†	3.9 to 8.6	9.1	7.1 to 11.0	20.8	10.7 to 21.9
Parity						
Multiparous	46.4	41.3 to 51.2	62.4	59.1 to 65.5	53.7	52.7 to 54.7
Primiparous	53.5	48.7 to 58.5	37.6	34.4 to 40.8	46.3	45.3 to 47.2

*Coefficient of variation > 33.4 (unreportable)

†Coefficient of variation 16.6 to 33.3

‡Reported only for immigrant women; Oceania too small to report

household incomes at or below the LICO level, and lived in urban areas (Table 1).

Comparisons of psychosocial factors are reported in Table 2. No differences were observed across the groups in their attitudes towards the timing of pregnancy or perceived stress. Both recent and non-recent immigrant women were more likely than Canadian-born women to perceive that they received less social support during their pregnancy or the postpartum period and to score ≥ 13 on the EPDS. Both groups reported lower proportions of stressful life events and abuse. Recent immigrant women were almost twice as likely to report that they did not have enough information about postpartum depression.

Fewer recent and non-recent immigrant women reported taking folic acid before pregnancy, and recent immigrant women were less likely to take folic acid during pregnancy (Table 3). They were also more likely to report that they did not have enough information about the benefits of folic acid to help prevent some birth defects. Both immigrant groups were less likely to report smoking during pregnancy or the postpartum period or to drink alcohol during their pregnancy.

We found no differences between the groups in the timing of initiation of prenatal care, the presence of the women's partner during delivery, the rates of Caesarean section, or the rates of breastfeeding initiation (Table 4). Significantly more recent immigrant and non-recent immigrant women had an obstetrician for their prenatal care and their labour and delivery than Canadian-born women (data not shown). Fewer recent and non-recent immigrant women attended prenatal classes or travelled to give birth (Table 4). No differences were found among the groups in the proportions who rated their overall labour

Table 2. Comparison of psychosocial variables for recent immigrant women, non-recent immigrant women, and Canadian-born women, using weighted proportions and adjusted odds ratios

	Recent immigrant (weighted n = 5703)		Non-recent immigrant (weighted n = 12 355)		Canadian-born (weighted n = 57 805)	
Psychosocial variables	Weighted %	aOR* (95% CI)	Weighted %	aOR* (95% CI)	Weighted %	aOR* (95% CI)
Attitude towards timing of pregnancy						
Wanted to be pregnant then or sooner	72.1		72.4		73.2	
Wanted to be pregnant later or not at all	27.9	0.95 (0.72 to 1.25)	27.6	1.03 (0.86 to 1.23)	26.8	1.00 (reference)
Support during pregnancy						
Support available all or most of the time	74.1		78.9		90.0	
Support available none, little, or some of the time	25.9	2.31 (1.73 to 3.08)	21.1	1.84 (1.52 to 2.24)	10.0	1.00 (reference)
Support during postpartum period						
Support available all or most of time	67.8		76.7		87.1	
Support available none, little, or some of the time	32.2	2.54 (1.96 to 3.30)	23.3	1.57 (1.31 to 1.88)	12.9	1.00 (reference)
Experienced any abuse in past 2 years						
No	94.9		94.3		87.3	
Yes	5.1†	0.40 (0.24 to 0.66)	5.7	0.45 (0.32 to 0.61)	12.7	1.00 (reference)
Perceived stress in 12 months prior to birth						
Most days somewhat or not stressful	88.4		87.6		87.5	
Most days very stressful	11.6	0.86 (0.60 to 1.24)	12.4	0.95 (0.76 to 1.19)	12.5	1.00 (reference)
Number of stressful life events in 12 months prior to birth						
< 3	89.9		87.6		81.2	
≥ 3	10.1	0.40 (0.27 to 0.59)	12.4	0.61 (0.49 to 0.76)	18.8	1.00 (reference)
Postpartum depression						
EPDS < 13	86.8		88.5		94.0	
EPDS ≥ 13	13.2	1.75 (1.24 to 2.47)	11.5	1.70 (1.31 to 2.20)	6.0	1.00 (reference)
Had enough information about postpartum depression						
Yes	85.5		90.1		92.8	
No	14.5	1.61 (1.16 to 2.25)	9.9	1.27 (0.98 to 1.66)	7.2	1.00 (reference)

aOR: adjusted odds ratio

*Adjusted for income, education, parity, and marital status at the time of the interview and maternal age at the time of the birth.

†Coefficient of variation 16.6 to 33.3

and birth experience as "very positive." However, non-recent immigrants were more likely than Canadian-born women to indicate that their experience was "somewhat positive" (rather than "very positive").

Recent and non-recent immigrant women were more likely than Canadian-born women to report that they received help to start breastfeeding in hospital, and recent immigrant women were more likely to engage in "any" breastfeeding at three months (Table 4). Both groups of immigrant women were also more likely than Canadian-born women to rate their infant's health as "very good" or "other" (i.e., good, fair, or poor) than "excellent," to rate their own health as "other," to put their infants in a sleeping position other than on their backs, and to report that they did not have enough information about SIDS.

Compared with Canadian-born women, fewer recent and non-recent immigrant women were contacted by a health care provider at home after hospital discharge or saw a health care provider for a non-routine postpartum visit for themselves. Non-recent immigrant women were less likely than other groups to take their infants to a health care provider for a non-routine visit and were more likely to report that they found it difficult to see a provider for their own and their infant's care (Table 5). However, there were no differences between groups in their satisfaction with the compassion, competence, privacy, or respect demonstrated by their health care provider or their own involvement in decision-making (data not shown). Finally, 16.8% of recent immigrant and 7.2% of non-recent immigrant women reported that they did not receive information and care during pregnancy, labour and delivery, or the immediate

Table 3. Comparison of health behaviours for recent immigrant women, non-recent immigrant women, and Canadian-born women, using weighted proportions and adjusted odds ratios

	Recent immigrant (weighted n = 5703)		Non-recent immigrant (weighted n = 12 355)		Canadian-born (weighted n = 57 805)	
Health behaviours	Weighted %	aOR* (95% CI)	Weighted %	aOR* (95% CI)	Weighted %	aOR* (95% CI)
Took a multivitamin with folic acid or a folic acid supplement in the 3 months prior to becoming pregnant						
Yes	40.5		52.0		60.8	
No	59.5	1.92 (1.49 to 2.48)	48.0	1.37 (1.16 to 1.62)	39.2	1.00 (reference)
Took a multivitamin with folic acid or a folic acid supplement in the first 3 months of pregnancy						
Yes	84.8		89.4		90.4	
No	15.2	1.55 (1.08 to 2.20)	10.6	1.02 (0.79 to 1.32)	9.6	1.00 (reference)
Before pregnancy knew that taking folic acid could help prevent some birth defects						
Yes	54.2		69.0		82.1	
No	45.8	2.99 (2.29 to 3.90)	31.0	2.01 (1.67 to 2.42)	17.9	1.00 (reference)
Any smoking postpartum						
No	96.3		95.8		79.5	
Yes	3.7†	0.30 (0.10 to 0.31)	4.2	0.18 (0.12 to 0.25)	20.5	1.00 (reference)
Any drinking of alcohol during pregnancy						
No	94.6		92.9		88.3	
Yes	5.4†	0.59 (0.36 to 0.97)	7.1	0.55 (0.41 to 0.75)	11.7	1.00 (reference)

aOR: adjusted odds ratio

*Adjusted for income, education, parity, and marital status at the time of the interview and maternal age at the time of the birth.

†Coefficient of variation 16.6 to 33.3

postpartum period in a language they spoke well enough to conduct a conversation.

DISCUSSION

We found a number of substantive differences between immigrant and Canadian-born women. In some regards, immigrant women had more positive maternity experiences than Canadian-born women. For example, they experienced less physical abuse and fewer stressful life events, and they were less likely to smoke and consume alcohol during their pregnancy than Canadian-born women. However, this study identified some less positive aspects of immigrant women's maternity experiences that, although of concern, are modifiable. Immigrant women experienced higher rates of postpartum depression symptoms, were less likely to have support available "all" or "some" of the time, and were less likely to rate their own or their infant's health as "excellent." They were also less likely to practise some recommended health behaviours, such as taking folic acid before and during pregnancy and placing their infants on their backs to sleep. In addition, the finding that some experiences were unique to recent immigrant women (e.g., inadequate information about postpartum depression; longer breastfeeding duration) and non-recent immigrant women (e.g., less likely to take infant to doctor) suggests that duration of residence plays a role in immigrant women's maternity experiences.

The characteristics of women in this study reflect immigration trends in Canada; the majority of immigrant women were born in Asian countries and tended to settle in urban areas.[1] Like Sword et al.,[18] we found that both recent and non-recent immigrant women perceived that they had less access than Canadian-born women to social support during the postpartum period. Our finding that support was also inadequate during pregnancy suggests that it may be a chronic issue for many immigrant women regardless of their length of residency in Canada. This is notable, because poor support has been linked to postpartum depression in immigrant women.[28,29] Our findings are consistent with studies that found that immigrant women score significantly higher on the EPDS administered postnatally than Canadian-born women.[18,29,30]

Table 4. Comparison of pregnancy, delivery, and postpartum experiences for recent immigrant women, non-recent immigrant women, and Canadian-born women, using weighted proportions and adjusted odds ratios

	Recent immigrant (weighted n = 5703)		Non-recent immigrant (weighted n = 12 355)		Canadian-born (weighted n = 57 805)	
Pregnancy, delivery, and postpartum Experiences	Weighted %	aOR* (95% CI)	Weighted %	aOR* (95% CI)	Weighted %	aOR* (95% CI)
Received prenatal care later than wanted						
No	84.6		88.9		89.1	
Yes	15.4	1.24 (0.90 to 1.72)	11.1	1.02 (0.80 to 1.29)	10.9	1.00 (reference)
Initiated prenatal care late (after first trimester)						
No	93.1		93.8		95.3	
Yes	6.9†	1.19 (0.73 to 1.93)	6.2	1.30 (0.92 to 1.84)	4.7	1.00 (reference)
Attended prenatal classes						
Yes	32.0		23.3		34.9	
No	68.0	1.56 (1.09 to 2.21)	76.7	1.70 (1.35 to 2.15)	65.1	1.00 (reference)
Travelled to give birth						
No	93.5		84.3		70.3	
Yes	6.5†	0.24 (0.15 to 0.37)	15.7	0.50 (0.40 to 0.62)	29.7	1.00 (reference)
Partner present during birth						
Yes	90.3		91.3		92.8	
No	9.7	1.04 (0.70 to 1.55)	8.7	1.04 (0.78 to 1.40)	7.2	1.00 (reference)
Type of delivery						
Vaginal	70.5		74.5		73.7	
Caesarean section	29.5	1.20 (0.94 to 1.53)	25.5	0.91 (0.77 to 1.08)	26.3	1.00 (reference)
Overall rating of labour and birth experience						
Very positive	54.6		51.0		54.5	
Somewhat positive	26.3	0.92 (0.71 to 1.20)	30.0	1.28 (1.07 to 1.53)	25.4	
Other (very negative, somewhat negative, neither positive nor negative)	19.1	0.98 (0.80 to 1.21)	19.1	0.93 (0.75 to 1.16)	20.1	1.00 (reference)
Initiated any breastfeeding						
No	2.5†		3.0†		11.8	
Yes	97.5	1.07 (0.78 to 1.48)	97.0	0.94 (0.79 to 1.13)	88.2	1.00 (reference)
Received help to start breastfeeding in hospital						
No	11.8		15.8		20.7	
Yes	88.2	1.74 (1.16 to 2.62)	84.2	1.45 (1.17 to 1.81)	79.3	1.00 (reference)
Any breastfeeding at 3 months‡						
No	8.4†		16.6		25.1	
Yes	91.6	1.76 (1.18 to 2.62)	83.4	1.08 (0.84 to 1.39)	74.9	1.00 (reference)
Infant sleep position						
Mother put infant on back to sleep	68.2		74.2		79.3	
Mother put infant in “other” sleep position	31.8	1.52 (1.18 to 1.97)	25.8	1.21 (1.02 to 1.44)	20.7	1.00 (reference)
Had enough information about sudden infant death syndrome						
Yes	79.6		85.1		92.4	
No	20.4	2.53 (1.89 to 3.38)	15.0	1.79 (1.44 to 2.23)	7.6	1.00 (reference)

Continued

Table 4. *continued*

Pregnancy, delivery, and postpartum Experiences	Recent immigrant (weighted n = 5703) Weighted %	Recent immigrant (weighted n = 5703) aOR* (95% CI)	Non-recent immigrant (weighted n = 12 355) Weighted %	Non-recent immigrant (weighted n = 12 355) aOR* (95% CI)	Canadian-born (weighted n = 57 805) Weighted %	Canadian-born (weighted n = 57 805) aOR* (95% CI)
Maternal rating of infant's health						
Excellent	49.9		64.2		74.4	
Very good	32.8	2.06 (1.58 to 2.69)	25.3	1.34 (1.12 to 1.60)	20.0	
Other (good, fair, poor)	17.3	3.78 (2.71 to 5.27)	10.5	1.62 (1.23 to 2.14)	5.5	1.00 (reference)
Maternal rating of own health						
Excellent	26.9		30.1		35.0	
Very good	34.9	1.15 (0.85 to 1.56)	36.0	1.06 (0.88 to 1.28)	40.1	
Other (good, fair, poor)	38.2	1.72 (1.28 to 2.32)	33.8	1.43 (1.18 to 1.74)	24.9	1.00 (reference)

aOR: adjusted odds ratio

*Adjusted for income, education, parity, and marital status at the time of the interview and maternal age at the time of the birth.

†Coefficient of variation 16.6 to 33.3

‡Based on the subset of women who initiated breastfeeding.

Like others,[31,32] we observed that immigrant women were less likely to take folic acid pre-conceptionally; however, we found no other studies that examined folic acid use by immigrant women during pregnancy. Of particular concern are recent immigrant women, because they were less likely to take folic acid pre-conceptionally and during pregnancy. Previous findings related to patterns of prenatal care use among immigrant women are inconsistent. Our results are consistent with those who have found no difference between immigrant and non-immigrant women in the number of prenatal care visits or the timing of initiation of prenatal care.[8] However, other studies have found that immigrant women start prenatal care significantly later, attend care less regularly (even in health care systems offering free prenatal care),[17,33] and do not access needed care for pregnancy complications.[34] Like Sword et al.,[18] we found recent and non-recent immigrant women tended to receive their care from an obstetrician, which is likely a reflection of their urban residence.

Our findings are similar to other studies that have found no difference in the prevalence of delivery by Caesarean section in immigrant versus non-immigrant women,[34,35] although some have reported higher odds among recent immigrants.[36] Given that Caesarean section rates have also been found to vary by country of birth,[37] further study is needed to understand these influences more fully. Our finding that almost 17% of recent immigrant and 7% of non-recent immigrant women could not receive care in a language in which they were conversant is of concern, because language barriers have been cited as deterrents to engaging in perinatal health care services.[28]

Few studies have explored breastfeeding experiences of immigrant women. Our finding that recent immigrant women had higher rates of any breastfeeding at three months aligns with others that have reported longer breastfeeding durations in immigrant women.[15] Both recent and non-recent immigrant women expressed a knowledge deficit regarding SIDS, and almost one third in each group did not put their infants on their backs to sleep. These findings may be, in part, related to cultural practices.

Immigrant mothers' tendency to perceive their health as suboptimal was observed by Sword et al.,[18] and our findings suggest that this perception is unrelated to length of residency in Canada. Their difficulty in accessing health care services has also been reported previously,[18,38] although our findings suggest that this concern is limited to non-recent immigrant women. That fewer non-recent immigrant women took their infant to a health care provider for a non-routine visit combined with their report that they found it difficult to see a provider for the infant may suggest that some immigrant women do not access the care they believe their infant requires. With respect to maternal care, it is unclear whether the significantly lower proportions of immigrant women who saw a health care provider for themselves were related to challenges in access, culturally-driven values, or lack of need for such services, although some investigators have found that

Table 5. Comparison of health care utilization and satisfaction with health care for recent immigrant women, non-recent immigrant women, and Canadian-born women, using weighted proportions and adjusted odds ratios

	Recent immigrant (weighted n = 5703)		Non-recent immigrant (weighted n = 12 355)		Canadian-born (weighted n = 57 805)	
Health care utilization and satisfaction with health care	Weighted %	aOR* (95% CI)	Weighted %	aOR* (95% CI)	Weighted %	aOR* (95% CI)
Infant taken to doctor or other health care provider for problem or illness other than routine check-up						
No	57.7		61.5		48.4	
Yes	42.3	0.88 (0.70 to 1.09)	38.5	0.63 (0.54 to 0.74)	51.6	1.00 (reference)
Mother found it difficult to see a health care provider for infant†						
No (or neither easy nor difficult)	83.1		83.1		87.9	
Yes	16.9	1.24 (0.77 to 2.00)	16.9	1.43 (1.03 to 2.00)	12.1	1.00 (reference)
Mother's satisfaction with infant care since birth						
Very satisfied	72.7		71.1		75.4	
Somewhat satisfied	20.5	1.05 (0.79 to 1.39)	23.1	1.33 (1.11 to 1.59)	18.8	
Other (somewhat dissatisfied, very dissatisfied, neither satisfied nor dissatisfied)	6.8§	1.21 (0.76 to 1.93)	5.8	1.11 (0.80 to 1.54)	5.8	1.00 (reference)
Was contacted at home by a health care provider (public health nurse, midwife) after birth						
Yes	84.3		90.0		94.9	
No	15.8	2.88 (2.03 to 4.09)	10.0	1.65 (1.25 to 2.18)	5.1	1.00 (reference)
Mother saw health care provider for herself after birth other than for a routine postpartum visit						
No	78.6		77.3		70.3	
Yes	21.4	0.71 (0.53 to 0.94)	22.8	0.73 (0.61 to 0.87)	29.7	1.00 (reference)
Mother found it difficult to see a health care provider for herself after birth‡						
No (or neither easy nor difficult)	77.8		77.2		86.2	
Yes	22.3§	1.49 (0.85 to 2.62)	22.8	1.85 (1.23 to 2.77)	13.8	1.00 (reference)
Mother's satisfaction with her postpartum care since the birth of the baby						
Very satisfied	60.1		62.1		67.3	
Somewhat satisfied	29.7	1.32 (1.01 to 1.72)	30.6	1.41 (1.19 to 1.67)	23.2	
Other (somewhat dissatisfied, very dissatisfied, neither satisfied nor dissatisfied)	10.2	1.24 (0.84 to 1.82)	7.3	0.87 (0.65 to 1.16)	9.5	1.00 (reference)

aOR: adjusted odds ratio

*Adjusted for income, education, parity, and marital status at the time of the interview and maternal age at the time of the birth.

†Based on the subset of women who saw a health care provider for their infant (recent immigrant n = 2402; non-recent immigrant n = 4735; Canadian-born n = 29 788)

‡Based on the subset of women who saw a health care provider for themselves (recent immigrant n = 1221; non-recent immigrant n = 2781; Canadian-born n = 17 114)

§Coefficient of variation 16.6 to 33.3

immigrant women are reluctant to divulge reproductive health concerns.[15]

Several clinical, research, and public health implications should be highlighted based on the findings of this study. It is important that immigrant women be screened routinely for postpartum depression during the postnatal period, and that perinatal education programs ensure that immigrant women understand the risks for postpartum depression, its signs and symptoms, and the resources available to obtain help. Although one study demonstrated that routine antenatal psychosocial screening was acceptable to women of non–English-speaking backgrounds,[39] future research should aim to replicate these findings. Although the Public Health Agency of Canada and Health Canada recommend that all women take a multivitamin supplement containing folic acid at least three months prior to becoming pregnant and continue through the first three months of pregnancy to reduce the risk of neural tube defects,[40] a substantial number of non-recent immigrant women did not take folic acid pre-conceptionally and reported not having enough knowledge about its benefits. Future research should explore reasons for low folic acid supplementation rates in this group.

It is a concern that, in comparison with Canadian-born women, fewer immigrant women visited a health care provider for themselves or their infant, or were contacted by a health care professional after discharge home from the hospital, and that non-recent immigrant women reported greater difficulty with seeing a health care provider for themselves and their infant. Early postpartum home visits by public health providers may play an important role in addressing immigrant women's maternal and infant health needs. Ensuring that immigrant women are accurately identified prenatally as having potential risks is an important part of this process. Finally, primary care providers, obstetricians, and public health providers should discuss the importance of infant sleeping positions with immigrant women during prenatal and postpartum visits, and popular media should continue to carry this message.

Despite the strengths of this study, it has some limitations. The cross-cultural validity of the MES questionnaire was not evaluated, so it is possible that some of the observed differences between Canadian-born and immigrant women may be attributed to differential understanding of the questions. We were unable to distinguish between non-refugee and refugee immigrants, although refugee women may have different experiences and greater risks.[41] In addition, we had insufficient numbers to analyze subgroups of immigrant women by country of birth. Finally, we were unable to explore cultural beliefs that affect immigrant women's maternity experiences and may be important in addressing some of the risks that we observed.

CONCLUSION

Our study adds to current knowledge of immigrant women's maternity experiences by using a large, population-based survey to describe and compare experiences and health care practices among recent immigrant, non-recent immigrant, and Canadian-born women. These findings can enhance clinicians' and policy-makers' understanding of the differences that exist in the maternity experiences of immigrant and non-immigrant women and provide a framework for improving clinical and community-based care of pregnant and postpartum immigrant women.

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