

Contributions of Immigration to Depressive Symptoms Among Pregnant Women in Canada

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ABSTRACT

Objectives: Immigrant women present high prevalence of depressive symptoms during pregnancy, the early postpartum period and as mothers of young children. We compared mental health of immigrant and Canadian native-born women during pregnancy according to length of stay and region of origin, and we assessed the role of economics and social support in antenatal depressive symptomatology.

Methods: Data originated from the Montreal study on socio-economic differences in prematurity; 3,834 Canadian-born and 1,495 foreign-born women attending Montreal hospitals for antenatal care were evaluated for depression at 24-26 weeks of pregnancy using the Center for Epidemiologic Studies Depression scale by fitting logistic regressions with staggered entry of possible explanatory variables.

Results: Immigrant women had a higher prevalence of depressive symptomatology independently of time since immigration. Region of origin was a strong predictor of depressive symptomatology: women from the Caribbean, South Asia, Maghreb, Sub-Saharan Africa and Latin America had the highest prevalence of depressive symptomatology compared to Canadian-born women. The higher depression odds in immigrant women are attenuated after adjustment for lack of social support and money for basic needs. Time trends of depressive symptoms varied across origins. In relation to length of stay, depressive symptoms increased (European, Southeast Asian), decreased (Maghrebian, Sub-Saharan African, Middle Eastern, East Asian) or fluctuated (Latin American, Caribbean).

Conclusion: Depression in minority pregnant women deserves more attention, independently of their length of stay in Canada. Social support favouring integration and poverty reduction interventions could reduce this risk of antenatal depression.

Key words: Pregnancy; depression; immigration; socio-economic factors; social support; region of origin

La traduction du résumé se trouve à la fin de l'article.

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Approximately 20% of childbearing women present a high risk of depression. Antenatal depression (AD) is the strongest predictor of postnatal depression with important consequences for the outcome of pregnancy.^{1,2} Immigration effects on mental health may be particularly strong during pregnancy, a period of increased vulnerability to depression. Studies show that immigrant women present a high prevalence of depressive symptoms during pregnancy, the early postpartum period and as mothers of young children.^{1,3-7}

Immigration impacts cultural identity, social support and socio-economic status and this, in turn, is likely to have effects on immigrant mental health.⁸⁻¹⁰ European studies of immigrant mental health have shown that risk factors for depression, such as poor health and discrimination, have particularly strong effects under conditions of poverty and lack of social support.¹¹ Moreover, time since immigration and ethnicity may influence individual social and socio-economic characteristics, having an impact on mental health.¹² In addition, pregnancy may be a period of vulnerability to depression.¹³ We argue that the vulnerability to depression could be particularly exacerbated by lack of money and support, especially in immigrant women.

While ethnic disparities in depressive symptomatology (DS) during pregnancy have been described abroad,^{3,14,15} length of stay and region of origin are rarely assessed in a combined fashion in studies of immigrant health in Canada. Studies of pregnant women lack comparisons with Canadian-born women, and their sample size is

often insufficient to disentangle the effect of region of origin and length of stay on mental health.^{4,16}

Our aims are threefold: to estimate the prevalence of antenatal DS in Canada's immigrants with respect to length of stay and region of origin, and to compare this to the prevalence in Canadian-born women; to examine the role of lack of money and social support in depression in this population; and to evaluate the interplay of length of stay and region of origin as determinants of antenatal DS.

METHODS

Data were obtained from a prospective cohort study of pregnant women in Montreal conducted in 1999-2004 in four large maternity hospitals. Recruitment procedures have been described in detail previously.¹⁷ Women were recruited at routine ultrasound examinations, antenatal blood sampling or antenatal care clinics. Approval for this study was obtained by the ethics committees of all four hospitals. Eligibility criteria included age ≥ 18 years at the

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Table 1. Socio-demographic, Economic, Social Support and Pregnancy-related Characteristics According to the Length of Stay in Canada

	Canadian-born and Immigrant According to Length of Stay in Canada			
	Canada n=3834	0-2 yrs n=388	3-8 yrs n=436	≥9 yrs n=658
Region of origin (%) (n)				
Latin America		12.1 (47)	17.4 (76)	19.3 (127)
Caribbean		5.9 (23)	16.7 (73)	27.2 (179)
Maghreb‡		26.8 (104)	9.2 (40)	4.3 (28)
Sub-Saharan Africa		11.6 (45)	13.5 (59)	4.9 (32)
Middle East		3.4 (13)	4.4 (19)	5.8 (38)
East Asia		6.4 (25)	4.8 (21)	1.5 (10)
Southeast Asia		2.6 (10)	3.9 (17)	8.2 (54)
South Asia		2.6 (10)	2.5 (11)	2.0 (13)
Europe†		28.6 (111)	27.5 (120)	26.9 (177)
Age* (mean ± sd)	n=3834 29.0± 5.4	n=388 30.2±4.5	n=436 30.5± 4.9	n=660 30.8±5.6
N of previous live-born babies* (%)	n=3828	n=389	n=436	n=659
0	60.7	64.52	47.5	49.9
1	28.8	25.7	39.9	30.5
2	10.5	9.8	12.6	19.6
Pregnancy desire* (%)	n=3799	n=387	n=432	n=653
Wanted	55.2	57.6	54.6	47.9
Wanted at different time	38.5	34.9	38.0	41.8
Unwanted	6.3	7.5	7.4	10.3
Education* (%)	n=3834	n=388	n=433	n=659
No high school diploma	15.5	9.0	20.1	17.2
Some college	17.9	10.3	11.0	19.1
Completed college or some university	30.7	24.2	21.7	30.9
University degree	35.9	56.6	47.1	32.8
Lack of money* (%)	n=3834	n=389	n=437	n=651
None	82.7	76.1	78.5	77.9
For 1 necessity	9.5	12.1	8.9	11.6
For 2 necessities	5.0	5.9	6.4	7.6
For ≥3 necessities	2.7	5.9	5.7	5.9
Language spoken at home* (%)	n=3827	n=389	n=437	n=661
French/ English/both	94.3	34.4	39.1	48.4
French/English and other	4.9	23.7	25.6	25.6
Other only	0.8	41.9	35.2	26.0
Marital status* (%)	n=3818	n=388	n=433	n=659
Do not have partner	4.5	4.4	3.9	5.0
Do not live with partner	5.1	2.6	8.5	11.5
Live with partner but not married	53.7	10.6	14.5	26.7
Married and live with partner	36.7	82.5	73.0	56.8
Number of people who can help * (%)	n=3823	n=389	n=433	n=658
0	1.1	5.7	6.2	2.1
1	2.2	15.4	12.0	7.0
2	21.3	37.0	37.0	27.4
≥3	75.4	41.9	44.8	63.5
Number of people to talk to * (%)	n=3824	n=388	n=433	n=660
0	2.8	7.7	9.5	6.1
1	14.0	29.9	25.4	22.7
2	54.5	44.8	49.4	25.0
≥3	28.7	17.5	15.7	19.2

* $p < 0.05$ for chi-squared test or student test when comparing differences between these four groups of women.

† Women born in USA, New Zealand and Australia were included in this region, 38 in total.

‡ This region includes Morocco, Algeria, Tunisia, Mauritania and Libya.

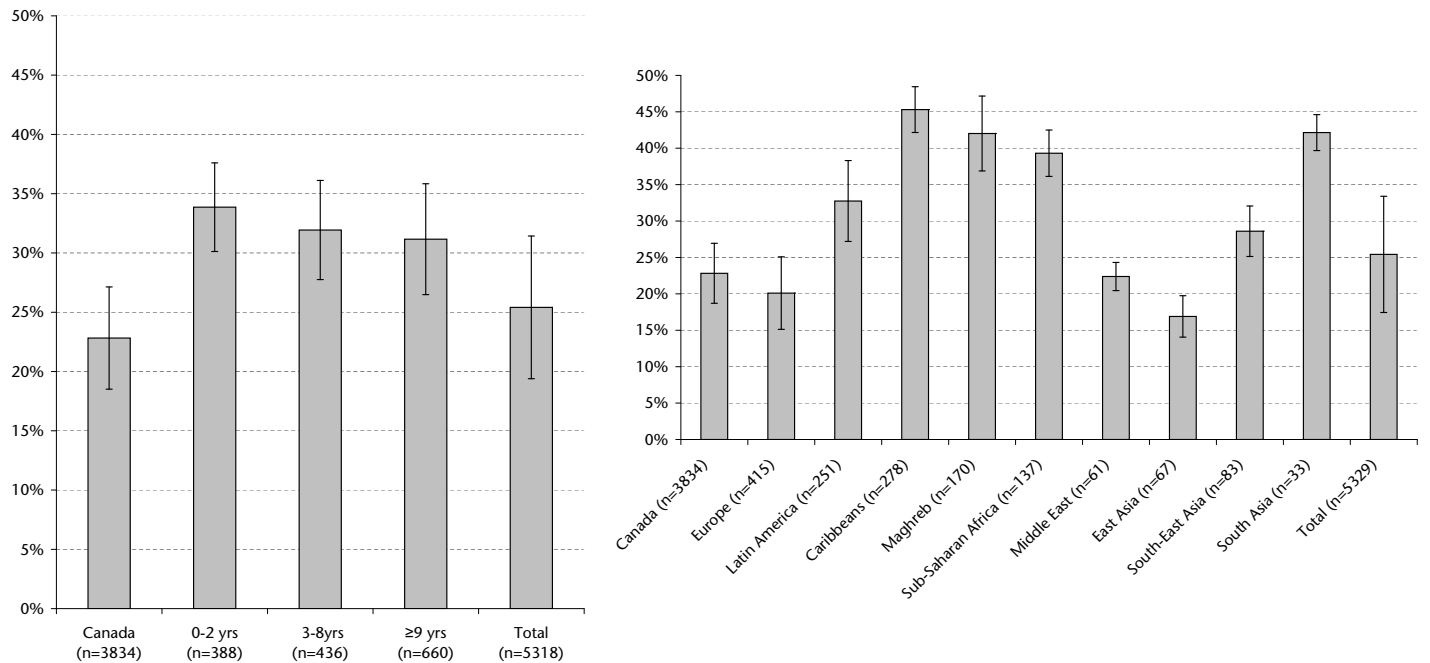
expected date of delivery, singleton gestation and fluency in French or English. Women were excluded if they presented either a medical condition increasing the risk of preterm birth or a foetus affected by a major anomaly. Women who consented were asked to return at 24-26 weeks of gestation for an interview to provide demographic data, detailed socio-economic information and health-related measures. The final sample, on which cross-sectional analysis was performed, consisted of 5,329 pregnant women, with 1,495 reportedly born outside of Canada. The proportion of missing values for different explanatory variables varied between 0-3.0%, leaving a total of 5,044 women for complete data analyses.

The Center for Epidemiologic Studies Depression Scale (CES-D) is a 20-item self-report scale designed to measure depressive symptomatology in the general population. It has excellent internal consistency (0.90) and reasonable test-retest reliability.¹⁸ The scale is customarily dichotomized as "not depressed" (<16) and "depressed" (≥16). This cut-off has been validated in many languages and in multiethnic samples.¹⁹

Demographic variables included age, immigrant status and region of origin. Age was categorized as follows: 18-21, 22-34, and ≥35. Immigrant status was defined as being born outside of Canada. Based on the year of immigration to Canada, immigrants were categorized as recent (living in Canada for 0-2 years), intermediate-term (living in Canada 3-8 years) and long-term (living in Canada ≥9 years).¹⁶ Immigrant origin was grouped into 10 broad categories, based on the declared country of birth. Pregnancy-related variables included parity and whether the baby was wanted, wanted at a different time, or unwanted.

Measurement of socio-economic and social support indicators was previously described in detail. Briefly, socio-economic position included: i) education, ii) lack of money¹⁷ for basic needs (rent, electricity/heating, medication, food) since the beginning of pregnancy represented by a score of "none, 1, 2, or ≥3", and iii) language spoken ("official" (French or English) or "other") conceptualized as barrier to higher socio-economic position. Social support¹⁷ indicators included marital status and the number of people who can

Figure 1. Age-adjusted predicted prevalence of antenatal depressive symptoms and 95% CI, by length of stay in Canada and region of origin



provide help or be confided in (“Among family and friends, is there someone who would help you in time of need? Among family and friends, is there someone you can confide in or talk to freely about your problems? Yes/no? How many?”).

All sets of variables were entered in a hierarchical manner, from most proximal to most distal individual characteristics. Differences in the distributions of independent variables by length of stay and region of origin were assessed using chi-square tests. For our first aim, predicted probabilities of depression were calculated by fitting a logistic regression model and adjusting by age. Mean predicted probabilities corresponding to estimated prevalence and 95% confidence intervals (CI) were then reported according to length of stay and region of origin. For our second aim, we constructed multivariate logistic models comparing Canadian women with immigrant women, according to length of stay in Canada. We assessed the effect of mediating explanatory variables by staggered entry of each domain: pregnancy-related variables followed by socio-economic variables and social support. We repeated this modelling sequence examining the associations of DS with region of origin, using the Canadian-born women as the reference group. Last, we built similar models using the European immigrants as a reference, combining region of origin with length of stay in Canada. Each model building proceeded by including all independent variables that were univariate predictors of depression. In a subsequent step, variables that were not predictors were entered into the final model one at a time and retained as multivariate predictors if $p \leq 0.05$. All models were adjusted by age. The reported p -value ≤ 0.05 was considered statistically significant. Analyses were conducted with SPSS statistical software (version 16).

RESULTS

Sample characteristics are summarized in Table 1. Most recent immigrants were of European, Maghrebian, Latin American, or Sub-Saharan African origin.

The overall age-adjusted prevalence of antenatal DS was 25±6% (Figure 1). This rate was higher in immigrant than in Canadian women, it was comparable according to length of stay, and significantly differed according to region of origin. Immigrant women presented higher prevalence odds for DS when compared to native-born women, independently of length of stay (Table 2). Inclusion of education, lack of money and language spoken at home largely accounted for the differences, particularly in longer-term immigrants, although the OR became non-significant.

Education and poverty remained significant independent risk factors strongly associated with DS. Inclusion of social support further reduced the odds of DS toward the null in the intermediate-term and long-term groups. Social support availability was highly associated with depression in all pregnant women.

Age-adjusted OR in relation to region of origin showed a twofold likelihood of DS in women from the Caribbean, Maghreb and Sub-Saharan Africa, when compared to Canadian women (Table 3). The likelihood for women of European or Middle Eastern origin was no different from Canadian women. Inclusion of socio-economic factors attenuated the likelihood of DS mainly in women from Caribbean, Maghreb and Sub-Saharan African regions. After further inclusion of social support, the odds of DS decreased for most immigrant groups while remaining almost unchanged for Asian women.

Different profiles of depression were obtained for length of stay when combined with region of origin (Table 4). Depressive symptoms increased, decreased or fluctuated for different groups. The association between origin, length of stay and DS was explained, to a large extent, by socio-economic and social support variables mainly in recent and intermediate-term Caribbean, Maghrebian, Sub-Saharan, Middle Eastern and South Asian women.

DISCUSSION

This is one of the largest cohort studies to investigate health and pregnancy outcomes in pregnant women in Canada. In spite of the

Table 2. Prevalence Odds Ratio and 95% CI for Relationship Between Immigrant Status and Antenatal Depressive Symptoms Before and After Inclusion of Explanatory Variables

	Model 1	Model 2	Model 3	Model 4
Immigrant Status				
Born in Quebec	1.00	1.00	1.00	1.00
In Canada since 0-2 years	1.84*[1.45-2.32]	1.90*[1.49-2.41]	1.71*[1.29-2.26]	1.34 [0.99-1.81]
In Canada since 3-8 years	1.61*[1.28-2.03]	1.56† [1.23-1.97]	1.35‡ [1.03-1.77]	1.06 [0.79-1.42]
In Canada since ≥ 9 years	1.64*[1.36-1.98]	1.53*[1.26-1.85]	1.21 [0.96-1.31]	1.13 [0.89-1.42]
Pregnancy context				
Prior births				
No		1.00	1.00	1.00
Yes		1.33*[1.16-1.53]	1.14 [0.99-1.31]	1.05 [0.90-1.23]
Pregnancy desire				
Wanted		1.00	1.00	1.00
Wanted at different time		1.69*[1.47-1.94]	1.57*[1.36-1.81]	1.48*[1.28-1.72]
Unwanted		2.62*[2.07-3.33]	1.97*[1.53-2.53]	1.62*[1.24-2.11]
Socio-economic context				
Education				
No high school diploma			2.38*[1.91-2.95]	1.75*[1.39-2.21]
Some college or university			1.57*[1.36-1.81]	1.38*[1.17-1.63]
University degree			1.00	1.00
Self-reported lack of money				
None			1.00	1.00
1 necessity			1.94*[1.58-2.39]	1.67*[1.35-2.07]
2 necessities			2.92*[2.25-3.78]	2.47*[1.89-3.23]
≥3 necessities			4.85*[3.48-6.78]	3.45*[2.45-4.87]
Language spoken at home				
French/English/both			1.00	1.00
Mixed or other only			1.34† [1.10-1.63]	1.31‡ [1.06-1.61]
Social support context				
Partnership status				
Do not have partner				1.58† [1.12-2.22]
Do not live with partner				1.59† [1.19-2.12]
Live with partner but not married				1.15 [0.97-1.36]
Married and live with partner				1.00
Number of people who can help				
0				3.37*[1.97-5.77]
1				1.54‡ [1.10-2.14]
2				1.21‡ [1.03-1.43]
≥3				1.00
Number of people to talk to				
0				4.32*[2.98-6.28]
1				2.15*[1.70-2.72]
2				1.39† [1.16-1.68]
≥3				1.00

Note: * p<0.001; † p<0.01; ‡ p<0.05; all models are adjusted for age

exclusion of those immigrants who were not fluent in English or French, immigrant women constituted more than a quarter of our sample, reflecting Canada's ethnocultural portrait and the fact that more than 25% of people residing in Montreal are born outside of Canada.²⁰ We found an overall prevalence of DS of 25±6%, which corresponds to rates previously described in the literature.¹

Recently, a prevalence of antenatal DS of 42% was reported in Montreal in newly-arrived women.⁴ The sample was mainly composed of minority group women. Our study confirms these higher rates for women from Caribbean, South-Asian, Maghreb and Sub-Saharan regions. These results show that immigrant status studied alone may hide a vulnerability related to region of origin. Our analysis revealed a differential likelihood of DS according to origin. This could underline the fact that the process of integration varies by ethnicity and immigration trajectory.

Lack of social support and poverty are both important determinants of mental health.²¹ Here, we argue that the roles of social support and economic situation in mental health could be exacerbated by the circumstances of pregnancy and migration. In our study, more immigrant women reported lack of money than Canadian women. Socio-economic factors did not explain the low likelihood of DS in women from European, East Asian and Middle Eastern regions, while their consideration in the model attenuated the association of origin and DS in women from Caribbean, Latin Ameri-

can, African and South Asian regions. This suggests that different groups of immigrants fare as well or better than Canadian women in terms of economic integration and others fare much worse, independently of length of stay in Canada. Literature describing immigrant economic integration in Canada has shown that people of non-European origin are more likely to have low-paying jobs because they encounter greater social, economic and cultural barriers than those of European origin.²² Moreover, socio-economic factors were more strongly associated with DS odds in long-term immigrant women than in recent immigrants. In a study investigating income and depression, the highest rate of depression was found among low-income non-recent immigrant females.²³ These findings indicate that immigrants may find themselves in financial difficulties long after their arrival, and that these difficulties may become exacerbated during pregnancy.

Social support has been shown to be critically important in preventing depressive symptoms at any stage of maternity.²⁴ Its availability may be jeopardized in the context of immigration, thus placing immigrant women at greater risk of experiencing depression. We found that consideration of social support in the model attenuated DS likelihood in women from Caribbean, Sub-Saharan African and Maghreb regions. A review of cultural factors of postnatal depression cites that women experience less postpartum depression in cultures with strong social support for new mothers.²⁵

Table 3. Prevalence Odds Ratio and 95% CI for Antenatal Depressive Symptoms According to Region of Origin Before and After Inclusion of Explanatory Variables

	Model 1	Model 2	Model 3	Model 4
Region of origin				
Quebec	1.00	1.00	1.00	1.00
Europe	0.93 [0.72-1.21]	0.97 [0.75-1.26]	1.12 [0.85-1.48]	1.04 [0.78-1.38]
Latin America	1.63† [1.22-2.18]	1.59† [1.18-2.14]	1.16 [0.82-1.64]	1.01 [0.70-1.45]
Caribbean	2.82* [2.18-3.64]	2.45* [1.88-3.18]	1.50† [1.12-2.01]	1.25 [0.92-1.70]
Maghreb	2.75* [1.97-3.84]	2.75* [1.96-3.85]	2.26* [1.54-3.33]	1.67‡ [1.12-2.53]
Sub-Saharan Africa	2.14* [1.46-3.15]	2.05* [1.39-3.03]	1.60‡ [1.06-2.43]	1.19 [0.77-1.85]
Middle East	1.06 [0.57-1.99]	1.06 [0.56-1.99]	1.16 [0.61-2.23]	0.89 [0.45-1.78]
East Asia	0.77 [0.40-1.54]	0.72 [0.40-1.44]	0.84 [0.41-1.72]	0.84 [0.41-1.74]
South-East Asia	1.58 [0.95-2.62]	1.55 [0.93-2.58]	1.41 [0.82-2.42]	1.35 [0.78-2.35]
South Asia	2.59‡ [1.18-5.68]	2.31‡ [1.04-5.14]	1.79 [0.77-4.14]	1.68 [0.70-4.03]
Pregnancy context				
Prior births				
No		1.00	1.00	1.00
Yes		1.28 [1.11-1.47]	1.12 [0.97-1.29]	1.04 [0.89-1.21]
Pregnancy desire				
Wanted		1.00	1.00	1.00
Wanted at different time		1.67* [1.45-1.92]	1.57* [1.36-1.80]	1.49* [1.28-1.72]
Unwanted		2.54* [2.00-1.47]	1.97* [1.53-2.53]	1.62* [1.24-2.11]
Socio-economic context				
Education				
No high school diploma			2.27* [1.82-2.83]	1.70* [1.35-2.15]
Some college or university			1.51* [1.29-1.78]	1.35† [1.14-1.60]
University degree			1.00	1.00
Self-reported lack of money				
None			1.00	1.00
1 necessity			1.93* [1.57-2.37]	1.67* [1.35-2.07]
2 necessities			2.89* [2.23-3.74]	2.46* [1.88-3.22]
≥3 necessities			4.64* [3.33-6.48]	3.35* [3.33-6.48]
Language spoken at home				
French/English/both			1.00	1.00
Mixed or other only			1.32‡ [1.06-1.62]	1.29‡ [1.04-1.61]
Social support context				
Partnership status				
Do not have partner				1.63† [1.16-2.30]
Do not live with partner				1.58† [1.18-2.12]
Live with partner but not married				1.16 [0.98-1.37]
Married and live with partner				1.00
Number of people who can help				
0				3.33* [1.94-5.70]
1				1.53‡ [1.10-2.13]
2				1.20‡ [1.02-1.42]
≥3				1.00
Number of people to talk to				
0				4.22* [2.90-6.13]
1				2.12* [1.68-2.68]
2				1.37* [1.14-1.65]
≥3				1.00

Note: * p<0.001; † p<0.01; ‡ p<0.05; all models are adjusted for age

Immigrating to a Western country may therefore trigger additional stress secondary to lack of social support, leading to depressive symptoms during the crucial period of childbearing. Migration from sociocentric to egocentric cultures may create difficulty in adjusting to a new society, and ethnic social support is an especially important factor in reducing subsequent distress.^{8,26}

Finally, high vulnerability was observed in some subgroups of women when considering both length of stay and region of origin. These results suggest that chronic social and economic difficulties concentrate in certain subpopulations of minority immigrant groups.

Our study adds to the growing evidence that immigrant status and ethnicity are strong risk factors for DS. These factors interrelate with socio-economic status and social support, revealing a source of social inequalities in maternal and child health. In complement to the traditional way of addressing immigrant health by length of stay in the host country, inclusion of region of origin reveals a new dimension of health disparity and potential needs among pregnant women. Our results provide additional insight into the crucial role

of social support in pregnant women, and its lack in immigrant women of Caribbean, Maghrebian and Sub-Saharan origin, thus identifying women who may belong to the most vulnerable groups.

This is a cross-sectional study, which does not allow us to assess the temporal nature of social and economic factors leading to DS. The history of depression in our sample is unknown, raising the possibility that, for some women, recurrent and untreated depression could predict lower socio-economic status or social support. Moreover, our study includes a large number of women with diverse cultural backgrounds; categorizing them according to a few groups may introduce a problem with generalization of associations. Measures of association for some groups were imprecise due to small samples. In over 33% of ineligible women, noneligibility was attributed to language barriers, thus indicating a potential selection bias.²⁷ Exclusion of women who cannot communicate easily may have led to an underestimation of the prevalence of DS among immigrant women and also of the strength of the associations since these women may be at even higher risk of DS.²⁸ In this study, we also observed a lower response to the depression ques-

Table 4. Prevalence Odds Ratio and 95% CI for Antenatal Depressive Symptoms Among Immigrant Women According to Length of Stay in Canada and Region of Origin

	Model 1	Model 2	Model 3	Model 4
Immigrant Women				
From Europe since 3-8yrs	1.00	1.00	1.00	1.00
From Europe since 0-2 yrs	1.72 [0.79-3.76]	1.69 [0.77-3.72]	1.57 [0.71-3.49]	1.49 [0.66-3.35]
From Europe since ≥9 yrs	3.26† [1.63-6.51]	3.18† [1.58-6.41]	2.84† [1.39-5.81]	3.27† [1.58-6.75]
From Latin America since 0-2 yrs	2.74‡ [1.10-6.85]	2.68‡ [1.06-6.79]	1.87 [0.71-4.92]	1.92 [0.72-5.17]
From Latin America since 3-8 yrs	4.05* [1.83-8.97]	3.96† [1.77-8.83]	3.10† [1.35-7.12]	2.98‡ [1.27-6.98]
From Latin America since ≥9 yrs	3.77* [1.84-7.72]	3.26† [1.58-6.74]	1.93 [0.89-4.17]	1.88 [0.85-4.14]
From Caribbean since 0-2 yrs	6.90* [2.40-19.77]	5.89† [2.01-17.25]	3.75‡ [1.25-11.28]	3.09 [0.99-9.61]
From Caribbean since 3-8 yrs	13.42* [6.09-29.59]	11.40* [5.11-25.41]	5.75* [2.43-13.58]	5.04* [2.08-12.18]
From Caribbean since ≥9 yrs	4.68* [2.38-9.21]	3.72* [1.87-7.40]	2.04 [0.98-4.22]	2.05 [0.97-4.34]
From Maghreb since 0-2 yrs	7.47* [3.61-15.46]	7.75* [3.71-16.19]	5.60* [2.59-12.12]	4.85* [2.20-10.71]
From Maghreb since 3-8 yrs	5.28* [2.13-13.07]	4.22† [1.68-10.94]	3.21‡ [1.25-8.29]	2.62 [0.99-6.97]
From Maghreb since ≥9 yrs	4.12† [1.40-12.07]	3.66‡ [1.23-10.94]	2.58 [0.83-7.99]	2.68 [0.85-8.48]
From Sub-Saharan Africa since 0-2 yrs	7.90* [3.27-19.34]	7.28* [2.95-18.00]	4.63† [1.80-11.88]	3.96† [1.49-10.49]
From Sub-Saharan Africa since 3-8 yrs	3.85† [1.64-9.02]	3.43† [1.45-8.11]	2.19 [0.90-5.35]	1.75 [0.70-4.38]
From Sub-Saharan Africa since ≥9 yrs	3.56‡ [1.32-9.57]	3.06‡ [1.18-8.31]	2.28 [0.82-6.33]	2.37 [0.83-6.80]
From Middle East since 0-2 yrs	4.21‡ [1.06-15.17]	4.30‡ [1.07-17.27]	4.10‡ [1.00-16.81]	3.75 [0.88-15.95]
From Middle East since 3-8 yrs	4.01‡ [1.06-14.03]	3.31 [0.85-12.95]	3.40 [0.86-13.48]	2.74 [0.65-11.61]
From Middle East since ≥9 yrs	1.52 [0.49-4.70]	1.48 [0.48-4.62]	1.30 [0.41-4.11]	1.31 [0.41-4.24]
From East Asia since 0-2 yrs	2.50 [0.83-7.53]	2.40 [0.80-7.24]	2.16 [0.69-6.74]	2.25 [0.71-7.16]
From East Asia since 3-8 yrs	0.87 [0.18-4.25]	0.70 [0.14-3.37]	0.67 [0.13-3.34]	0.81 [0.16-4.09]
From East Asia since ≥9 yrs	0.90 [0.10-7.62]	0.82 [0.10-7.02]	0.77 [0.10-6.72]	1.01 [0.12-8.72]
From Southeast Asia since 0-2 yrs	2.25 [0.42-12.15]	1.92 [0.35-10.56]	1.73 [0.31-9.50]	2.48 [0.44-14.06]
From Southeast Asia since 3-8 yrs	2.19 [0.54-8.92]	2.03 [0.49-8.41]	1.68 [0.40-7.01]	2.06 [0.49-8.71]
From Southeast Asia since ≥9 yrs	4.51* [1.94-10.49]	4.24† [1.81-9.94]	3.23† [1.34-7.80]	3.21‡ [1.31-7.89]
From South Asia since 0-2 yrs	7.99† [1.75-36.35]	7.15‡ [1.55-33.03]	2.62 [0.53-13.09]	2.29 [0.43-12.23]
From South Asia since 3-8 yrs	7.50† [1.65-33.99]	6.25‡ [1.32-29.58]	5.51‡ [1.16-26.14]	5.23‡ [1.05-26.00]
From South Asia since ≥9 yrs	3.29 [0.74-14.62]	2.64 [0.58-11.99]	2.18 [0.46-10.27]	2.74 [0.57-13.07]
Pregnancy context				
Prior births				
No		1.35‡ [1.03-1.76]	1.18 [0.89-1.55]	1.12 [0.84-1.49]
Yes		1.00	1.00	1.00
Pregnancy desire				
Wanted		1.00	1.00	1.00
Wanted at different time		1.73* [1.33-2.25]	1.82* [1.39-2.39]	1.78* [1.35-2.34]
Unwanted		2.53* [1.64-3.92]	2.42* [1.54-3.80]	2.21† [1.38-3.54]
Socio-economic context				
Education				
No high school diploma			1.63‡ [1.04-2.55]	1.29 [0.81-2.03]
Some college or university			1.36‡ [1.00-1.84]	1.29 [0.95-1.76]
University degree			1.00	1.00
Self-reported lack of money				
None			1.00	1.00
1 necessity			1.66† [1.13-2.45]	1.50‡ [1.00-2.24]
2 necessities			2.93* [1.82-4.74]	2.66* [1.68-3.19]
≥3 necessities			5.09* [2.87-9.04]	4.12* [2.27-7.45]
Language spoken at home				
French/English/both			1.00	1.00
Mixed or other only			1.14 [0.85-1.52]	1.10 [0.82-1.48]
Socio-economic context				
Partnership status				
Do not have partner				1.28 [0.67-2.46]
Do not live with partner				1.39 [0.85-2.27]
Live with partner but not married				1.31 [0.91-1.87]
Married and live with partner				1.00
Number of people who can help				
0				2.60‡ [1.22-5.57]
1				1.37 [0.85-2.21]
2				1.41 [1.04-1.90]
≥3				1.00
Number of people to talk to				
0				3.02† [1.59-5.71]
1				1.91‡ [1.21-3.02]
2				1.30 [0.87-1.94]
≥3				1.00

Note: * p<0.001; † p<0.01; ‡ p<0.05; all models are adjusted for age.

tions in recent and intermediate-term immigrants, which could underestimate or overestimate the association between length of stay, region of origin and depression for some groups. Last, about 20% of Canadian immigrants are asylum seekers or refugees, and although this may represent a confounder between region of origin and depression, a recent study showed that these women are not at

higher risk of postnatal depression compared with other immigrant groups.²⁹

Public health efforts should aim to preserve the health of immigrant women through policies designed to support them in child-bearing by taking into consideration their region of origin.³⁰ Women's health initiatives need to consider cultural diversity when

addressing needs of immigrant women before and after giving birth.

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RÉSUMÉ

Objectifs : Les immigrantes affichent une prévalence élevée de symptômes dépressifs durant la grossesse, au début de la période postpartum et en tant que mères de jeunes enfants. Nous avons comparé la santé mentale d'immigrantes et de Canadiennes de souche durant la grossesse selon la longueur du séjour et la région d'origine, puis évalué le rôle des facteurs économiques et du soutien social dans la symptomatologie dépressive prénatale.

Méthode : Nos données proviennent de l'étude montréalaise sur les différences socioéconomiques dans la prématurité; 3834 Canadiennes de souche et 1495 femmes nées à l'étranger recevant des soins prénatals dans les hôpitaux de Montréal ont été évaluées à 24-26 semaines de grossesse selon l'échelle de dépression du Centre des études épidémiologiques en agençant des régressions logistiques avec l'introduction échelonnée de variables explicatives possibles.

Résultats : Les immigrantes avaient une prévalence accrue de symptomatologie dépressive, indépendamment de leur date d'immigration. La région d'origine était un solide prédicteur de symptomatologie dépressive : les femmes originaires des Caraïbes, d'Asie du Sud, du Maghreb, d'Afrique subsaharienne et d'Amérique latine présentaient la plus forte prévalence comparativement aux Canadiennes de souche. Les probabilités de dépression accrues chez les immigrantes s'atténuent lorsqu'on tient compte de leur manque de soutien social et d'argent pour répondre à leurs besoins fondamentaux. Les tendances temporelles des symptômes dépressifs variaient selon les origines. Par rapport à la durée du séjour, les symptômes dépressifs pouvaient s'accroître (femmes originaires d'Europe et d'Asie du Sud-Est), diminuer (femmes du Maghreb, d'Afrique subsaharienne, du Moyen-Orient et d'Asie de l'Est) ou fluctuer (femmes d'Amérique latine et des Caraïbes).

Conclusion : La dépression chez les femmes enceintes des minorités mérite qu'on s'y attache, indépendamment de la durée de leur séjour au Canada. Un soutien social favorisant l'intégration et la réduction de la pauvreté pourrait réduire le risque de dépression prénatale.

Mots clés : grossesse; dépression; émigration et immigration; facteurs socioéconomiques; soutien social; région d'origine