Examining the Pathways of Pre- and Postnatal Health Information

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ABSTRACT

Objectives: The objectives of our study were to 1) assess Canadian women's health information levels regarding pre- and postnatal topics in both primiparous and multiparous samples, and 2) identify factors associated with levels of health information in both groups and the pathways of such associations.

Methods: Data from the 2006 Maternity Experiences Survey developed by the Canadian Perinatal Surveillance System (N=6,421) were used. The study population included mothers ≥ 15 years of age at the time of the birth, who had a singleton live birth in Canada during a three-month period preceding the 2006 Census and who lived with their infants at the time of the survey. Structural equation modeling was used to identify and examine pre- and postnatal acquired health information components in both samples and to assess factors that may influence this level of information.

Results: Primiparous and multiparous women perceived insufficient levels of information on similar topics: pain medication/anesthesia, warning signs/complications, formula feeding and changes in sexual responses. This common finding underscored that these informational needs had a large impact on the entire population of pregnant women, rather than being parity-specific. Level of perceived social support was positively associated with information acquisition on all health topics studied in both samples ($p < 0.0001$ for both). Income was also positively associated with information levels to a similar extent on a range of topics in both samples ($p < 0.0001 - p < 0.05$).

Conclusions: Canadian primiparous and multiparous women perceived an inadequate level of information on the same topics, identifying knowledge gaps that should be addressed. Perceived level of social support and income significantly influenced information levels on pre- and postnatal health topics. Therefore women with low income and those with perceived lack of social support may be identified by health care providers as requiring additional health information.

Key words: Consumer health information; prenatal care; postnatal care

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

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It has been suggested that giving and receiving information is the fundamental function of prenatal care.^{1,2} Information acquisition is important because pregnancy is a time when health behaviours are more salient as they affect both the mother and the developing fetus.³ Current literature suggests that some women may not be receiving adequate pre- and postnatal health information.⁴

Information gaps have been identified in broad areas such as the benefits and risks of routine procedures used at childbirth.⁵ This raises concerns about the quality of available prenatal education in Canada. A UK qualitative study reported specific aspects of inadequate information provision which included a need for better information about the purpose of each prenatal appointment, the distinction between different health care providers' roles and how to access advice and care should unforeseen concerns arise.² Information gaps have also been noted in more specific areas of pre- and postnatal health such as psychosocial topics like physical, emotional and sexual abuse. In a survey of the College of Family Physicians of Canada and the Society of Obstetricians and Gynaecologists of Canada, over 90% of obstetricians or gynecologists had not discussed these topics with their patients.⁶ These findings are mirrored in a US systematic study of maternal experiences, "Listening to Mothers II", which found that less than 35% of mothers reported that they were asked about abuse and less than 60% were asked about postpartum depression during the postnatal visit.⁷ While many national or large maternity surveys have been conducted in various countries,⁸ a comprehensive study that examines

levels of pre- and postnatal health information in Canadian women is still lacking. The Maternity Experiences Survey (MES) marks the first pan-Canadian survey on maternity experiences and is used in this study to identify areas of insufficient health information specific to Canadian women.⁹

Research has implicated several variables that may play a role in women's levels of pre- and postnatal health information. For instance, both perceived and received social support have been shown to influence acquired health information levels. A 2005 study of five Ontario hospitals demonstrated that low levels of social support were associated with unmet informational needs.¹⁰ This study also identified education level as a predictor of information needs. In a study based on 2003 Health Information National Trends Survey data, it was found that non-seekers of information had lower income than persons who sought information about general health topics.¹⁰ There is also evidence that women of low socio-economic status have learning needs that differ in nature and magnitude from women of a higher socio-economic status.^{11,12} For example, women from low-income families were not as

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Table 1. Indicator Variables for Pre- and Postnatal Health Information Factors Derived From the MES

Type of Information	Indicator (Did you have sufficient information on...)
Prenatal health information	SI_Q01: Sufficient information on physical changes SI_Q02: Sufficient information on emotional changes SI_Q03: Sufficient information on warning signs/complications SI_Q04: Sufficient information about effects of medication on baby SI_Q05: Sufficient information on what to expect during labour/birth SI_Q06: Sufficient information on partner support SI_Q07: Sufficient information about medication-free pain management SI_Q08: Sufficient information about potential side effects of pain medication/anesthesia SI_Q09: Sufficient information about ultrasound/amniocentesis (medical procedures)
Postnatal health information	PI_Q01: Sufficient information on effects of baby on relationship PI_Q02: Sufficient information on physical demands on body PI_Q03: Sufficient information about SIDS PI_Q04: Sufficient information about car seat use PI_Q05: Sufficient information about negative feelings following birth PI_Q06: Sufficient information about postpartum depression PI_Q07: Sufficient information about birth control following pregnancy PI_Q08: Sufficient information about changes in sexual responses PI_Q09: Sufficient information about breastfeeding PI_Q10: Sufficient information about formula-feeding baby

concerned with control issues in pregnancy and childbirth, but were more interested in having their own doctors and maintaining continuity of care.¹² A national study examining Canadian-specific barriers to accessibility of this information is lacking. Understanding the relationships between different pre- and postnatal health information components and the influences of factors on health information levels may provide insight as to how health information-seeking behaviour and acquisition can be ameliorated in Canada.

METHODS

Data source and study population

Data from the 2006 MES were used in this study. The MES includes 6,421 women ≥ 15 years of age at the time of birth, who had a singleton live birth in Canada during a three-month period preceding the 2006 Census and who lived with their infants at the time of the survey. Detailed information about the sample can be found in Dzakpasu et al.¹³ Of the 6,421 participants in the MES, 304 were excluded from the analysis due to missing values, leaving a sample size of 6,117.

Factors associated with pre- and postnatal information

The associations between a number of variables and information levels were assessed. Low Income Cut-Offs (LICO) as determined by Statistics Canada¹⁴ were used to create a binary variable for income. Education categories included: <high school, high school, community college/trade certificate and $\geq$ bachelor's degree. Marital status categories included: married, common law, single and a heterogeneous category combining separated/divorced/single women. Region was divided into urban and rural according to the Forward Sortation Area of postal codes.¹⁵ Age was divided into four categories: 15-24, 25-29, 30-34 and ≥ 35 . Type of prenatal care provider was categorized into obstetrician/gynecologist, family doctor and general practitioner, nurse and midwife, and "other" because providers within these groups share similar information-delivery roles.¹⁶ The most useful information source as perceived by respondents was divided into: family/friends, the health care system (includes obstetrician/gynecologist, family doctor/general practitioner, midwife, nurse/nurse practitioner, and prenatal/childbirth classes) and other (doula, books and the Internet). Prenatal classes were grouped into the health care sys-

Figure 1. MIMIC Model for pre- and postnatal health information factors

* Covariances among the predictor variables not shown.

tem category because this is a formalized source of information provided by licensed nurses or childbirth educators certified by agencies such as Childbirth and Postpartum Professional Association of Canada.¹⁷

Two different constructs – received support and perceived support¹⁸ – were used to measure the social support. We used a nominal variable which measured who was present during labour/birth (no one, companion only, husband/partner only and both companion and husband/partner) as proxy for received support, as this was the only variable in the MES that was related to received support. The most frequently identified support person in the literature is the husband/domestic partner¹⁹ and studies have indicated that the effects of support from husbands or partners can be distinguished from that of other family members or friends.¹⁹ Perceived support is an ordinal variable with five categories ranging from “none of the time” to “all of the time”.

Table 2. Weighted Sample Characteristics

	Variable	Primiparous	Multiparous*
Education	<High school	8.5%	8.1%
	High school	13.5%	13.6%
	Trade/College	41.6%	44.0%
	≥Bachelor's	35.3%	33.6%
	Missing	1.1%	0.7%
Marital Status	Married	60.8%	70.8%
	Common law	26.5%	22.1%
	Single	11.0%	4.6%
	Separated/Divorced/Widowed	1.3%	2.4%
	Missing	0.02%	0.1%
Income	≤Low Income	16.9%	21.3%
	>Low Income	83.0%	78.7%
	Missing	0.2%	0.0%
Region	Rural	17.7%	17.9%
	Urban	82.1%	82.1%
	Missing	0.2%	0.0%
Age	15-24	24.7%	7.2%
	25-29	34.3%	26.2%
	30-34	28.0%	39.7%
	≥35	12.8%	26.9%
	Missing	0.2%	0.0%
Prenatal care provider	Ob/Gyn	53.7%	58.2%
	Family doctor/GP	36.7%	34.5%
	Nurse/midwife	6.7%	6.5%
	Other	1.1%	0.4%
	Missing	1.7%	0.5%
Most useful info. source (Prenatal)	Family/Friends	17.4%	4.7%
	Health care system	40.1%	37.9%
	Other	41.5%	56.8%
	Missing	1.1%	0.6%
Most useful info. source (Postnatal)	Family/Friends	32.5%	11.0%
	Health care system	33.6%	30.1%
	Other	26.9%	52.9%
	Missing	7.0%	6.1%
Received social support	None	0.5%	1.7%
	Companion only	3.6%	3.3%
	Husband only	54.3%	70.6%
	Both	40.8%	23.5%
Perceived social support (Prenatal)	Missing	0.7%	0.9%
	None of the time	0.8%	1.9%
	A little of the time	3.1%	4.3%
	Some of the time	6.7%	8.8%
	Most of the time	27.7%	31.1%
Perceived social support (Postnatal)	All of the time	61.4%	53.7%
	Missing	0.3%	0.3%
	None of the time	1.0%	1.8%
	A little of the time	3.1%	5.2%
	Some of the time	8.8%	11.5%
	Most of the time	31.8%	33.6%
	All of the time	55.1%	47.7%
	Missing	0.3%	0.2%

* Note: Previous pregnancy is included in the "Other" category as a source of information for multiparous women only.
Primiparous: 45.3%, Multiparous: 54.3%.

Outcome variables: Pre- and postnatal health information

Pre- and postnatal health information was measured using indicators summarized in Table 1. These 19 indicators were used to define latent variables through exploratory factor analysis (EFA) and in structural equation models described below. EFA was conducted to extract common factors within the 9 prenatal and the 10 postnatal health questions.²⁰ Indicators with a minimum factor loading of 0.32 were considered to be part of a factor because this value implies that the factor has approximately 10% of overlapping variance with other items on that factor.²¹ In the case of cross-loading, wherein an item loads above 0.32 on two or more factors, it was retained for the factor onto which it loaded the highest, unless the literature suggested otherwise.

Statistical analysis

Given that the outcome variables are latent constructs not directly measured, we used Structural Equation Modeling (SEM) in the analysis. Weighting was conducted according to published Statistics

Table 3. Exploratory Factor Analysis – Factor Loadings

Prenatal Model: Primiparous Sample			
Item	Factor 1 – "Pregnancy Experience"	Factor 2 – "Labour/Birth Experience"	Factor 3 – "Medical Concerns"
SI_Q01	0.803	0.221	0.117
SI_Q02	0.739	0.340	0.137
SI_Q03	0.758	0.149	0.398
SI_Q04	0.531	0.221	0.326
SI_Q05	0.353	0.686	0.299
SI_Q06	0.260	0.883	0.223
SI_Q07	0.204	0.640	0.454
SI_Q08	0.227	0.433	0.753
SI_Q09	0.402	0.275	0.502
Prenatal Model: Multiparous Sample			
Item	Factor 1 – "Pregnancy Experience"	Factor 2 – "Labour/Birth Experience"	Factor 3 – "Medical Concerns"
SI_Q01	0.805	0.252	0.230
SI_Q02	0.751	0.351	0.282
SI_Q03	0.701	0.275	0.396
SI_Q04	0.582	0.317	0.377
SI_Q05	0.457	0.738	0.253
SI_Q06	0.381	0.684	0.411
SI_Q07	0.222	0.574	0.602
SI_Q08	0.296	0.387	0.770
SI_Q09	0.435	0.214	0.557
Postnatal Model: Primiparous Sample			
Item	Factor 1 – "Postnatal Concerns"	Factor 2 – "Negative Feelings"	
PI_Q01	0.726	0.384	
PI_Q02	0.741	0.382	
PI_Q03	0.362	0.551	
PI_Q04	0.331	0.320	
PI_Q05	0.447	0.832	
PI_Q06	0.334	0.940	
PI_Q07	0.561	0.270	
PI_Q08	0.767	0.406	
PI_Q09	0.413	0.250	
PI_Q10	0.467	0.149	
Postnatal Model: Multiparous Sample			
Item	Factor 1 – "Postnatal Concerns"	Factor 2 – "Negative Feelings"	
PI_Q01	0.726	0.384	
PI_Q02	0.741	0.382	
PI_Q03	0.362	0.551	
PI_Q04	0.331	0.320	
PI_Q05	0.447	0.832	
PI_Q06	0.334	0.940	
PI_Q07	0.561	0.270	
PI_Q08	0.767	0.406	
PI_Q09	0.413	0.250	
PI_Q10	0.467	0.149	

Canada guidelines.⁸ The sample was stratified by parity into two groups: primiparous and multiparous. Parity is defined as "the number of live births a woman has had to date (excludes fetal deaths or stillbirths)".²²

We split the sample into two random subsamples of equal size. EFA was performed in the first subsample, and confirmatory factor analysis (CFA) was performed in the second subsample to cross-validate results from the EFA. Results of the cross-validation were measured using Chi-square and RMSEA (Root Mean Square Error of Approximation).

SEM was conducted using an approach as suggested by Schumacker and Lomax²³ and Bollen.²⁴ The Multiple-Indicator Multiple-Cause (MIMIC) model is a special case of SEM that integrates predictor variables for both the prenatal and postnatal structural models²⁴ (Figure 1). Four MIMIC models were constructed, by adding the factors that were associated with pre- and postnatal health information to the four structural models: prenatal and postnatal health information models for each of the primiparous and multiparous samples. Model fit was assessed using several

Table 4. MIMIC Model

Factors		Primiparous					Multiparous				
		Pregnancy Experience	Labour/Birth	Medical Concerns	Postnatal Concerns	Negative Feelings	Pregnancy Experience	Labour/Birth	Medical Concerns	Postnatal Concerns	Negative Feelings
Income		0.2179*	0.1030*	0.1531*	0.0263	0.1910*	0.1983*	0.1435*	-0.0899§	-0.0028	0.0650†
Education	<High school	-0.0025	0.0061	-0.0199	-0.0049	0.0029	-0.0056	-0.0231	0.0169	0.0274	0.0225
	High school	0.0192	0.0039	0.0090	0.0213	0.0370	-0.0211	-0.0043	0.0672§	0.0032	0.0193
	College/Trade	0.0196	0.0114	-0.0296	0.0070	0.0055	0.0117	0.0027	-0.0208	0.0121	-0.0037
Age	15-24	0.0181	0.0695‡	0.0084	-0.0182	-0.0628‡	-0.0356	-0.0001	0.0084	0.0110	0.0026
	30-34	-0.0376	0.0054	-0.0171	0.0177	-0.0072	0.0030	0.0052	0.0092	-0.0047	-0.0053
	≥35	0.0276	0.0046	0.0279	0.0176	0.0176	-0.0151	-0.0313	-0.0145	-0.0113	-0.0170
Most useful info. source (Prenatal)	Family/Friends	0.0577‡	0.0620	0.0528§	—	—	0.0611‡	0.0340	0.0081	—	—
	Health care system	-0.0127	0.0776†	0.0776†	—	—	-0.0153	0.0578§	0.1493*	—	—
Perceived social support (Prenatal)		0.2351*	0.2328*	0.1655*	—	—	0.3514*	0.2618*	0.3223*	—	—
Perceived social support (Postnatal)		—	—	—	0.2161*	0.2177*	—	—	—	0.3572*	0.2875*

* p<0.0001, † p<0.001, ‡ p<0.01, § p<0.05

global indices: Chi-square, RMSEA and the Adjusted Goodness-of-Fit Index (AGFI). Backward selection was used to create a parsimonious model. All analyses were conducted using R version 2.12.1.²⁵

RESULTS

Final model

Table 2 presents weighted sample characteristics. Table 3 presents results for EFA; there are three prenatal factors (“pregnancy experience”, “labour/birth experience”, “medical concerns”) and two postnatal factors (“postnatal concerns” information and information on “negative feelings”). CFA in the cross-validation subsample resulted in impressive goodness of fit indices (Chi-square p=0.10, RMSEA=0.03), suggesting that results from EFA are valid in this population. Overall, both the primiparous prenatal and postnatal MIMIC models (RMSEA <0.05 for both models) fit better for the primiparous sample when compared to the multiparous sample (RMSEA <0.08 for both models). Examination of the frequency of responses for the 19 questions on pre- and postnatal health indicated that both primiparous and multiparous groups did not have sufficient information on the same topics (results not shown). Of all the information topics examined, the topics for which the fewest participants (both primiparous and multiparous women) felt they had sufficient information included: formula feeding, pain medication/anesthesia, warning signs/complications, and changes in sexual responses. For example, only 72% of the primiparous women and 79.4% of the multiparous women reported having sufficient information on changes in sexual responses. Approximately 79.8% of primiparous and 83% of multiparous women felt they had sufficient information on pain medication/anesthesia while 80.6% of primiparous and 85.3% of multiparous women felt they had sufficient information on warning signs/complications. Additionally, only 72.7% of primiparous and 83.6% of multiparous women felt they had sufficient information regarding formula feeding.

Influence of various factors on information levels

Table 4 presents results of the MIMIC models. Income, most useful information source (prenatal) and perceived level of social support (prenatal and postnatal) were found to be significantly associated with pre- and postnatal health information components in both primiparous and multiparous samples.

Participants above the LICO were more likely to have greater information on all three prenatal information components as well as postnatal information on “negative feelings” for both

samples. Individuals whose most useful prenatal information source was their family/friends were more likely to have information on “pregnancy experience” in both the primiparous and multiparous samples. However, this informational source was also associated with an increase in “medical concerns” information for the primiparous sample only. Those whose most useful information source was the health care system were more likely to have information on “labour/birth experience” and “medical concerns” for both samples. In both samples, perceived level of prenatal and postnatal social support were associated with all prenatal and postnatal information components, respectively.

DISCUSSION

This study provides insight on Canadian women’s perceived knowledge gaps of pre- and postnatal health information and also identifies factors that influence the levels of information on these topics. Participants from the multiparous sample reported a sufficient level of information on a greater variety of pre- and postnatal health topics compared to the primiparous group. Multiparous women are more likely to know about pregnancy and childbirth before their index pregnancy,¹¹ and having had a previous pregnancy was associated with greater use of oneself as an information source.²⁶ However, both groups lacked information on the same topics. This common finding underscored the fact that these informational needs had a large impact on the entire population of pregnant women, rather than being parity-specific.

In terms of prenatal topics, both groups lacked information on the side effects of pain medication/anesthesia and warning signs/complications. This lack of information may affect the health of the mother and fetus, as well as influence a woman’s satisfaction with labour and delivery. It has been shown that not reporting signs of pre-term labour during routine prenatal visits can lead to poor birth outcomes.²⁷ Having greater knowledge about warning signs of complications in pregnancy may prevent these outcomes. It has also been noted that women who were very anxious about their labour pain prenatally were less satisfied after the birth.²⁸ Increased education regarding analgesic options may target the incongruence between expected and experienced pain management during labour and may increase satisfaction. For the postnatal topics, both groups lacked information on changes in sexual responses and formula feeding of the baby. These postnatal topics may arise after the standard six-week follow-up appointment with the obstetrician/gynecologist, the most common provider of prenatal care for both groups. Therefore these findings suggest that

informational resources regarding these postnatal topics may not be accessible to both primiparous and multiparous women.

Income was a significant predictor of the level of acquired information in both samples. In particular, being categorized above the LICO was significantly associated with an increase in acquired information level for “pregnancy experience”, “labour/birth experience”, “medical concerns” and “negative feelings” for both samples. This finding is reinforced by the literature which has identified that low-income women have less exposure to health information compared to women with higher incomes, and also that information choices for these women are restricted.²⁹

The results illustrate that as perceived level of social support increases, information levels for all pre- and postnatal components are significantly likely to increase in both samples. As well, the effect of perceived social support demonstrated the largest magnitude when compared with all other factors, underscoring its important, parity-independent role of information acquirement.

The findings of this study show that both primiparous and multiparous women who reported the health care system as their most useful information source were more likely to report having sufficient information for “labour/birth experience” and “medical concerns”. Because this health care system category is comprised of medical professionals such as general practitioners and obstetricians, it is reasonable to believe that these sources would provide adequate information on the medical components of the labour and birth. For example, studies indicate that obstetricians/gynecologists are highly involved in the prenatal care and labour/birth processes, and those women who used health care professionals as main sources of information are more likely to have started prenatal care in the first trimester.¹¹ Family physicians can be involved in all stages of maternity and infant care, and the general practitioner is the most likely source of information for pregnant women overall.³⁰ The role of nurse practitioners has recently been expanding in Canada. The perceived role of the labour and delivery nurse is to be a source of physical comfort and emotional support, to provide technical and nursing care and to conduct routine monitoring.³¹ Care by the midwife is considered very valuable, and there are reports that these health care providers were rated the highest in terms of quality of supportive care during birth.⁷

Limitations

The fact that study participants were interviewed several months after the birth may impact their recall of some pregnancy and birth events, and their evaluation of maternity care.³²⁻³⁴ This is important to consider in this study because the information levels were self-reported. Therefore women whose infants had poor birth outcomes may have underestimated the level of information they had for a topic related to that birth outcome. As well, the secondary nature of the data restricted the information that could be used in the study, such as in the cases of perceived and received social support where proxy variables were used rather than validated scales.

CONCLUSIONS

To the best of our knowledge, this is the first study to assess pre- and postnatal health information using structural equation modeling analysis. It has been illustrated that pregnant women in Canada require additional information on a range of topics, and that income and level of perceived social support have significant influ-

ence on these information levels. This research provides an opportunity for women's views to be incorporated into the development of perinatal health policies and practices.

REFERENCES

- McKenzie PJ. Connecting with information sources: Information seeking as discursive action. *New Rev Information Behav Res* 2003;3:161.
- Raine R, Cartwright M, Richens Y, Mahamed Z, Smith D. A qualitative study of women's experiences of communication in antenatal care: Identifying areas for action. *Maternal Child Health J* 2009;14(4):590.
- Beebe KR, Humphreys J. Expectations, perceptions, and management of labor in nulliparas prior to hospitalization. *J Midwifery Women's Health* 2006;51(5):347.
- Hanson L, VandeVuse L, Roberts J, Forristal A. A critical appraisal of guidelines for antenatal care: Components of care and priorities in prenatal education. *J Midwifery Women's Health* 2009;54:458-68.
- Klein MC, Kaczorowski J, Hearps SJC, Tomkinson J, Baradaran N, Hall WA, et al. Birth technology and maternal roles in birth: Knowledge and attitudes of Canadian women approaching childbirth for the first time. *J Obstet Gynaecol Canada* 2011;33(6):598-608.
- Tough SC, Clarke M, Hicks M, Cook J. Pre-conception practices among family physicians and obstetrician-gynaecologists: Results from a national survey. *J Obstet Gynaecol Canada* 2011;28(9):780-88.
- Declercq E, Sakala C, Corry M, Applebaum S. Listening to Mothers II: Report of the Second National U.S. Survey of Women's Childbearing Experiences. New York, NY: Childbirth Connection, 2006.
- Chalmers B, Dzakpasu S, Heaman M, Kaczorowski J, for the Maternity Experiences Study Group of the Canadian Perinatal Surveillance System. The Canadian Maternity Experiences Survey: An overview of findings. *J Obstet Gynaecol Canada* 2008;30(3):217.
- Public Health Agency of Canada. Maternity Experiences Survey, 2006 Questionnaire, 2009. Available at: <http://www.phac-aspc.gc.ca/rhs-ssg/survey-eng.php> (Accessed March 10, 2011).
- Sword W, Watt S. Learning the needs of postpartum women: Does socioeconomic status matter? *Birth* 2005;32(2):86.
- Shieh C, McDaniel A, Ke I. Information-seeking and its predictor in low-income pregnant women. *J Midwifery Women's Health* 2009;54:364.
- Lewallen LP. Healthy behaviors and sources of health information among low-income pregnant women. *Public Health Nurs* 2004;21(3):200.
- Dzakpasu S, Kaczorowski J, Chalmers B, Heaman M, Duggan J, Neusy E. The Canadian Maternity Experiences Survey: Design and methods. *J Obstet Gynaecol Canada* 2008;30(3):207.
- Statistics Canada. Low Income Cut-offs for 2008 and Low Income Measures for 2007, 2009. Available at: <http://www.statcan.gc.ca/pub/75f0002m/75f0002m2009002-eng.pdf> (Accessed May 2, 2012).
- Statistics Canada. Postal Code Conversion File, No. 92F0153GIE. Ottawa, ON: Statistics Canada, 2007.
- Rosenblatt RA, Dobie SA, Schneeweiss R, Gould D, Raine TR, Benedetti TJ, et al. Interspecialty differences in the obstetric care of low-risk women. *Am J Public Health* 1997;87(3):344.
- Best Start: Ontario's Maternal, Newborn and Early Child Development Resource Centre. Prenatal Education in Ontario, Better Practices. Toronto, ON, 2007. Available at: http://www.beststart.org/resources/rep_health/pdf/prenatal_education_web.pdf (Accessed May 2, 2012).
- Collins NL, Dunkel-Schetter C, Lobel M, Scrimshaw SCM. Social support in pregnancy: Psychosocial correlates of birth outcomes and postpartum depression. *J Personality Soc Psychol* 1993;65(6):1243.
- Essex HN, Pickett E. Mothers without companionship during childbirth: An analysis within the millennium cohort study. *Birth* 2008;35(4):266.
- Fox J. Structural equation modeling with the SEM package in R. *Structural Equation Modeling* 2006;13(3):465.
- Costello AB, Osborne JW. Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research and Evaluation* 2005;10(7):1.
- Statistics Canada. Data quality, concepts and methodology: Definitions, 2009. Available at: <http://www.statcan.gc.ca/pub/82-625-x/2012001/dq-qd-eng.htm> (Accessed March 10, 2011).
- Schumacker RE, Lomax RG. *A Beginner's Guide to Structural Equation Modeling*, 3rd ed. New York: Routledge, 2010.
- Bollen KA, Paxton P. Interactions of latent variables in structural equation models. *Structural Equation Modeling* 1998;5:267.
- R Development Core Team (2011). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. Available at: <http://www.R-project.org/> (Accessed May 2, 2012).
- Aaronson LS, Mural CM, Pfoutz SK. Seeking information: Where do pregnant women go? *Health Educ Behav* 1988;15(3):335.
- Iams JD. Prediction and early detection of preterm labour. *Obstet Gynecol* 2003;101(2):402-12.
- Hodnett ED. Pain and women's satisfaction with experience of childbirth: A systematic review. *Am J Obstet Gynecol* 2002;10(186):S160-S172.

29. Shieh C, Mays R, McDaniel A, Yu J. Health literacy and its association with the use of information sources and with barriers to information seeking in clinic-based pregnant women. *Health Care for Women Int* 2010;30(11):971.
30. Eiser C, Eiser JR. Health education needs of primigravidae. *Child: Care, Health and Development* 1985;11:53.
31. Martin D. Childbirth expectations among low to moderate income nulliparous women. Unpublished Master of Public Health, Southern Connecticut State University, New Haven, CT, 2009.
32. Waldenstrom U. Women's memory of childbirth at two months and one year after the birth. *Birth* 2003;30:248.
33. Tomeo CA, Rich-Edwards JW, Michels KB, Berkey CS, Hunter DJ, Frazier AL. Reproducibility and validity of maternal recall of pregnancy-related events. *Epidemiol* 1999;10:774.
34. Niven CA, Murphey-Black T. Memory for labor pain: A review of the literature. *Birth* 2000;27:244.

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RÉSUMÉ

Objectifs : Notre étude visait à : 1) évaluer les niveaux d'information des Canadiennes sur des sujets de santé pré- et post-natals au sein d'échantillons de femmes primipares et multipares et 2) cerner les facteurs associés aux niveaux d'information sur la santé dans les deux groupes et les pistes causales de telles associations.

Méthode : Nous avons utilisé les données de l'Enquête sur l'expérience de la maternité (2006) élaborée par le Système canadien de surveillance périnatale (N=6 421). La population étudiée englobait les mères, âgées de ≥15 ans lors de l'accouchement, ayant accouché d'un enfant vivant unique, au Canada, au cours des trois mois précédant le Recensement de 2006 et qui habitaient avec leur nourrisson au moment de l'enquête. Au moyen d'une modélisation par équations structurelles, nous avons cerné et examiné les éléments d'information sur la santé acquis avant et après l'accouchement dans les deux échantillons et évalué les facteurs ayant pu influencer ce niveau d'information.

Résultats : Les femmes primipares et multipares sentaient qu'elles étaient insuffisamment informées sur des sujets semblables : médicaments antidouleur/anesthésie, signes de danger/complications, allaitement artificiel et changements dans la réponse sexuelle. Ce constat commun souligne que ces besoins d'information touchaient largement toute la population des femmes enceintes plutôt que de varier selon la parité. Le niveau de soutien social perçu était associé positivement à l'acquisition d'information sur tous les sujets de santé à l'étude, dans les deux échantillons ($p < 0,0001$ dans les deux cas). De plus, dans les deux échantillons, le revenu était associé positivement aux niveaux d'information, dans une proportion semblable, sur un éventail de sujets ($p < 0,0001$ – $p < 0,05$).

Conclusions : Des Canadiennes primipares et multipares ont jugé avoir un niveau d'information insuffisant sur les mêmes sujets et ont cerné les lacunes à combler. Le niveau perçu de soutien social et le revenu influençaient significativement les niveaux d'information sur des sujets de santé pré- et post-natals. En conséquence, les femmes à faible revenu et celles qui disent manquer de soutien social peuvent être identifiées par le personnel soignant comme ayant besoin d'un surcroît d'information sur la santé.

Mots clés : information publique sur la santé; soins prénatals; soins post-natals