

# PRIME:

## The Perinatal Report on Infants' and Mothers' Experiences

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**A Report on the Experiences of New Mothers in Eastern Ontario**

**December 7, 2010**





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# Executive Summary

## Demographics:

- The average age of the women who participated was 30 years old.
- The majority of respondents had either a college or university education and were married or living with a common law partner.
- Three quarters of the participants said English was their preferred language.
- Over 80% were born in Ontario while 10% were born in Québec.

## Conception of Baby:

- 70.9% of women said that their pregnancy came at the right time for them. 9.1% said they wanted to be pregnant sooner, 14.7% said they wanted to be pregnant later and 5.3% said they didn't want to be pregnant at all.
- 80% of respondents said that their husband or partner wanted them to be pregnant.
- Before they were pregnant, 35.6% of respondents asked a healthcare provider for pregnancy-related health information and approximately 95% of women were either somewhat or very satisfied with the information they received.
- About 60% of respondents reported taking folic acid before pregnancy and 92% took it every day. During the first three months of pregnancy, 91% of respondents took folic acid and 93% took it every day.

## Prenatal Care:

- Mothers received an average of 14 prenatal care visits. 1.7% of respondents said they had fewer than 4 prenatal care visits, which is defined as inadequate prenatal care.
- 63% received prenatal care from an obstetrician or gynecologist while 27.5% were seen by a family doctor and 7% by a midwife.
- 26.8% of mothers took a prenatal course. For 53.2% this course was at the Eastern Ontario Health Unit (EOHU) and for 27.3% it was at the hospital.

## Weight Gain During Pregnancy:

- Mothers in this survey weighed an average of 150 lb. before pregnancy and gained an average of 34 lb. during their pregnancy.

## Health Problems During Pregnancy:

- Approximately 30% of respondents developed a new medical condition during pregnancy. The most common conditions were high blood pressure (14.7%), vomiting (12.6%) and gestational diabetes (11.3%).

**Stressful Life Events:**

- 56% of respondents experienced at least one stressful event in the year before the birth of the baby.
- The most common stressful events were moving to a new address, having a close family member who was very sick, the death of a close friend or relative and arguing more with their husband or partner.

**Labour and Delivery:**

- Women in the EOHU region travelled an average of 34 km to give birth. The distance ranged from 0 km for women who gave birth at home up to 220 km away.
- The most common healthcare provider who delivered the baby was an obstetrician (71.4%).
- Overall, 72% of women in the EOHU region had a vaginal birth and the other 27% had a cesarean birth.

**Postpartum Care:**

- The average length of stay in hospital for infants in the study was 3.6 days. New mothers stayed in hospital an average of 2.31 days for vaginal births and 3.31 days for cesareans.

**Breastfeeding Experiences in Hospital:**

- 83.4% of respondents were given breastfeeding information while in the hospital. Those who did not receive the information were more likely to be from Stormont and Dundas Counties.
- Younger mothers were significantly less likely than older mothers to receive breastfeeding support while in the hospital.
- Mothers in the lowest household income groups were the most likely to receive formula from the hospital.

**Breastfeeding in General:**

- 87% of women attempted to breastfeed; 51.4% were still breastfeeding at 4 months and 39.0% after 6 months.
- 13.6% of respondents said they were breastfeeding exclusively at 4 months and 5.2% at 6 months.

**Infant at Home:**

- 80% of mothers put their infants down to sleep on their backs; 12% put the infant to sleep on his or her side and 6% on his or her stomach.

**Mother at Home:**

- 93.2% of mothers were able to count on their husband or partner for support and 83.9% also said that they relied on a relative, friend or neighbour.

**Postnatal Depression:**

- Following the birth 30.7% of women were a little depressed, 11.3% were moderately depressed, 4.0% very depressed and the remaining 54% were not depressed at all.

**Smoking:**

- 26% of respondents reported smoking cigarettes in the last two years.
- Of the mothers who smoked, 31.5% smoked daily during the last 3 months of pregnancy, 21.2% occasionally, and 47.3% did not smoke at all.

**Alcohol Use:**

- After they realized they were pregnant, 89.7% of mothers reported that they were not drinking or had stopped drinking alcohol.
- The majority of those who continued drinking alcohol reported having less than one drink a month (73.8%) or one drink a month (11.7%).
- 26.3% of mothers reported drinking alcohol while breastfeeding. The majority had about one drink per month.

**Drug Use:**

- 32.9% of respondents reported using some kind of prescription drug during their pregnancy.
- Before pregnancy or before they knew they were pregnant, 6% of respondents said they had used street drugs and 0.7% of respondents continued using drugs during pregnancy.
- The most commonly reported drug was marijuana.

**Abuse and Violence:**

- 7.4% of respondents said they experienced some violence in the past two years and 2.6% said the violence occurred during their pregnancy.
- For the majority of respondents the person who was violent towards them was their husband, partner or boyfriend (65%).

**EOHU Services:**

- Watch Me Grow was the program that respondents were the most familiar with (93.3%), followed by Prenatal Classes (92.1%).
- The EOHU programs with the highest satisfaction ratings were the Car Seat Inspection services (9.44) and the Home Visiting Program (9.02).

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# Part 1: Introduction

Maternal health refers to the health of women during pregnancy, childbirth and the postpartum period. The health of mothers and their newborns is a powerful indicator of the well-being of a society or community.<sup>1</sup>

While maternal and infant mortality rates are important measures of comparison on an international scale, Canada has one of the lowest rates of maternal mortality in the world.<sup>2</sup> In Canada, the focus has shifted from issues associated with medical care, towards risk behaviours, health knowledge and access to health services before, during and after a pregnancy.

The Ontario Public Health Standards (OPHS) mandate that health units conduct surveillance on preconception health, healthy pregnancies, reproductive health outcomes and preparation for parenthood. The goal is to enable individuals and families to achieve optimal preconception health, experience a healthy pregnancy, have the healthiest newborn(s) possible, and are prepared for parenthood. Under the child health standards, the Eastern Ontario Health Unit (EOHU) is committed to monitoring trends for breastfeeding as well as the growth and development of children with the goal of enabling all children to attain and sustain optimal health and development potential.<sup>3</sup>

Due to the scarcity of local or regional data about child and maternal health issues, and to meet the OPHS' surveillance requirements as well as other data needs of the EOHU's programs and services, the EOHU developed and implemented a new study titled: The Perinatal Report on Infants' and Mother's Experiences (PRIME). The purpose of the study is to fill the void and meet the health information needs of our community.

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<sup>1</sup> World Health Organization. Maternal Health. [http://www.who.int/topics/maternal\\_health/en/](http://www.who.int/topics/maternal_health/en/)

<sup>2</sup> Public Health Agency of Canada (2005). Make Every Mother and Child Count. Catalogue number: H124-13/2005.

<sup>3</sup> Ministry of Health and Long-Term Care (2008). Ontario Public Health Standards 2008.

## Part 2: Methodology

In this study, we recruited women who gave birth in the Eastern Ontario Health Unit's catchment area and agreed to be contacted for research purposes using two sampling frames, the Children Information Systems (ISCIS), and the EOHU New Babies database. Initially, we aimed to survey all eligible women who gave birth between June 2008 and May 2009 using the ISCIS; but due to data quality issues, and a lower than expected response rate, we had to supplement our sample to also include mothers who gave birth between June 2009 and December 2009 from the EOHU New Babies database. It is estimated that the EOHU captures between 90 to 95% of all births in its catchment area. Expanding the time frame for eligibility and the inclusion of two data sources enabled us to recruit a large sample of new mothers. By the end of the study, we collected information from 1000 new mothers over 15 years of age in Eastern Ontario.

The recruitment process began by sending every woman in the study population a personalized bilingual letter inviting them to participate and giving them the option to withdraw from the study. The data collection fieldwork started approximately two weeks after the letters were sent out. The survey included over 200 questions and took approximately 25 minutes to complete. It was administered over the telephone by female interviewers working for a research firm contracted by the EOHU. The interviews were conducted in both French and English.

The survey instrument used for this study was modeled after the Centers for Disease Control and Prevention's (CDC) PRAMS survey, and the Public Health Agency of Canada's Maternity Experiences Survey (MES). The EOHU questionnaire used some of the PRAMS and MES questions directly, adapted others to better capture some unique aspects of the local situation, and also added questions to directly address EOHU services offered. The survey results were analyzed using PASW Statistics 18 (formerly known as SPSS).

This report presents findings from the PRIME. The results are reported by maternal age, maternal education, household income, marital status, county of residence and type of birth (i.e. vaginal or cesarean).

## Part 3: Results

### Demographics

This section presents the socio-demographic characteristics of the women who participated in the PRIME study. The average age of the women who participated was 30 years old. The majority had either a college or university education and were married or living with a common law partner. Three quarters of the participants said English was their preferred language, and over 80% were born in Ontario while 10% were born in Québec.

#### Age of Participants

The women in this study ranged in age from 15 to 48 years and were an average of 30 years old at the time of the interview. Women aged 30 to 39 years and women aged 20 to 29 years old made up the majority of the survey respondents (Table 1).

**Table 1 - Age of Participants**

<b>Age at time of Interview:</b>	<b>Frequency</b>	<b>Percent</b>
15-20 Years	22	2.2%
20-29 Years	450	45.0%
30-39 Years	490	49.0%
40+ Years	38	3.8%
Total	1000	100.0%

#### Education

Over one third of participants in the PRIME had a college diploma, another third had a university degree and the remaining third had a high school education or less (Table 2).

**Table 2 - Education**

<b>Highest Level of Education Completed:</b>	<b>Frequency</b>	<b>Percent</b>
Less Than High School	54	5.4%
High School Graduate	249	25.1%
College Diploma	365	36.7%
University Degree	326	32.8%
Total	994	100.0%
Missing	6	

## Household Income

About 16% of the women in the sample have a household income under \$30,000 and 23% reported a household income between \$30,000 and less than \$60,000. On the other hand, more than 60% of participants reported a household income of \$60,000 or more. In fact, more than 27% reported an income of \$100,000 or more (Table 3). The large number of women who reported high household incomes likely reflects the greater representation of women in the sample who are married or in a common law relationship (see Table 5). Approximately, 11% of the sample declined to report their household income or did not know.

**Table 3 - Household Income Before Taxes and From All Sources in the Past 12 Months**

<b>Household Income:</b>	<b>Frequency</b>	<b>Percent</b>
<\$20,000	82	9.3%
\$20,000 to less than \$30,000	58	6.5%
\$30,00 to less than \$40,000	62	7.0%
\$40,000 to less than \$50,000	62	7.0%
\$50,000 to less than \$60,000	81	9.1%
\$60,000 to less than \$80,000	151	17.0%
\$80,000 to less than \$100,000	149	16.8%
\$100,000 to less than \$150,000	177	20.0%
\$150,000+	64	7.2%
Total	886	100.0%
Missing	114	

## County of Residence

The county of residence in this study is based on the respondent's postal code at the time of contact. Just over 30% of participants were from Stormont County (including the City of Cornwall) and another 30% were from Russell County. The other three counties had about 13% of respondents each (Table 4).

**Table 4 - Participants' County of Residence**

<b>County of Residence:</b>	<b>Frequency</b>	<b>Percent</b>
Stormont	294	31.4%
Dundas	122	13.0%
Glengarry	118	12.6%
Prescott	125	13.3%
Russell	278	29.7%
Total	937	100.0%
Missing	63	

## Marital Status

The majority of participants were either married (63.6%) or currently living with a common law partner (27.3%). A much smaller proportion was single (7.8%) and the smallest proportion reporting being either separated or divorced (1.3%).

**Table 5 - Marital Status of Participants**

Marital Status	Frequency	Percent
Married	635	63.6%
Common Law	272	27.3%
Separated/Divorced	13	1.3%
Never Married	78	7.8%
Total	998	100.0
Missing	2	

## Language

Just less than three quarters of new mothers in this study reported English as their language of preference. French was the preferred language for 26.9% of respondents. The remaining 1.1% said they preferred other languages including Urdu, Filipino, Arabic and German. The 'Other' category also included several respondents who said they had no preference between English and French (Table 6). The language of preference variable used throughout the analysis excluded the participants from the 'Other' category due to issues with sample size.

**Table 6 - Participants' Language of Preference**

Language of Preference:	Frequency	Percent
English	717	72.0%
French	268	26.9%
Other	11	1.1%
Total	996	
Missing	4	

## Mother's Background

Over 94.0% of new mothers in the EOHU region were born in Canada (Table 7). The majority of the women born in Canada were born in Ontario (83.8%), while a significant number were also born in Québec (10.9%) (Table 8).

A small proportion of respondents said they have Aboriginal status (4.4%) (Table 9).

**Table 7 - Mothers Born in Canada**

<b>Mothers Born in Canada:</b>	<b>Frequency</b>	<b>Percent</b>
Born in Canada	943	94.5%
Born Outside of Canada	55	5.5%
Total	998	100.0
Missing	2	

**Table 8 - Mother's Province of Birth**

<b>Mother's Province of Birth:</b>	<b>Frequency</b>	<b>Percent</b>
Ontario	790	83.8%
Québec	103	10.9%
Other Province	50	5.3%
Total	943	100.0
Missing	57	

**Table 9 - Aboriginal Status**

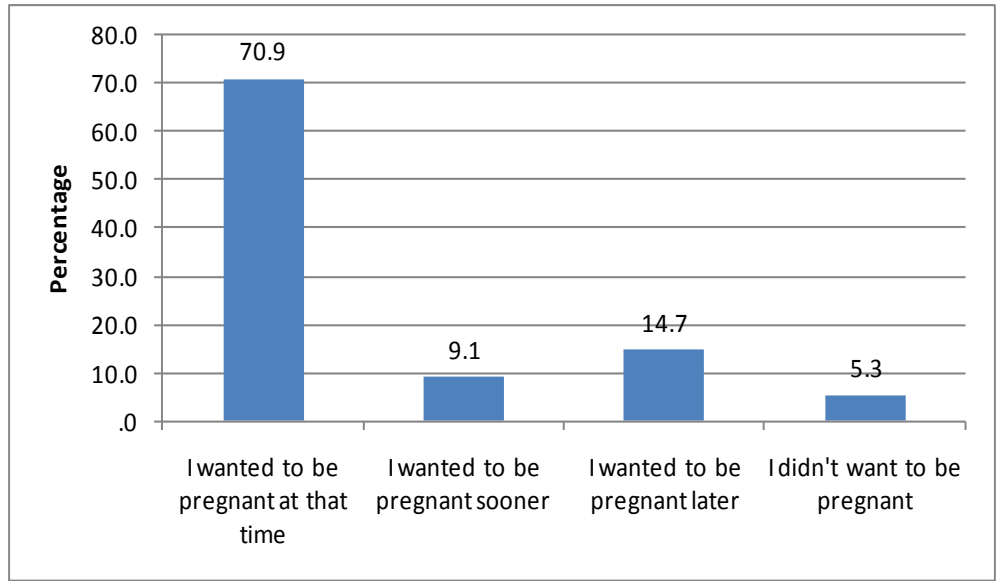
<b>Mothers Who Are First Nations, Métis or Inuit:</b>	<b>Frequency</b>	<b>Percent</b>
Yes	43	4.4%
No	938	95.6%
Total	981	100.0
Missing	19	

## Conception

### Timing of Pregnancy

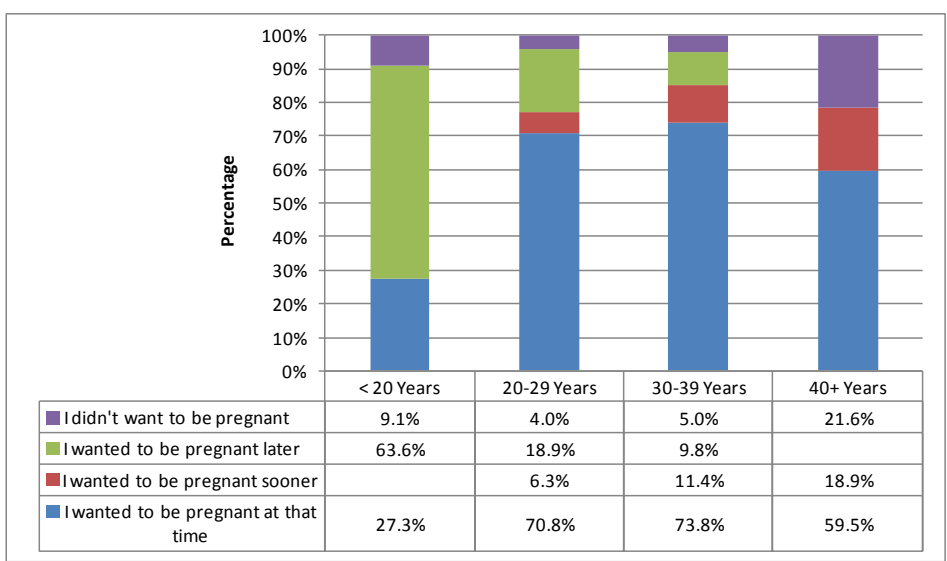
Asking about the intention and timing of a pregnancy is important because unwanted pregnancies are strongly associated with an increased risk for adverse outcomes for both the infants and the mothers such as higher rates of mortality and morbidity.

In the EOHU region 70.9% of women said that their pregnancy came at the right time for them. 9.1% said they wanted to be pregnant sooner, 14.7% said they wanted to be pregnant later and 5.3% said they didn't want to be pregnant at all (Figure 1).



**Figure 1 - Timing of Pregnancy**

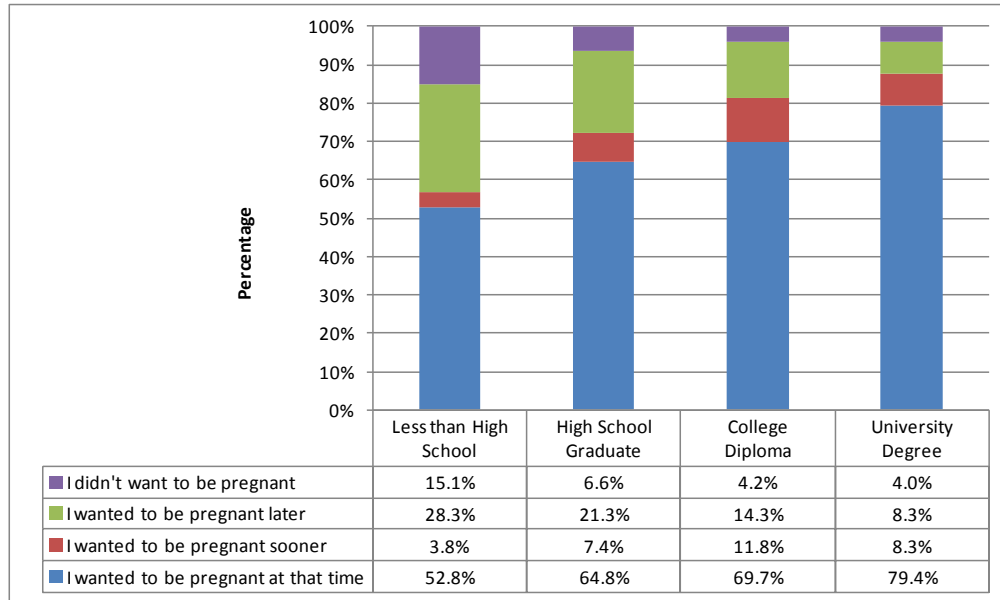
Almost three quarters of women in the youngest age group, under 20 years of age, either wanted to be pregnant later (63.6%) or didn't want to be pregnant at all (9.1%). On the other hand, women in the oldest age group were more likely than the women in the other age groups to say they wanted to be pregnant sooner (18.9%), or that they didn't want to be pregnant at all (21.6%) (Figure 2).



**Figure 2 - Timing of Pregnancy, by Age Group**

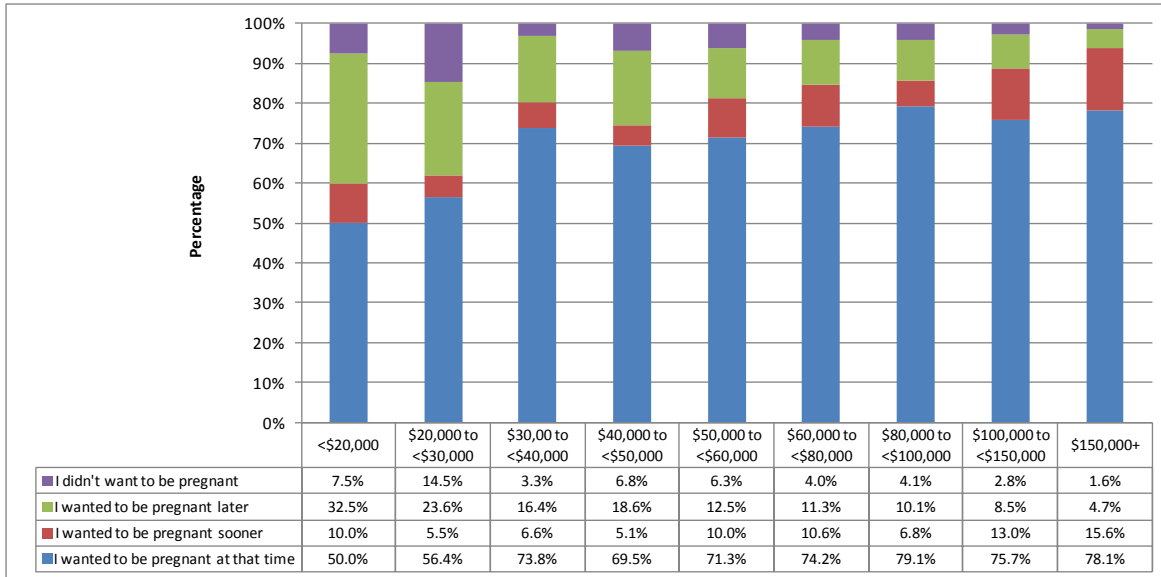
As can be seen in Figure 3 there is a clear association between a woman's level of education and the timing of her pregnancy. The more education a mother had, the more likely she was to say that her

pregnancy came at the right time, 79.4% of mothers with a university degree said their pregnancy came at the right time compared to 52.8% of mothers with less than a high school education. Women with the least education were significantly more likely to say that the pregnancy did not come at the right time. 28.8% with less than high school said that they wanted to be pregnant later, compared to 8.3% with a university education and 15.1% of women with less than high school said they did not want to be pregnant at all, compared to 4.0% with the highest level of education.



**Figure 3 - Timing of Pregnancy, by Level of Education**

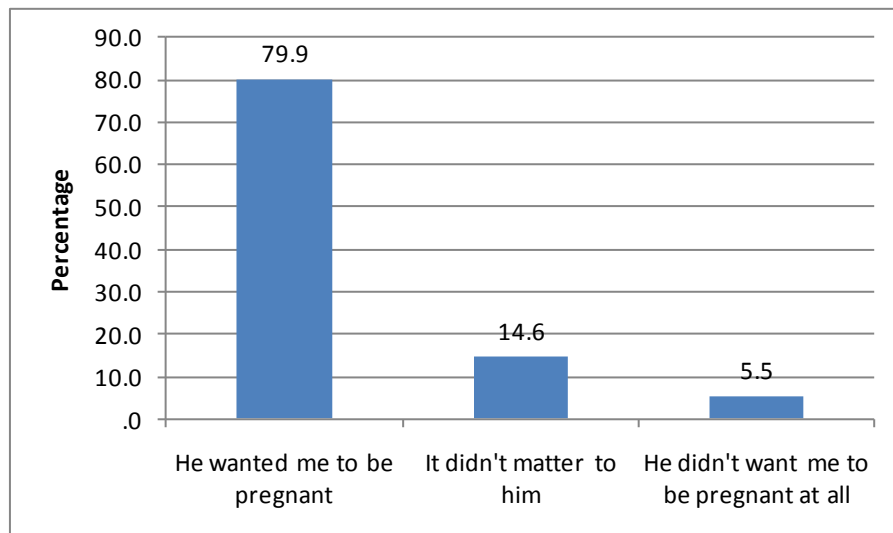
Similar to the association seen between level of education and timing of pregnancy, as the household income increased, mothers were also more likely to say their pregnancy came at the right time. The lower the income level, the more likely the woman was to report that she wanted to be pregnant later. Women with the lowest income were more likely to have wanted to be pregnant later (32.5%), while those with an income between \$20,000 and \$30,000 were the most likely to say they didn't want to be pregnant at all (14.5%)(Figure 4).



**Figure 4 - Timing of Pregnancy, by Income**

### Partner's Reaction to Pregnancy

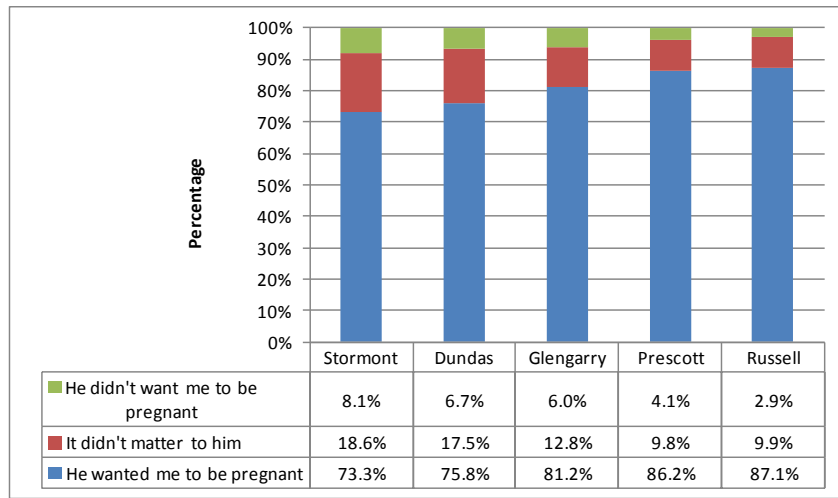
The reaction of the mother's partner is another important factor and can help to determine whether the couple felt the pregnancy came at the right time. Approximately 80% of respondents said that their husband or partner wanted them to be pregnant (Figure 5). There were significant associations with age, level of education and income. Older women with higher levels of education and income were more likely to say that their husband or partner wanted them to be pregnant.



**Figure 5 - Partner's Reaction to Pregnancy**

There was also a significant association between the partner's reaction to pregnancy and the mother's county of residence. Women from Stormont County (including the City of Cornwall) were significantly

more likely to say that their husband or partner did not want them to be pregnant compared to women from the other four counties (Figure 6).

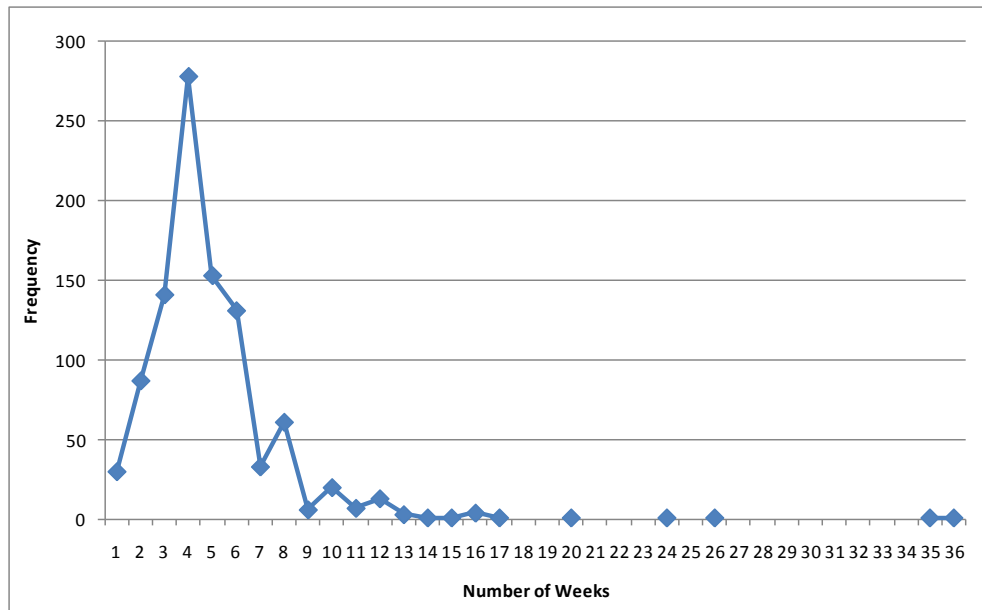


**Figure 6 - Partner's Reaction to Pregnancy, by County**

### Pregnancy Confirmed

On average, the women in this sample were at 5 weeks gestation (median=4) when they first found out they were pregnant (

Figure 7).



**Figure 7 - Number of Weeks Gestation at Which Pregnancy Was First Confirmed**

### Health Information Before Pregnancy

Before they were pregnant, 35.6% of respondents asked a healthcare provider for pregnancy-related health information and approximately 95% of women were either somewhat or very satisfied with the information they received.

The higher a mother’s level of education, the more likely she was to have asked for health information (Figure 8). Mothers with a high school education were least likely to have asked for health information before pregnancy (21.0%) compared to women with a university degree (43.5%) (Figure 8). The same trend existed with regard to income; the higher the income, the more likely the respondent was to have asked for health information (Figure 9).

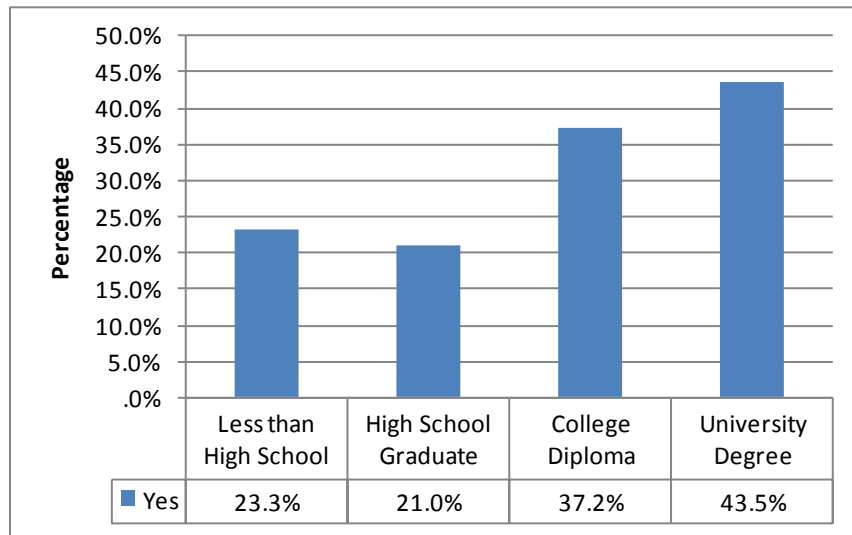
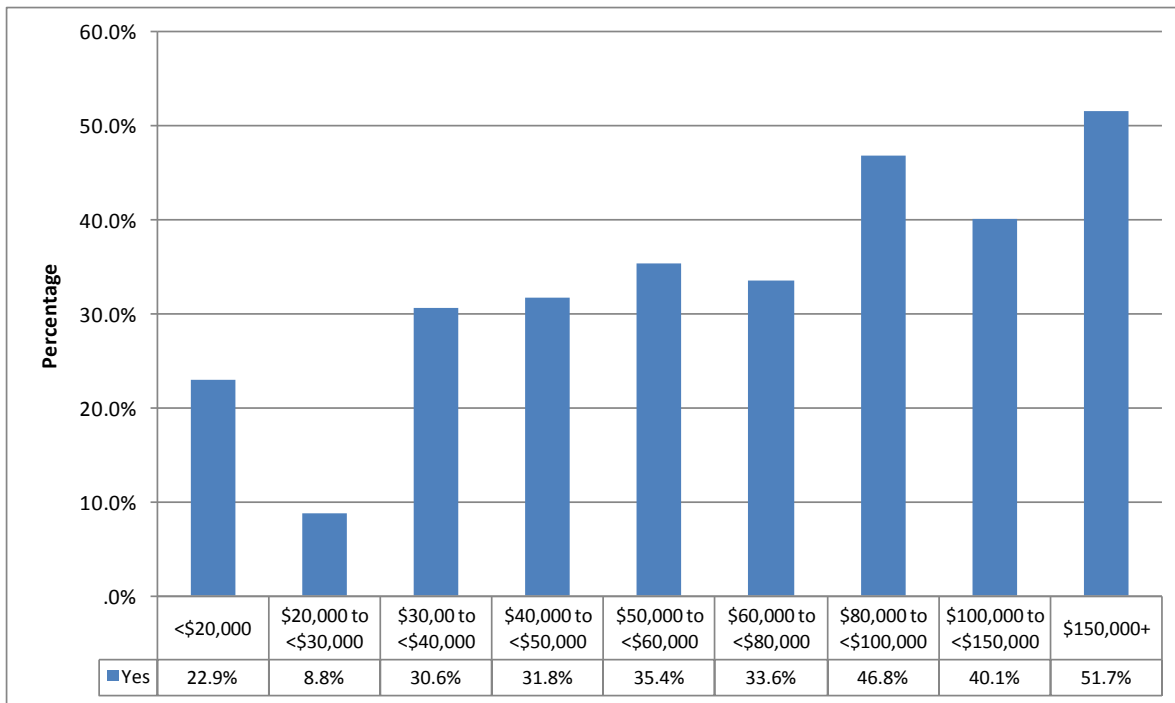


Figure 8 - Sought Health Information Before Pregnancy, by Level of Education



**Figure 9 - Sought Health Information Before Pregnancy, by Income**

### **Folic Acid Supplementation**

Folic acid is the synthetic form of vitamin B that has an influence on the normal structural development of an embryo. The Public Health Agency of Canada and Health Canada recommend that all women who could become pregnant take a daily multivitamin containing 0.4 mg of folic acid before and during pregnancy to reduce the risk of congenital anomalies, particularly neural tube defects.

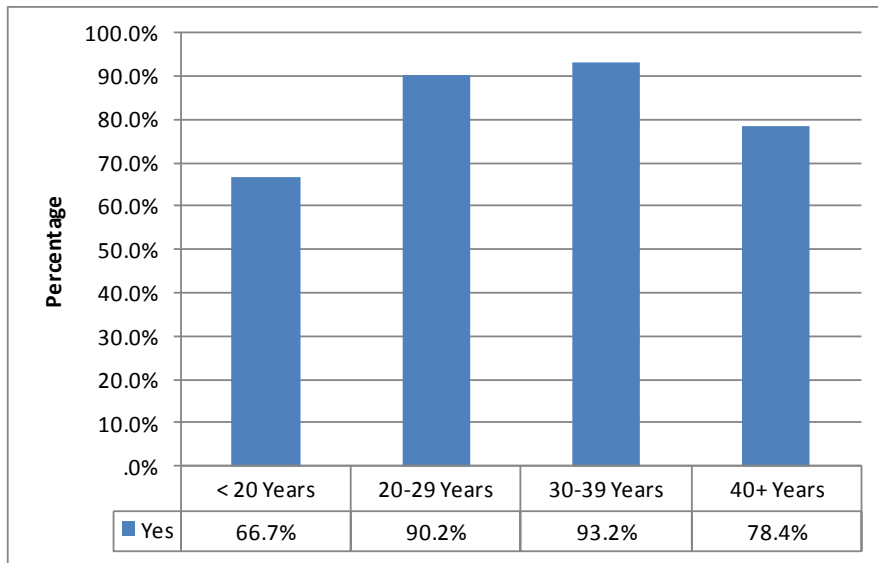
#### **Folic Acid Supplementation Before Pregnancy**

About 60% of respondents reported taking folic acid before pregnancy and 92% of them said they took it every day. Women who said their pregnancy came at the right time for them were twice as likely to have been taking folic acid before pregnancy as women who did not want the pregnant at that time (68.0% vs. 26.9%).

#### **Folic Acid Supplementation During First Three Months of Pregnancy**

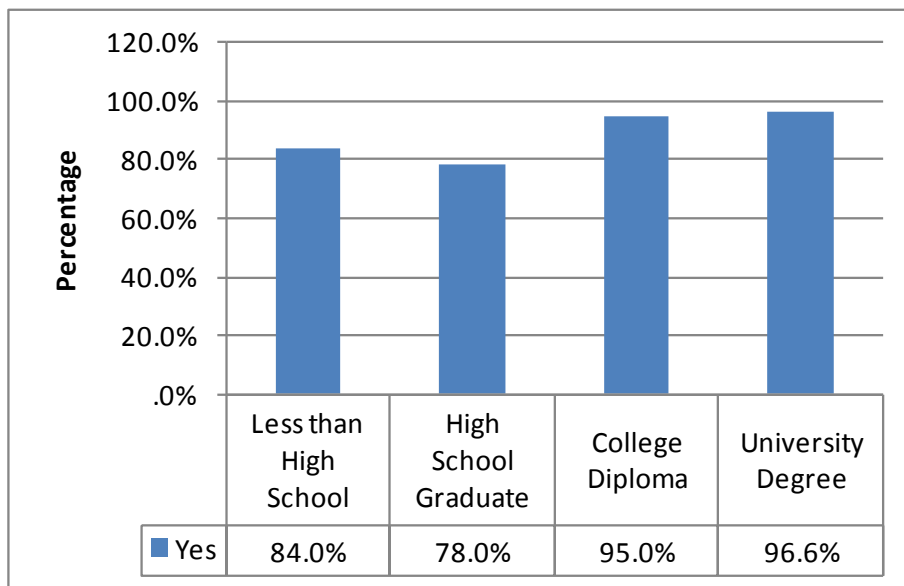
During the first three months of pregnancy, 91% of respondents took folic acid and 93% of them took it every day.

Folic acid supplementation was associated with age; women in both the youngest and oldest age groups were less likely to have taken folic acid than women in the middle age groups (66.7% and 78.4% compared to 90.2% and 93.2%) (Figure 10).



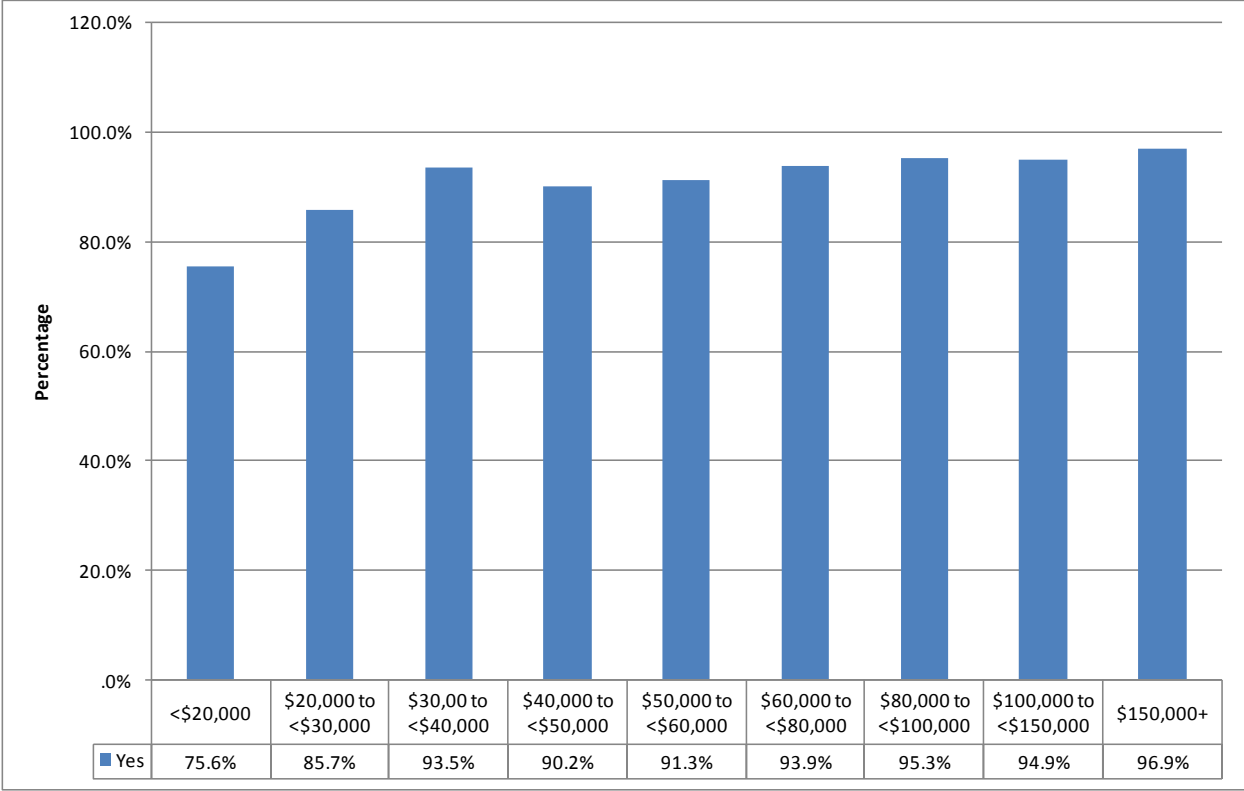
**Figure 10 - Folic Acid Supplementation During the First 3 Months of Pregnancy, by Age**

There was an association between folic acid supplementation during the first three months of pregnancy and the mother's level of education. Women with a high school education or less were less likely than mothers with more education to have taken folic acid (Figure 11).



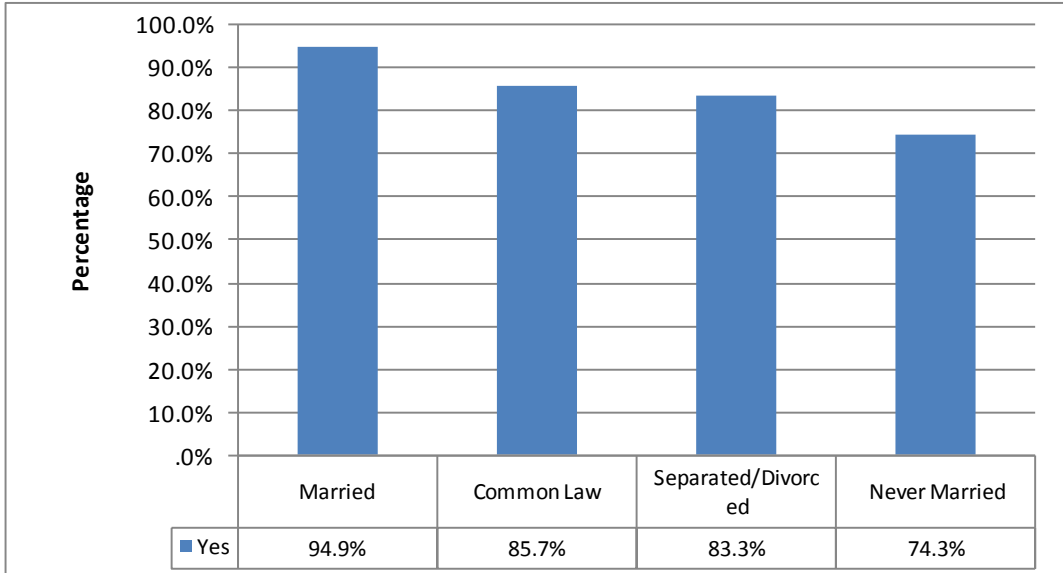
**Figure 11 - Folic Acid Supplementation During the First 3 Months of Pregnancy, by Level of Education**

Mothers in the lowest household income group (<\$20,000 per year) were the least likely to have taken folic acid during the first three months of pregnancy (Figure 12).



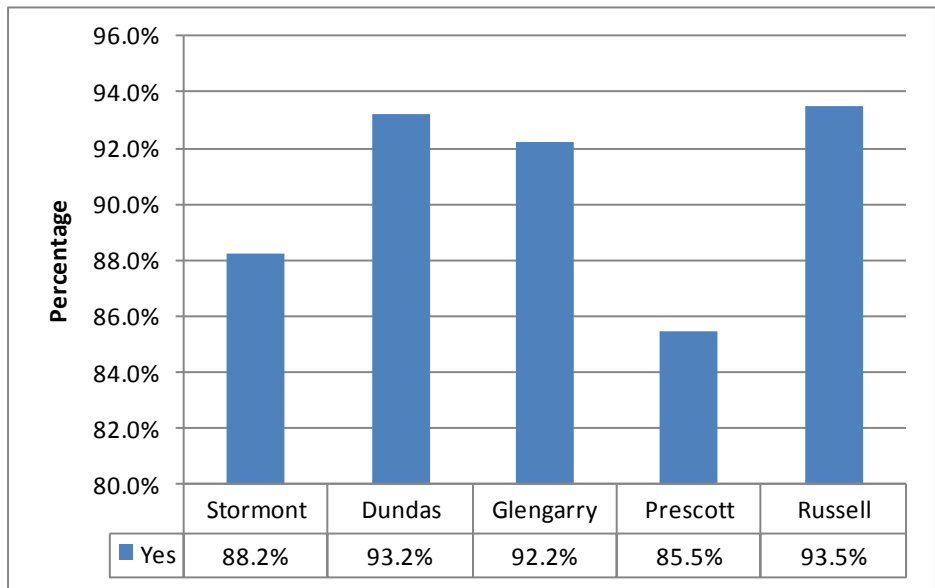
**Figure 12 - Folic Acid Supplementation During the First 3 Months of Pregnancy, by Household Income**

Married mothers were most likely to have taken folic acid during the first three months of pregnancy (94.9%), while single mothers were the least likely to have taken supplements (74.5%) (Figure 13).



**Figure 13 - Folic Acid Supplementation, by Marital Status**

There was an association between taking folic acid during the first three months of pregnancy and the county in the EOHU region. Mothers from Prescott County were the least likely to say that they took folic acid during pregnancy (85.5%), while mothers from Russell County were the most likely to report having taken the supplement (93.5%) (Figure 14).



**Figure 14 - Folic Acid Supplementation, by County**

## Fertility Treatments

Approximately 5% of respondents said they used fertility treatments to help them get pregnant.

## Pregnancy Prevention

Of the respondents who said it was not the right time for them to be pregnant, 38.6% (or 8.1% of the total sample) reported that they were doing something to prevent them from getting pregnant at the time of conception.

## Prenatal Care

### First Prenatal Care Visit

It is recommended that prenatal care be initiated during the first trimester of pregnancy which is approximately 13 weeks gestation. On average respondents were about 7 weeks pregnant when they went for their first prenatal care visit and 91% had their first prenatal care before 13 weeks gestation. The same percentage (91%) of respondents also said that they received prenatal care as early as they wanted.

Of the remaining 8.8% who were not able to get prenatal care as early as they wanted, the most common reason was that the doctor was not available (39.5%). Other common reasons were not being able to get an appointment earlier (19.8%) and the doctor would not start earlier (14.8%).

For women in the youngest age group, the most common reason for not getting prenatal care early enough was that they did not know they were pregnant (12.3%) (Figure 15).

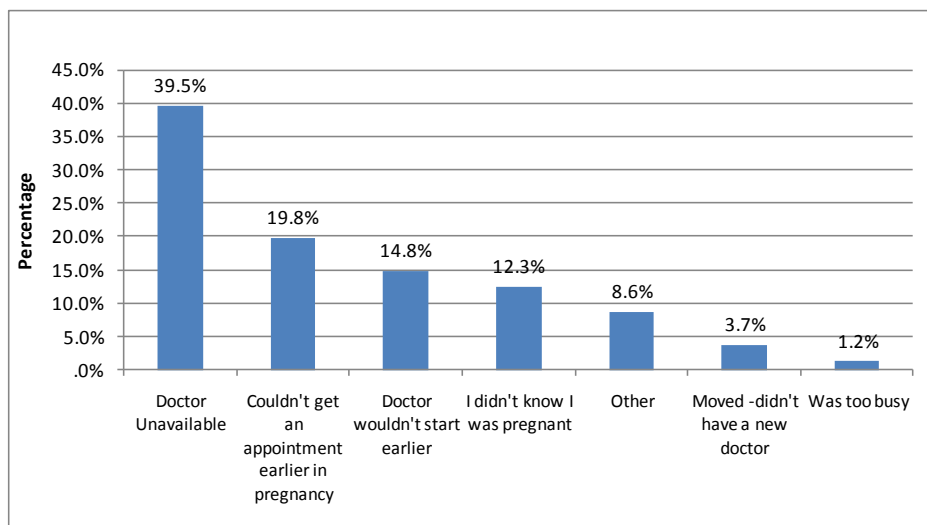


Figure 15 - Reasons for Not Getting Prenatal Care as Early as Wanted

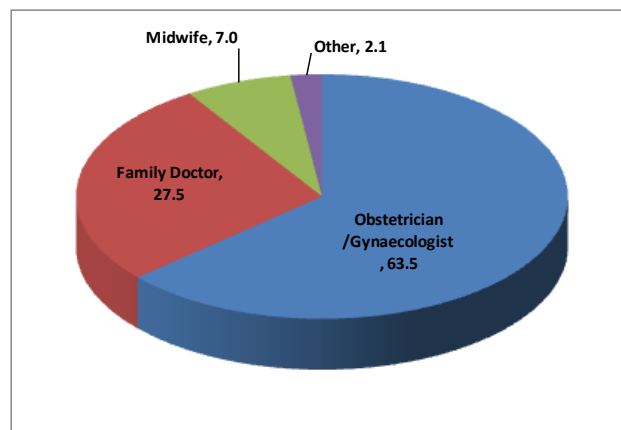
### Number of Prenatal Care Visits

Mothers in the EOHU region received an average of 14 prenatal care visits (median=12) throughout the course of their pregnancy. The number of prenatal care visits ranged from 1 to 50.

1.7% of mothers reported having fewer than 4 prenatal care visits, which is defined as having inadequate prenatal care. Further analysis of this risk group was not possible due to the small sample size.

### Prenatal Care Provider

63% of mothers received their prenatal care from an obstetrician or gynecologist, 27.5% were cared for by a family doctor and 7% from a midwife (Figure 16).



**Figure 16 - Type of Prenatal Healthcare Provider**

About 30% of women received their prenatal care in Cornwall. The second most common location for prenatal care was Ottawa (28.7%) (Table 10).

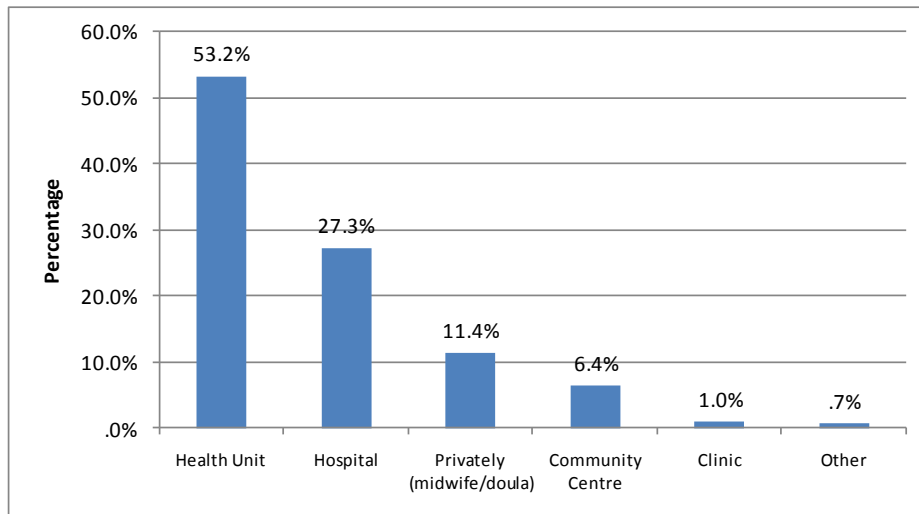
**Table 10 - The City or United Counties in Eastern Ontario Where Most Prenatal Care Was Received**

City/ United Counties	Frequency	Percentage
Cornwall	281	29.0%
Ottawa	278	28.7%
PR	232	24.0%
SDG*	163	16.8%
Other	14	1.4%
Total	968	100%

\* Excludes the City of Cornwall

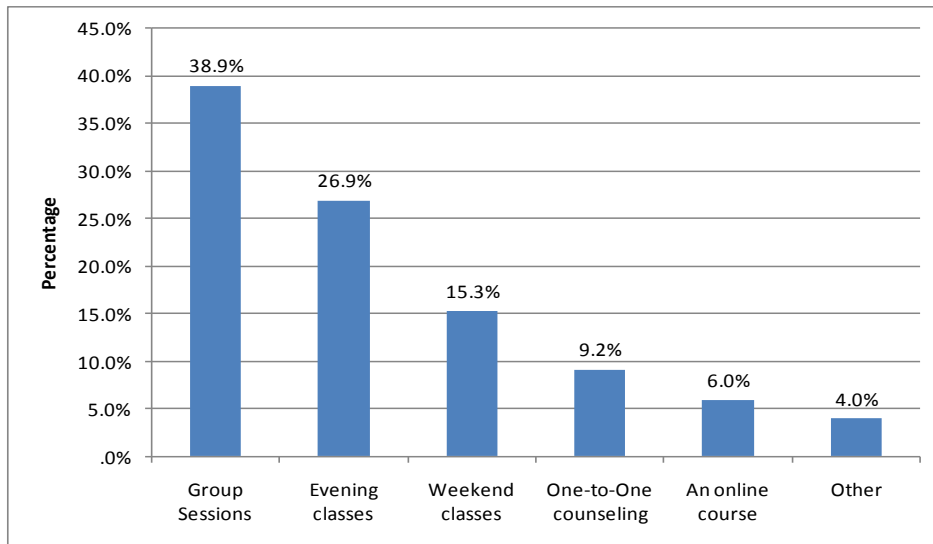
**Prenatal Classes**

26.8% of new mothers took a prenatal course or attended prenatal classes. The most common prenatal course provider was the Health Unit (EOHU) at 53.2%, followed by a Hospital (27.3%) (Figure 17).



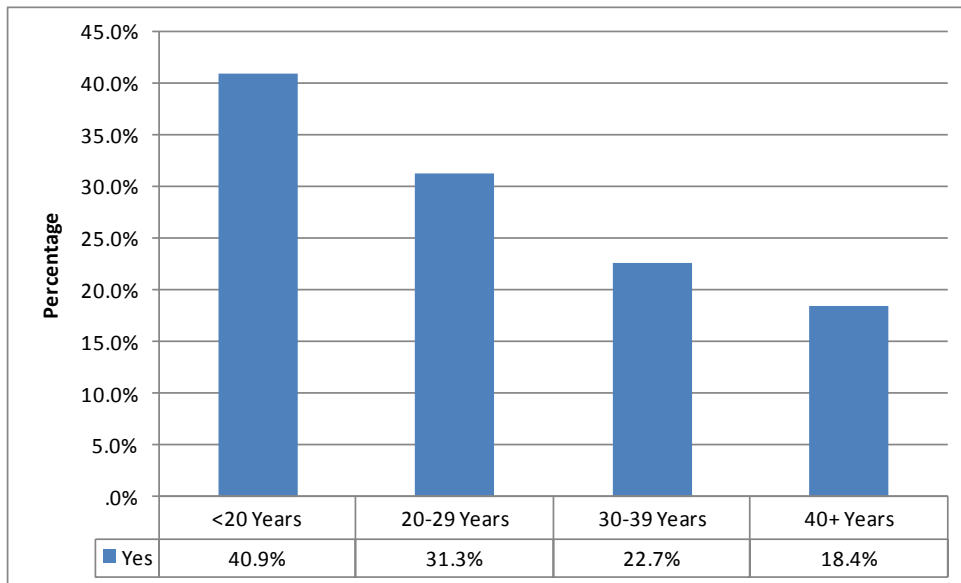
**Figure 17 - Prenatal Course Providers**

The prenatal courses most commonly included group sessions (38.9%), followed by evening (26.9%) and weekend classes (15.3%) (Figure 18).



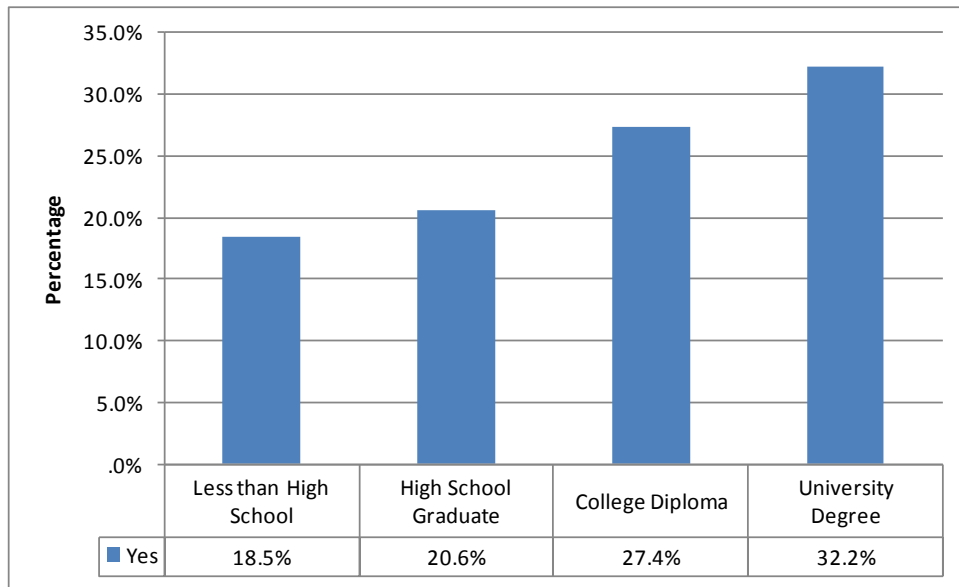
**Figure 18 - Type of Prenatal Courses**

Women in the youngest age group were the most likely to attend prenatal classes (40.9%) (Figure 19).



**Figure 19 - Attended Prenatal Courses, by Age Group**

There was also a significant association between level of education and likelihood of attending prenatal classes. Women with the highest levels of education were the most likely to attend prenatal care classes (Figure 20).



**Figure 20 - Attended Prenatal Courses, by Level of Education**

The most commonly reported reasons for not attending a prenatal course were having attended for a previous pregnancy (43.1%), not wanting to attend (20.8%) and being too busy to attend (9.1%).

## Information Received on Pregnancy, Labour and Birth

### Information Received During Prenatal Care and Pregnancy

The respondents were asked whether they had received information on various relevant health topics during their prenatal care. The most common types of information received were about screening for birth defects and diseases, medication during pregnancy (85.8%) and breastfeeding (83.3%). The least common information topics were about physical or mental abuse by a partner (45.0%) and the use of seat belts during pregnancy (41.9%) (Table 11).

**Table 11- Information Received During Prenatal Care**

<b>Received information on health topics during prenatal care:</b>	<b>Frequency</b>	<b>Percent</b>
Screening for birth defects or diseases	899	90.3%
Medicine safe to take during pregnancy	848	85.8%
Breastfeeding	828	83.3%
Physical Activity during pregnancy	792	80.1%
What to do if labour starts early	780	78.7%
Alcohol during pregnancy	775	78.2%
Birth control to use after pregnancy	737	74.5%
Smoking during pregnancy	724	73.8%
Nutrition during pregnancy	725	73.0%
HIV testing	690	71.9%
Illegal drugs during pregnancy	675	68.9%
Physical or mental abuse of women by their husband or partner	436	45.0%
Seat belts during pregnancy	411	41.9%

**Health Information Before Birth**

Respondents were also asked about information they received on specific health topics before the labour and birth. Over 93% of women received information on medical tests and procedures required during pregnancy and physical changes to the body during pregnancy (92.0%). The topic that was least reported was about the warning signs of complications during pregnancy; only 77% of women reported having this information before the labour and birth.

**Table 12 - Information Received on Health Topics Before Labour and Birth**

<b>Received information on health topics before the birth:</b>	<b>Frequency</b>	<b>Percent</b>
Medical tests or procedures that may be required during pregnancy	926	93.3%
Physical changes to your body during pregnancy	920	92.0%
The effects of medication on the baby	904	90.7%
What to expect during labour and the birth	902	90.5%
What your husband/partner could do to support you during labour and the birth	867	87.2%
Emotional changes during pregnancy	843	84.5%
Information about pre-term labour	831	83.3%
Potential side effects of pain medication and anesthesia	824	82.8%
The use of medication-free pain management techniques during labour and the birth	818	82.3%
Warning signs of complications during pregnancy	769	77.2%

The most useful sources of information for new mothers in Eastern Ontario were books and magazines (17.7%), family and friends (16.6%) and an obstetrician (16.6%).

**Table 13 - Most Useful Sources of Information, During Pregnancy**

<b>Most Useful Sources of Information During Pregnancy:</b>	<b>Frequency</b>	<b>Percentage of Responses</b>
Books/Magazines	536	17.7%
Family/Friends	503	16.6%
Obstetrician	502	16.6%
Internet	418	13.8%
Family Doctor	316	10.4%
Previous Pregnancy	272	9.0%
Health Unit Nurse	134	4.4%
Prenatal Classes	111	3.7%

### **HIV Testing**

HIV testing during pregnancy is highly recommended to help prevent the transmission of HIV from the mother to the child. Across Canada each province has different methods of offering the HIV test to pregnant women. Ontario uses an “Opt-In” approach where all pregnant women receive HIV counselling and are explicitly offered the test; only those who agree will receive the testing. In the opt-out method, all women are tested for HIV unless they explicitly refuse the test. Of new mothers in the EOHU area, 77.5% said they had a blood test for HIV/AIDS and 12.6% said that they did not know.

## **Weight Gain During Pregnancy**

### **Weight Gain During Pregnancy**

Maternal weight gain during pregnancy is an important factor of a healthy pregnancy. Women with low weight gain are at higher risk of having a preterm birth or a small-for-gestational-age infant. Women with a high weight gain are at a higher risk of having a cesarean delivery and having a large-for-gestational-age infant.

On average the mothers in this survey reported weighing 150 lb. before pregnancy and gaining about 34 lb. during their pregnancy. Health Canada’s guidelines are based on a woman’s BMI (Body Mass Index) and they recommend a gain of 25 to 35 lb. for women with a pre-pregnancy weight in the normal range, 15 to 25 lb. for women who are overweight, and 11 to 20 lb. for women who are obese.

## Health Problems During Pregnancy

### New Medical Conditions During Pregnancy

Approximately 30% of respondents said that they developed a new medical condition during pregnancy that required them to stay overnight in a hospital, to take medication for more than 2 weeks or to have extra tests done. The most commonly reported new medical conditions were high blood pressure (14.7%), vomiting, nausea or severe morning sickness (12.6%), gestational diabetes (11.3%) and pre-eclampsia (6.1%).

## Stressful Life Events

### Life Stress

Experiencing stress and anxiety during pregnancy is strongly related to adverse pregnancy outcomes. The effects on the fetus can either be direct, through the hormones released, which can result in less oxygen and fewer calories reaching the fetus, or indirectly through the adoption of unhealthy life style behaviours such as alcohol and drug use.

56% of respondents said they experienced at least one stressful life event in the 12 months before the birth of the baby (see Table 14).

**Table 14 - Stressful Life Events Experienced**

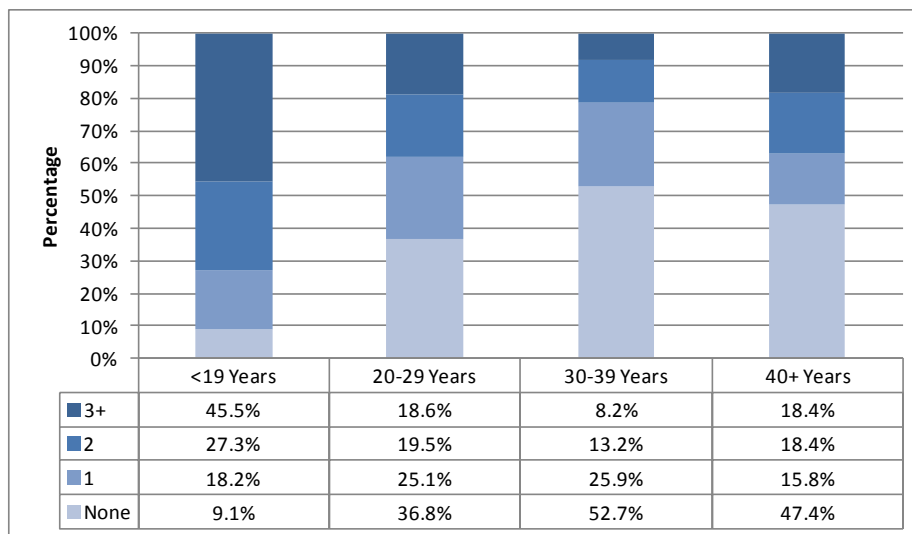
<b>Number of Stressful Life Events Experienced in the 12 Months Before the Birth:</b>	<b>Frequency</b>	<b>Percent</b>
.00	440	44.4%
1.00	248	25.0%
2.00	164	16.5%
3.00	67	6.8%
4.00	36	3.6%
5.00	21	2.1%
6.00	8	.8%
7.00	4	.4%
8.00	4	.4%
Total	992	100.0%

The most commonly reported stressful life events were having moved to a new address (26.3%), having a close family member who was very sick (19.2%), the death of a close friend or relative (15.4%) and having argued with their husband or partner more than usual (14.9%) (Table 15).

**Table 15 - Stressful Life Events**

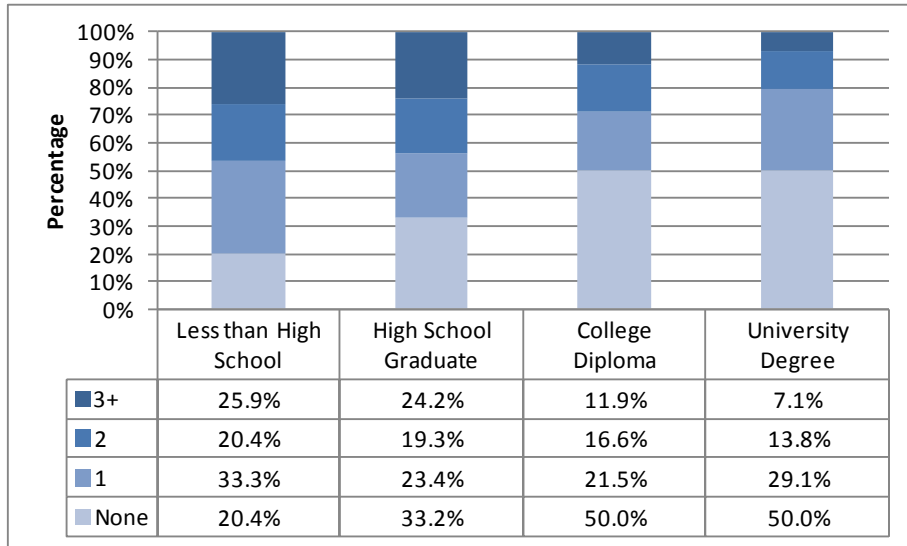
Stressful Life Events	Frequency	Percent
You moved to a new address.	263	26.3%
A close family member was very sick and had to go into the hospital.	192	19.2%
Someone very close to you died.	154	15.4%
You argued with your husband/partner more than usual.	149	14.9%
You had a lot of bills you could not pay.	95	9.5%
You or your husband/partner lost a job.	91	9.1%
Someone very close to you had a bad problem with drinking or drugs.	86	8.6%
You got separated or divorced from your husband or partner.	47	4.7%
Your husband/partner said he/she did not want you to be pregnant.	46	4.6%
You were in a physical fight.	11	1.1%
You or your husband/partner went to jail or a detention centre.	6	.6%
You were homeless.	3	.3%

Mothers aged 15 to 19 years were the most likely of all age groups to have experienced stressful life events. The youngest mothers were most likely to have experienced 2 or more stressful events in the past year. For mothers in the oldest age group, more than half of them said they had no stressful events, or only one stressful event in the past year (Figure 21).



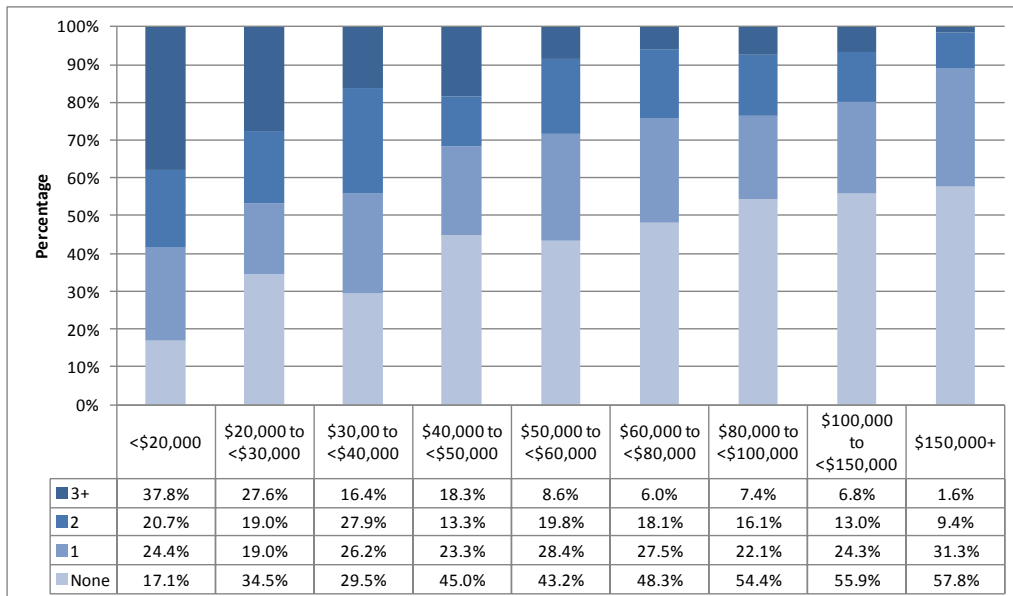
**Figure 21 - Number of Stressful Life Events, by Age Group**

The number of stressful events experienced in the year before the birth of the infant decreased as the mothers' level of education increased. Mothers with less than a high school education were the most likely to have experienced at least one stressful event and more likely to have experienced 2 or more stressful events in the past year compared with women with higher levels of education (Figure 22).



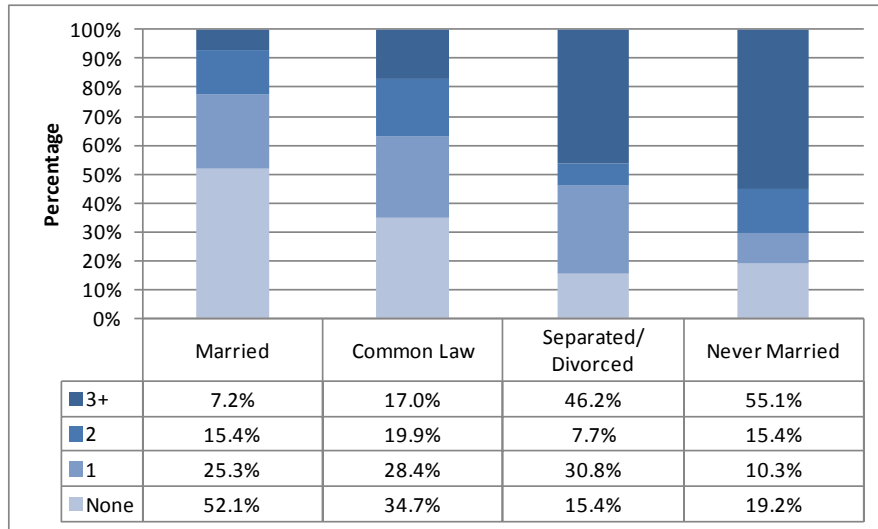
**Figure 22 - Number of Stressful Life Events, by Level of Education**

The number of stressful life events women experienced in the year before the birth decreased significantly as the household income increased. Respondents with the lowest household incomes were the most likely to report 3 or more stressful life events (Figure 23).



**Figure 23 - Number of Stressful Life Events, by Income**

Women who were married or who were currently in a common law relationship were the least likely to have reported any stressful life events. Single women were the most likely to report stressful life events, especially 3 or more (Figure 24).



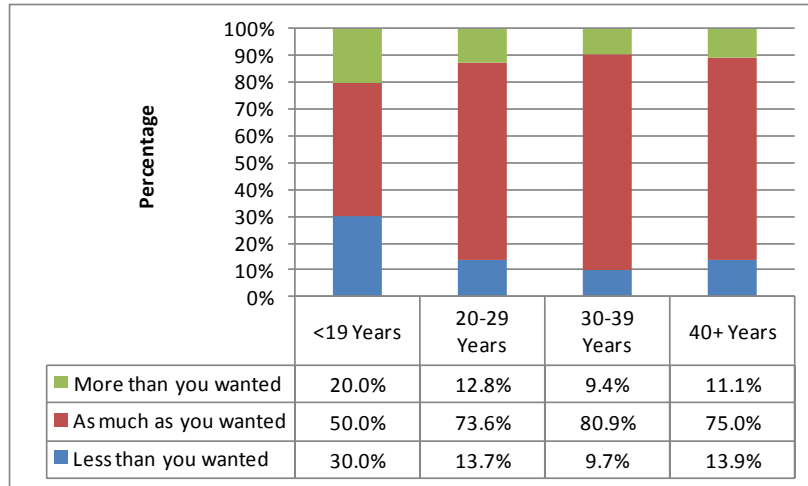
**Figure 24 - Number of Stressful Life Events, by Marital Status**

**Emotional Support From Husband or Partner**

Having strong social support can act as a buffer against the negative effects of stress during pregnancy and has been linked to better pregnancy outcomes. Support from a partner or family member can have a positive effect on fetal growth and development even in women with very little life stress.

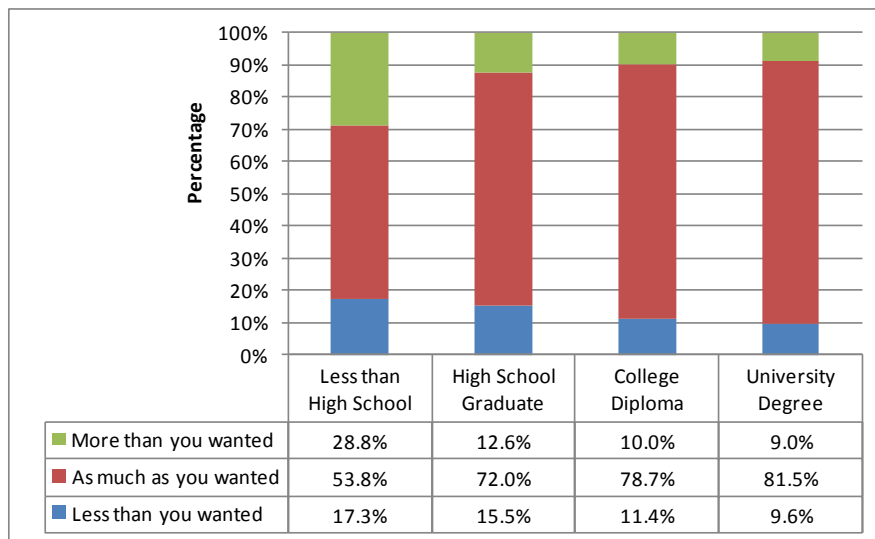
Overall 77% of new mothers said that they received as much emotional support as they wanted from their partners; 12% reported that they received less emotional support than they wanted and another 11% said they got more emotional support than they wanted.

Women aged 30 to 39 years were the most likely to say they received as much support as they wanted. On the other hand, women in the youngest age group were the least likely to say they had as much emotional support as they wanted; consequently they were the most likely to say that they had either less support or more support than they wanted. (Figure 25).



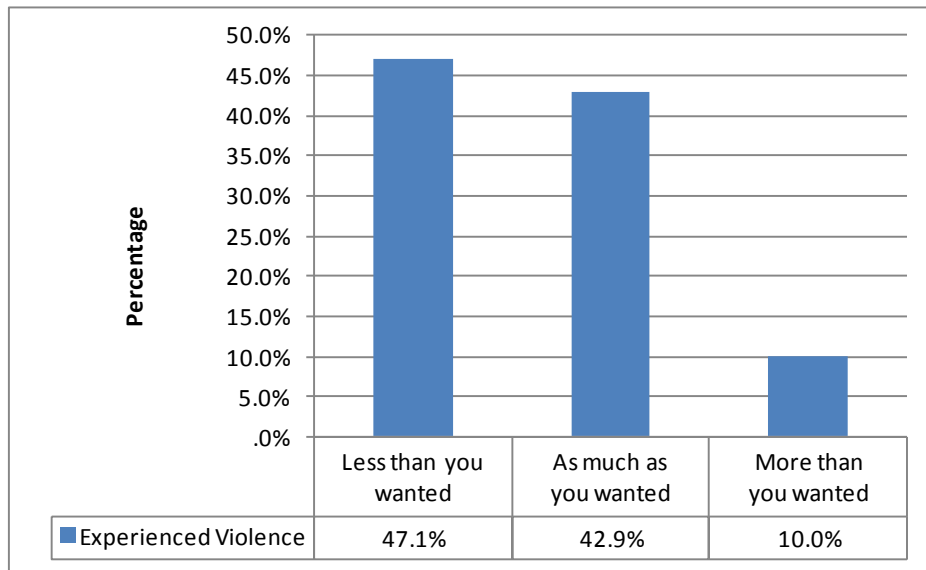
**Figure 25 - Emotional Support From Partner, by Age Group**

The percentage of women who reported having as much emotional support from their husbands or partners as they wanted increased as the mother’s level of education increased. Women with less than a high school education were significantly more likely than women with more education to say they had more emotional support than they wanted (Figure 26).



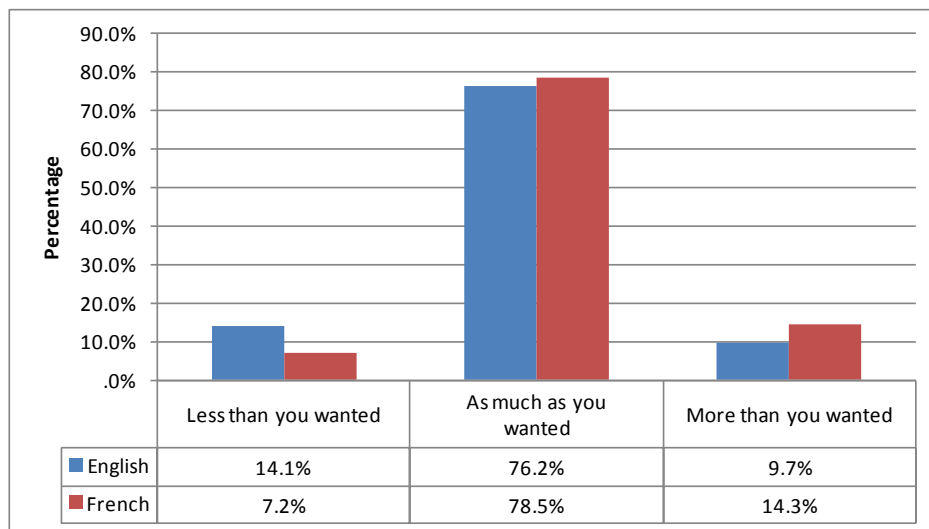
**Figure 26 - Emotional Support From Partner, by Level of Education**

Women who have experienced physical violence were significantly more likely than others to report having less emotional support from their husband or partner than they wanted (Figure 27).



**Figure 27 - Emotional Support From Partner of Women Who Have Experienced Violence**

Women whose preferred language is French were significantly more likely than English-speaking mothers to say they got as much emotional support from their partners as they wanted or more (Figure 28).



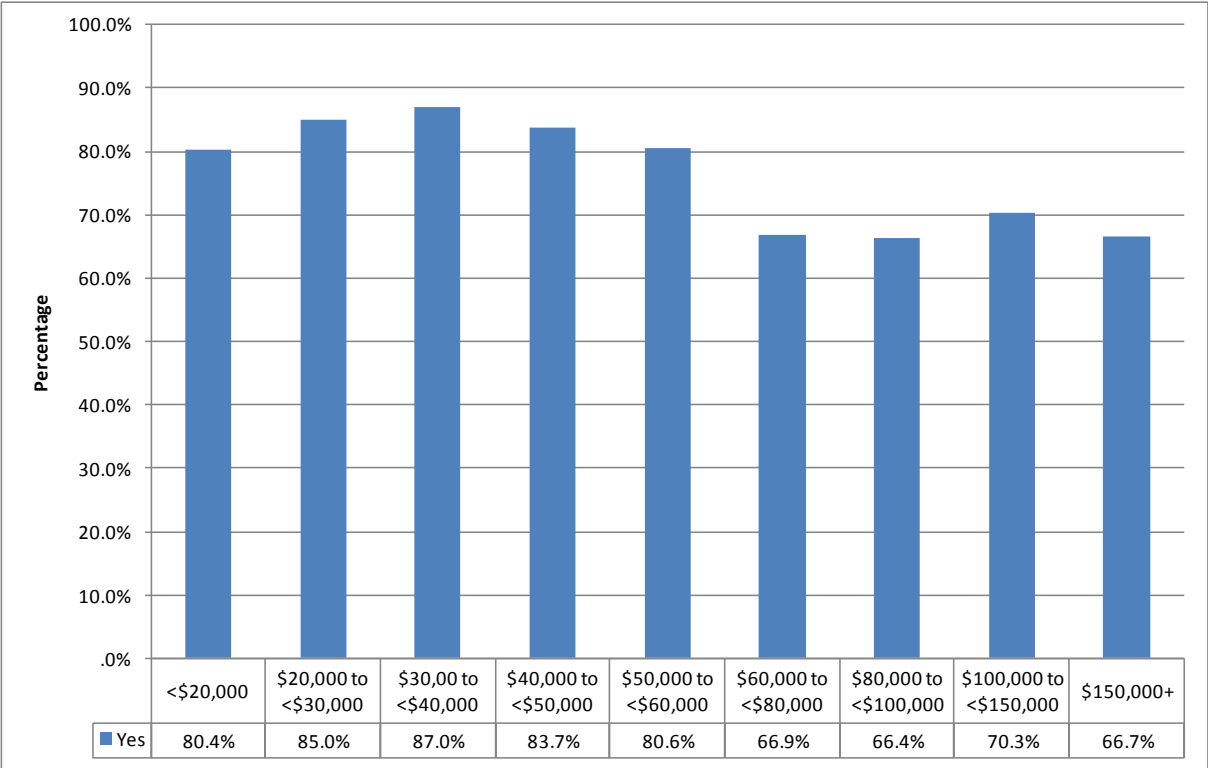
**Figure 28 - Emotional Support From Partner, by Language**

# Labour and Delivery

## Distance Travelled to Give Birth

Women in the EOHU region travelled an average of 34 km to give birth. The distances women travelled ranged from 0 km for a birth at home, up to 220 km away.

The overall trend shows that as the household income increased, women were less likely to have given birth in the facility nearest to their home (Figure 29).



**Figure 29 - Gave Birth at the Facility Closest to Home, by Income**

Women in Glengarry were more likely than women from the other counties to have travelled further than the closest facility to give birth. Women from Russell were the most likely to have given birth at the facility nearest to them (Figure 30).

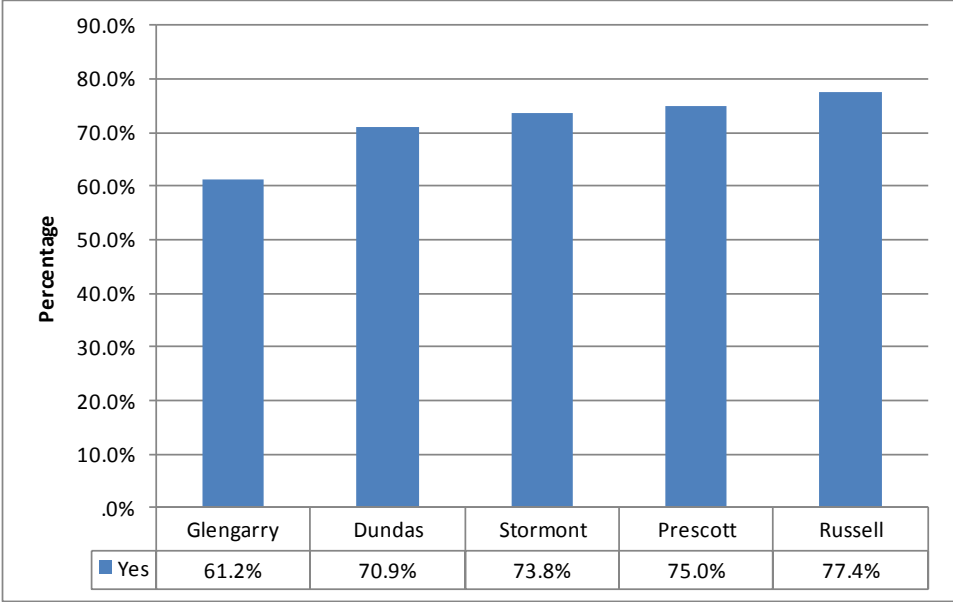


Figure 30 - Gave Birth at the Closest Facility, by County

**Healthcare Provider Who Delivered the Baby**

The most common healthcare provider who delivered the baby was an obstetrician (71.4%). Other types of healthcare providers who delivered the infants included a family doctor (16.2%), a nurse (4.2%) and a midwife (4.1%).

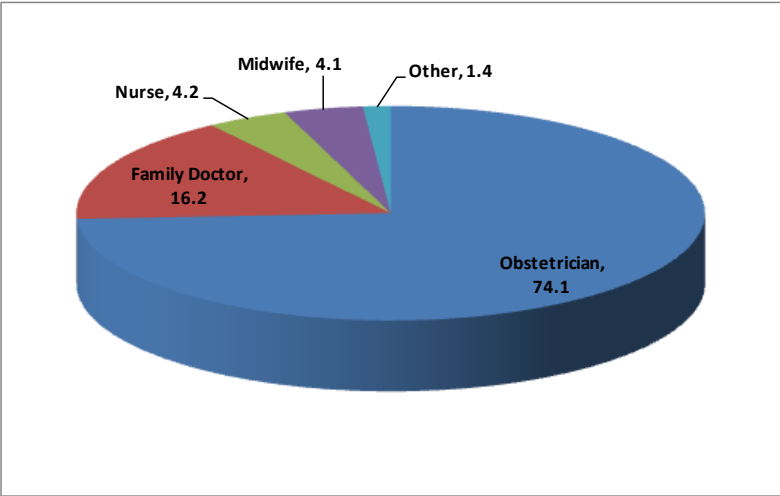
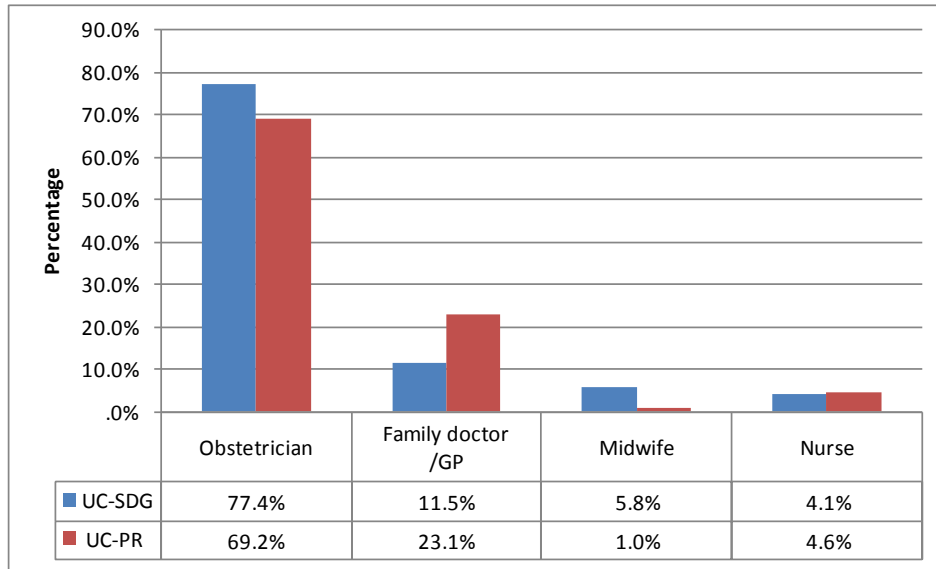


Figure 31 - Type of Healthcare Provider Who Delivered the Baby

An obstetrician was the most common healthcare provider to primarily deliver the infants in both United Counties. In Prescott-Russell the use of family doctors was significantly higher than for SD&G (Figure 32).



**Figure 32 - Type of Healthcare Provider Who Primarily Delivered the Baby, by United Counties**

### Length of Gestation

A pregnancy is considered to be full term when the baby is between 37 and 42 weeks gestation. If the baby is born at less than 37 weeks it is considered to be a pre-term birth and comes with increased risks for negative outcomes for the child.

Infants in the EOHU region were born after an average of 39 weeks gestation. The length of gestation for all of the infants in the sample ranged from 25 to 45 weeks.

### Vaginal vs. Cesarean Birth

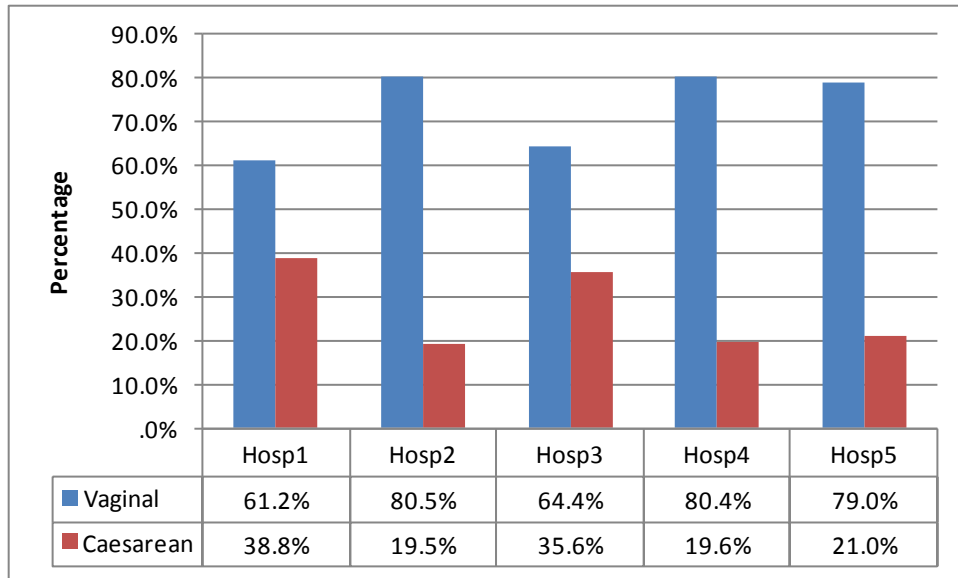
Overall 72% of women in the EOHU region had a vaginal birth and the other 27% had a cesarean birth (Table 16).

**Table 16 - Type of Delivery**

Type of Delivery	Frequency	Percent
Vaginal Delivery	725	72.5%
Cesarean Delivery	275	27.5%
Total	1000	100.0%

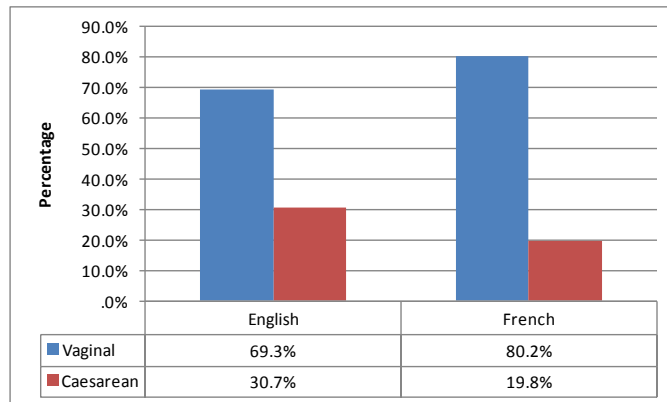
The specific hospital at which the mother gave birth was significantly associated with the type of birth, either vaginal or cesarean. The identities of the hospitals have been removed to maintain confidentiality, but there are two hospitals (Hospital 1 and Hospital 3) where mothers were more likely

to have had a cesarean than if they had given birth at the other three hospitals (See Figure 33). This association may warrant further exploration in the future to determine if women having a cesarean birth are seeking out specific hospitals, or if there are other factors involved.



**Figure 33 - Type of Delivery, by Hospital**

There was a significant difference in the type of delivery based on the mother's preferred language. English speaking women were significantly more likely than French speaking women to have had a cesarean birth (Figure 34).



**Figure 34 - Type of Delivery, by Language**

## Postpartum Care

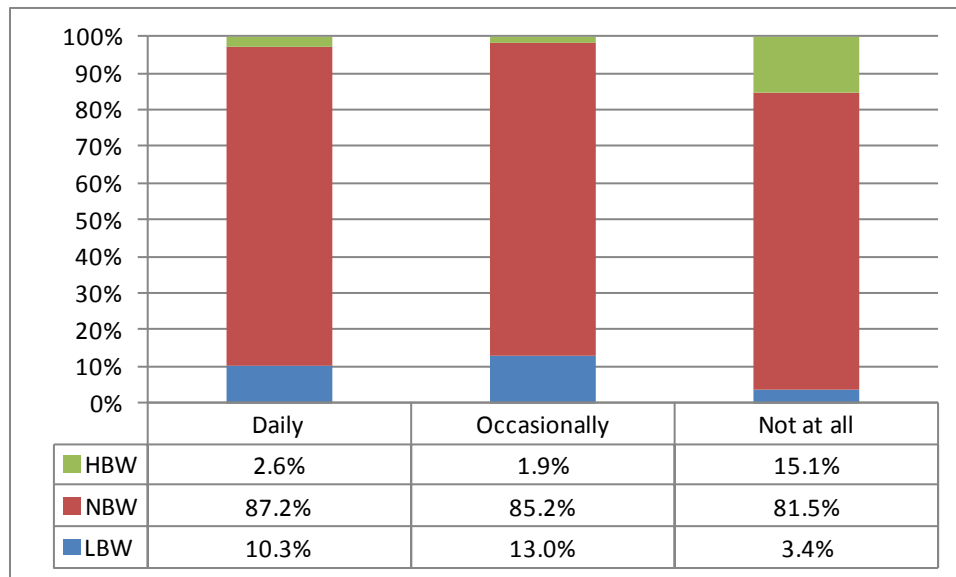
### Birth weight

Low birth weight (LBW) is defined as having a birth weight of less than 2,500 grams. High birth weight (HBW) is defined as an infant weighing more than 4,000 grams at birth. A low birth weight is associated with serious risks including possible mental and physical disabilities. The average full term infant (37 weeks to 42 weeks of gestation) typically weighs 3,400 grams or 7.5 lb.

The prevention of LBW starts with a full term pregnancy, but also includes not smoking, good nutrition, regular physical activity, and the reduction and management of stress.

The average birth weight of infants born to the study population in the EOHU region was 3384.5 grams. Approximately 6.1% of all respondents gave birth to a LBW baby (below 2,500 grams) and 11.1% gave birth to a baby with a HBW (4,000+ grams).

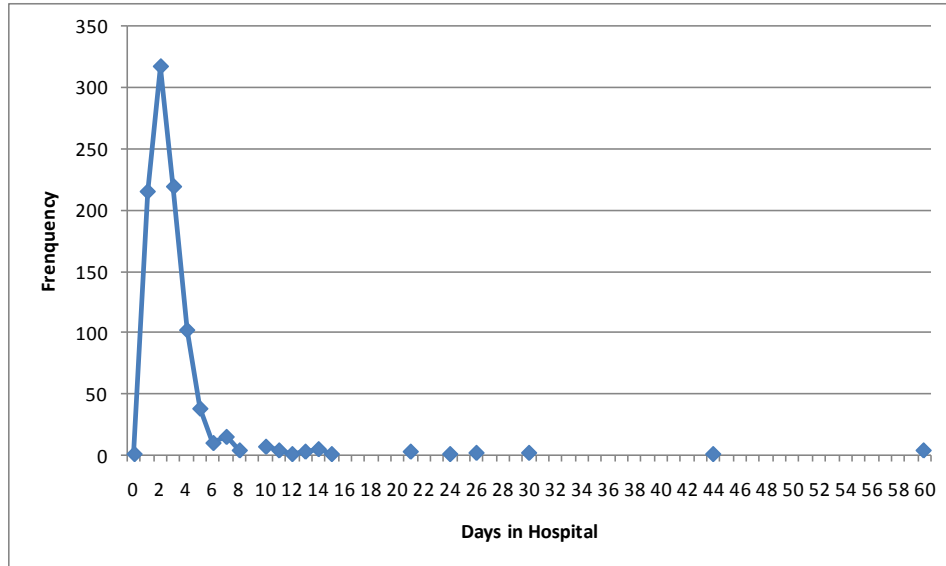
Mothers who smoked both daily and occasionally during the last 3 months of pregnancy were significantly more likely than non-smoking mothers to have a low birth weight baby (Figure 35). Smoking status was the only variable that showed a significant association with baby's birth weight.



**Figure 35 - Birth Weight and Mother's Smoking Status During the Last 3 Months of Pregnancy**

### Infant's Length of Stay in Hospital

The average length of the hospital stay for the infants in this study was 3.6 days, and the median length of stay was 2 days. The length of stay ranged from 0 for babies who were born at home, up to 150 days (Figure 36). The longer stays were likely for infants who were born prematurely and were admitted to intensive care.



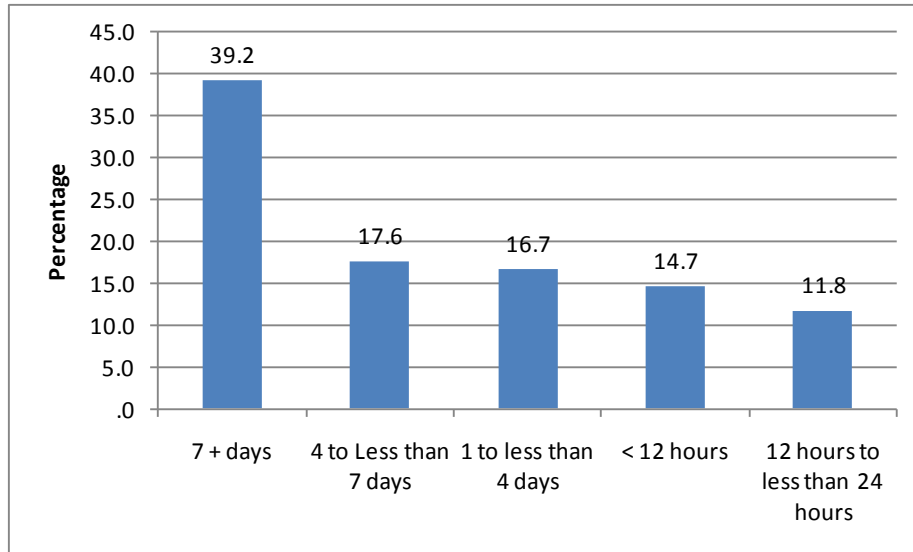
\*Note: 8 cases removed as outliers (between 60 and 150 days in hospital)

**Figure 36 - Number of Days the Infants Were in the Hospital After Birth**

### Admission to Intensive Care

Premature birth and complications during labour and delivery are two common reasons that infants are sent to intensive care. Common medical problems include anemia, jaundice and difficulties breathing.

After birth, 10.2% of infants were admitted to intensive care. The largest proportion of those admitted stayed in intensive care for more than 7 days (Figure 37).



**Figure 37 - Infant's Length of Stay in Intensive Care**

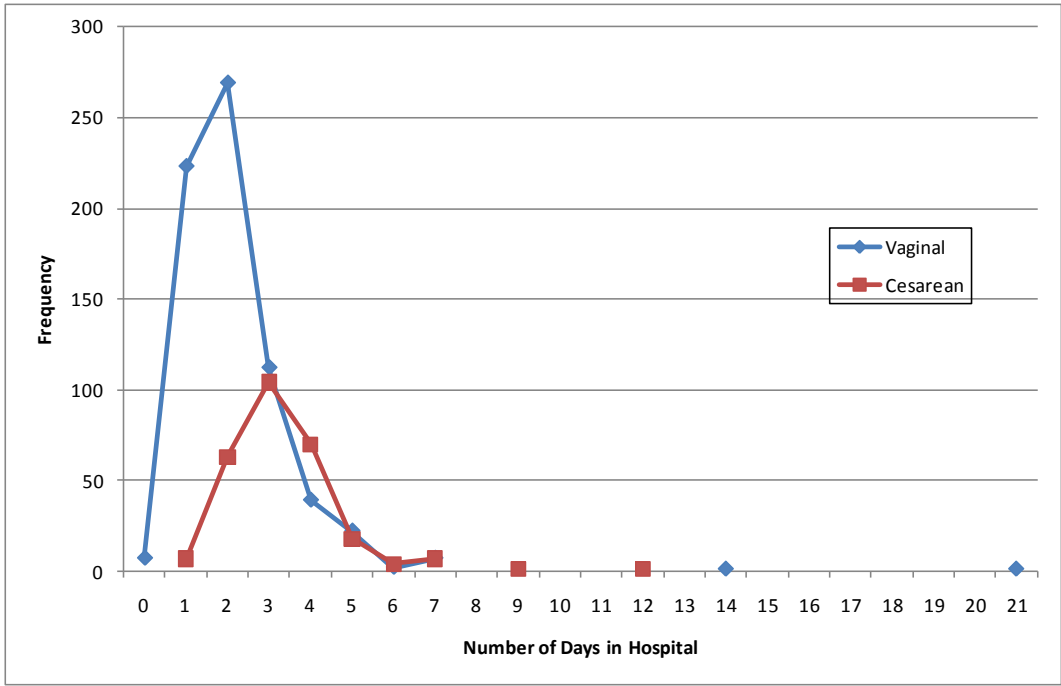
### **Mothers' Length of Stay in Hospital**

In Canada, postpartum hospital stays for mothers and their infants have been decreasing for the last 15 years. In 1991–1992 approximately 3.7% of women who had a vaginal birth stayed in the hospital for less than two days, compared with 25.5% of women in 2004–2005. In 1991–1992, 2.7% of women who had a cesarean birth stayed in the hospital for less than four days, compared with 52.5% in 2004–2005<sup>4</sup>.

New mothers in the EOHU region stayed in the hospital for an average of 2.6 days (median=2.0 days). The number of days ranged between 0 for those who gave birth at home up to 60 days.

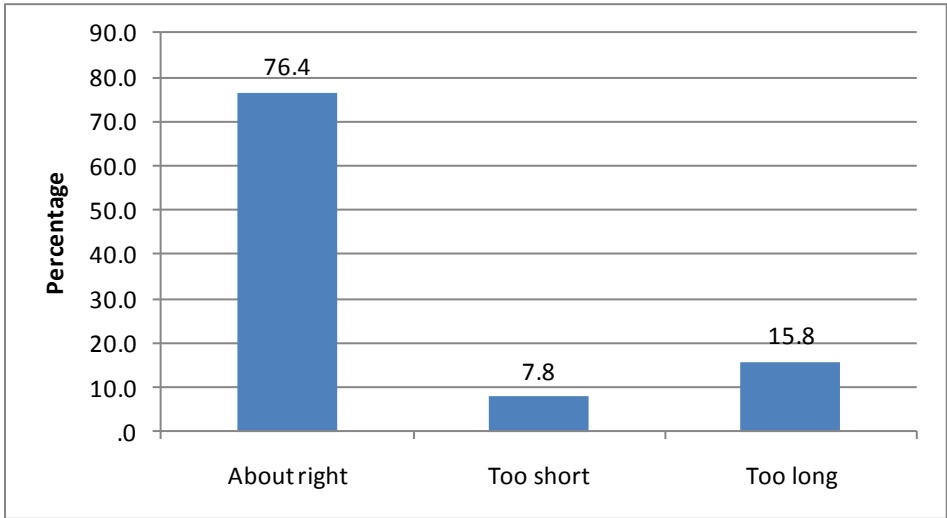
When vaginal births were considered alone, the mothers' average length of stay was 2.31 days (median=2.0 days) and 33.0% of women stayed less than two days in hospital. Considering cesarean births alone, the average length of stay was 3.31 days (median=3.0 days) and 63.3% of women stayed less than 4 days (Figure 38).

<sup>4</sup> Public Health Agency of Canada. What Mothers Say: The Canadian Maternity Experiences Survey. Ottawa, 2009.



**Figure 38 - Number of Days Mothers Spent in Hospital After the Birth**

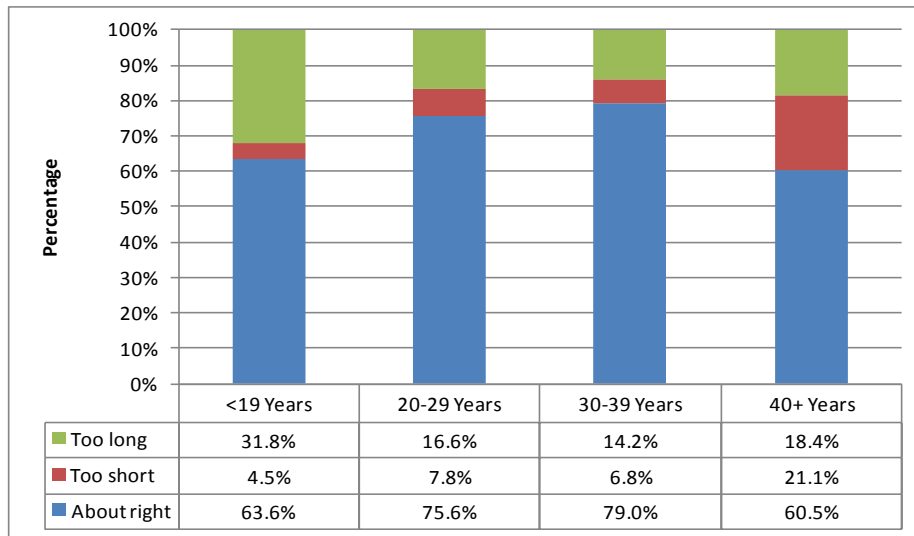
More than three quarters of respondents (76%) said that their hospital stay was about the right length; another 16% said it was too long and 7.8% said it was too short (Figure 39).



**Figure 39 - How Mother Felt About Length of Stay in Hospital**

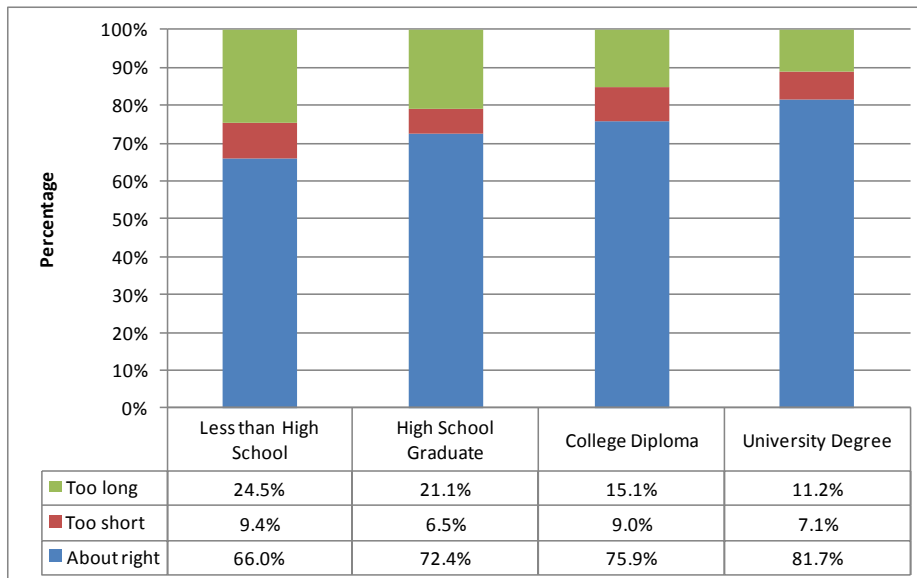
There was a significant association between satisfaction with the length of the hospital stay and the mothers' age. Mothers in the youngest age group (under 20 years) were the most likely to say that their

hospital stay was too long (31.8%), while mothers in the oldest age group (40+) were the most like to say their stay was too short (21.1%) (Figure 40).



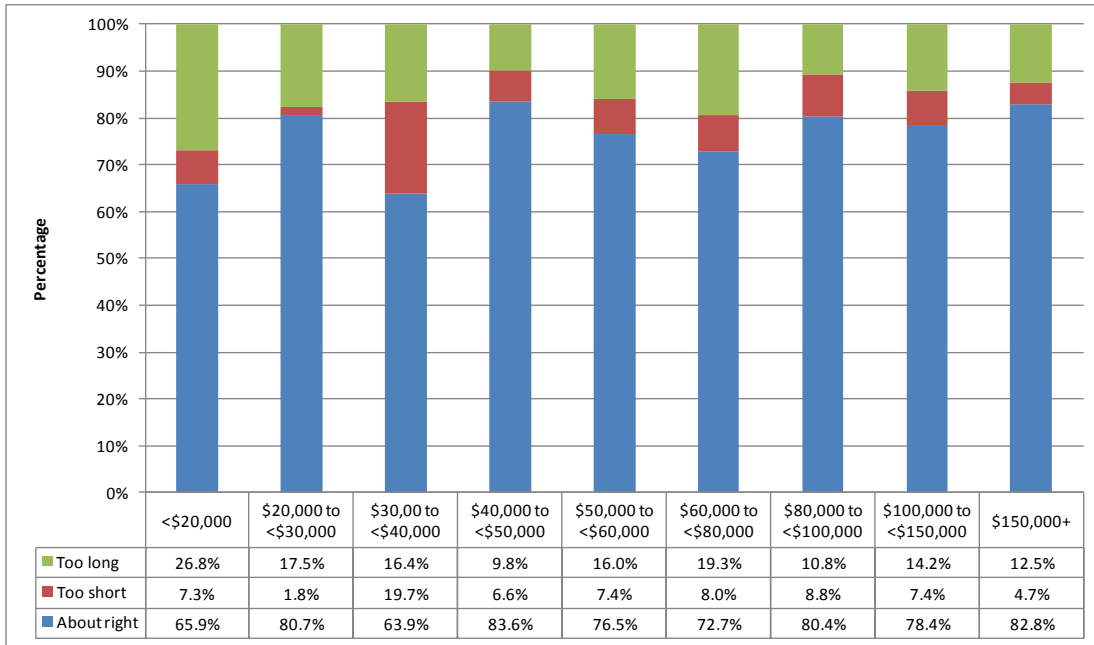
**Figure 40 - How Mother Felt About Length of Stay in Hospital, by Age**

Satisfaction with the length of the hospital stay also increased with higher levels of education. Women with a university education were about 15% more likely to have been satisfied with their length of stay than women with less than high school (Figure 41).



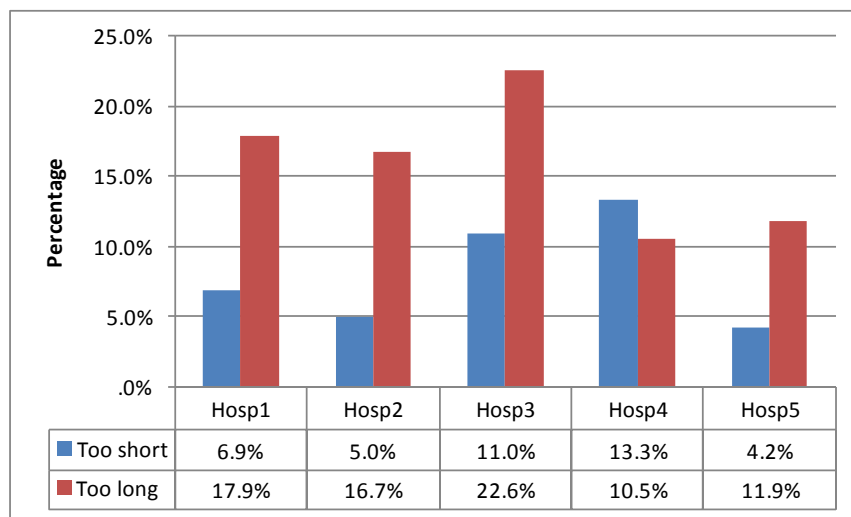
**Figure 41 - How Mother Felt About Length of Stay in Hospital, by Level of Education**

There was also a significant association between satisfaction with the length of stay and the highest levels of income. The higher the income the more likely mothers were to report being satisfied with the length of their hospital stay (Figure 42).



**Figure 42 - How Mother Felt About Length of Stay in Hospital, by Income**

While three quarters of the respondents were satisfied with the length of stay at each hospital, those who were dissatisfied were more likely to have found their stay too long. At hospital 3 in particular, respondents were significantly more likely to have found their stay too long. At hospital 4 on the other hand, respondents were significantly more likely to have found their stay too short (Figure 43).



**Figure 43 - Mother's Dissatisfaction With Length of Stay, by Hospital**

## Breastfeeding Experiences in Hospital

New mothers were asked about their breastfeeding-related experiences while still in the hospital as related to the Baby-Friendly Hospital Initiative.

The Baby-Friendly Hospital Initiative (BFHI) is a 10-step global breastfeeding program developed by the World Health Organization (WHO) and the United Nations Children's Fund to promote and support breastfeeding in hospitals and birthing centres.

### **BFHI 10 Steps:**

**Step 1:** Have a written breastfeeding policy that is routinely communicated to all healthcare staff.

**Step 2:** Train all healthcare staff with the skills necessary to implement this policy.

**Step 3:** Inform all pregnant women about the benefits and management of breastfeeding.

**Step 4:** Help mothers initiate breastfeeding within a half-hour of birth.

**Step 5:** Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants.

**Step 6:** Give newborn infants no food and drink other than breast milk, unless medically indicated.

**Step 7:** Practise rooming-in; allow mothers and infants to remain together 24 hours a day.

**Step 8:** Encourage breastfeeding on demand.

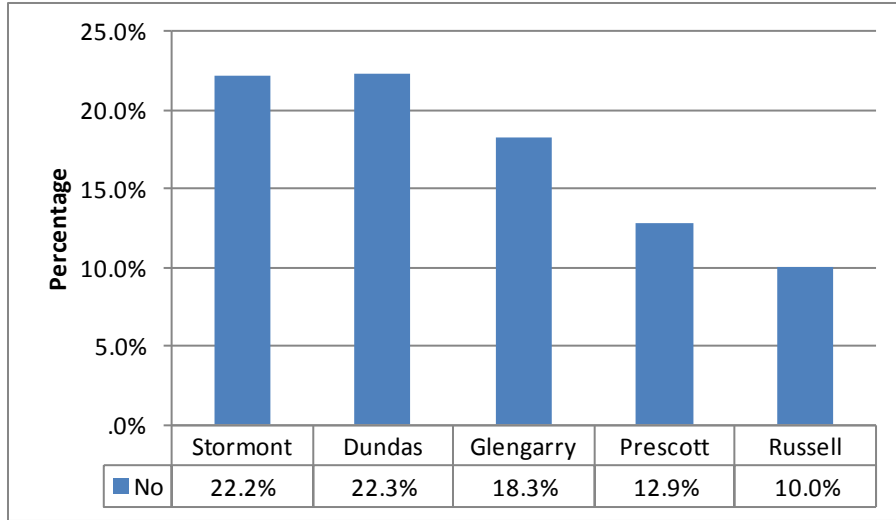
**Step 9:** Give no pacifiers or soothers to breastfeeding infants.

**Step 10:** Foster the establishment of breastfeeding support groups, and refer mothers to them on discharge from the hospital or clinic.

In this survey we were not able to address all ten steps of the BFHI, but we were able to collect information based on steps 3,5,6,7 and 9.

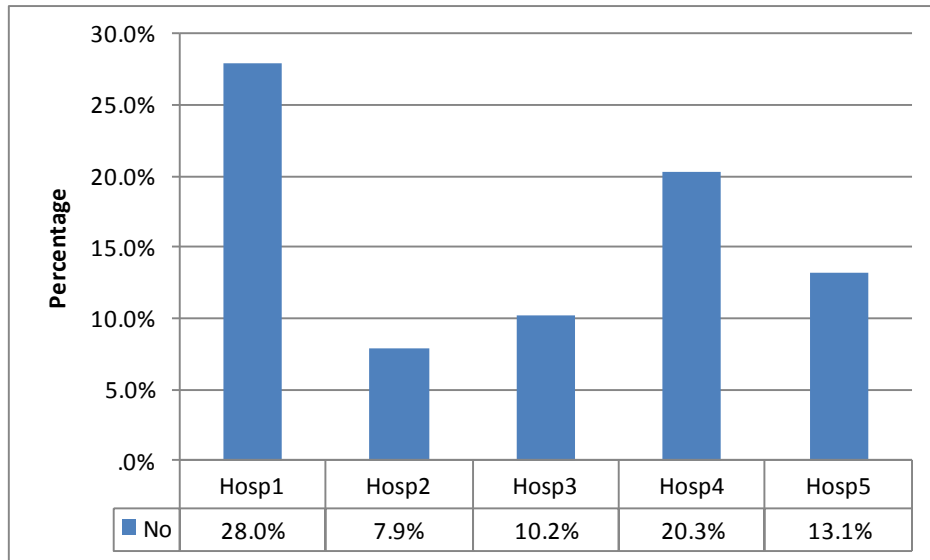
### **Breastfeeding Information (BFHI Step 3)**

To address Step 3 of the BFHI, informing women about the benefits and management of breastfeeding, women were asked if they were given breastfeeding information by hospital staff while they were still in the hospital. 83.4% of respondents said that they were given this information. Respondents who said they were not given any breastfeeding information were more likely to be from SD&G than Prescott-Russell, Stormont (22.2%) and Dundas (22.3%) Counties had the highest proportions of respondents who did not get breastfeeding information while in the hospital.



**Figure 44 - Given Breastfeeding Information in Hospital, by County**

New mothers who were not given breastfeeding information while still in hospital were most likely to have given birth at Hospital 1 or Hospital 4 (Figure 45). This information shows that there is a clear difference by institution in the EOHU region.

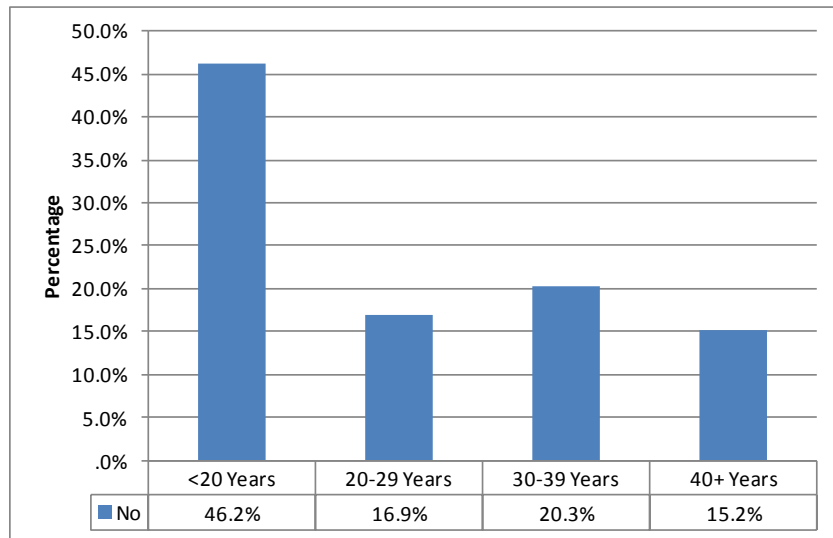


**Figure 45 - Given Breastfeeding Information in Hospital, by Hospital**

### **Breastfeeding Support From Hospital Staff (BFHI Step 5)**

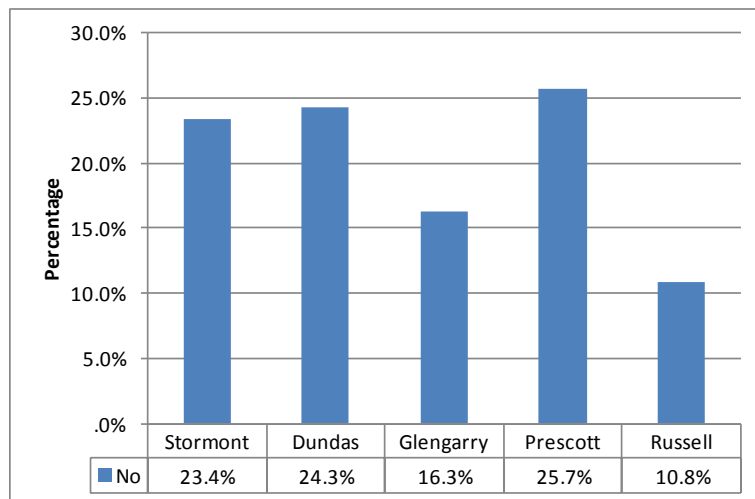
Step 5 of the BFHI says that hospital staff should show mothers how to breastfeed and how to maintain lactation even if the mother and infant are separated. To address this step, mothers were asked if hospital staff provided them with breastfeeding support.

The youngest mothers were significantly more likely than older mothers to report that they did not receive breastfeeding support from the hospital staff (Figure 46).



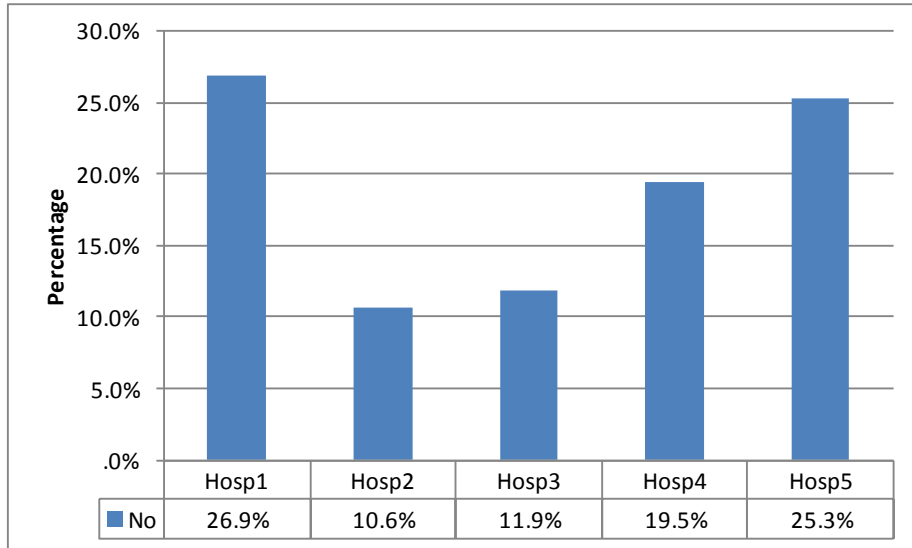
**Figure 46 - Did Not Receive Breastfeeding Support From Hospital Staff, by Age Group**

Whether or not a mother received breastfeeding support in the hospital varied by county and by united counties in Eastern Ontario. Respondents from the United Counties of Prescott-Russell reported less breastfeeding support than mothers from SD&G. More specifically, mothers from Prescott and Dundas Counties reported the least breastfeeding support from hospital staff, while mothers from Russell were the most likely to have received support.



**Figure 47 - Did Not Receive Breastfeeding Support From Hospital Staff, by County**

As can be seen in Figure 48, some hospitals in the region are more likely to have provided breastfeeding support to new mothers than others. Women who gave birth at Hospital 2 and Hospital 3 were more likely to have received support from staff. In contrast, 27% of mothers from Hospital 1 said they did not receive any breastfeeding support from staff while in the hospital.

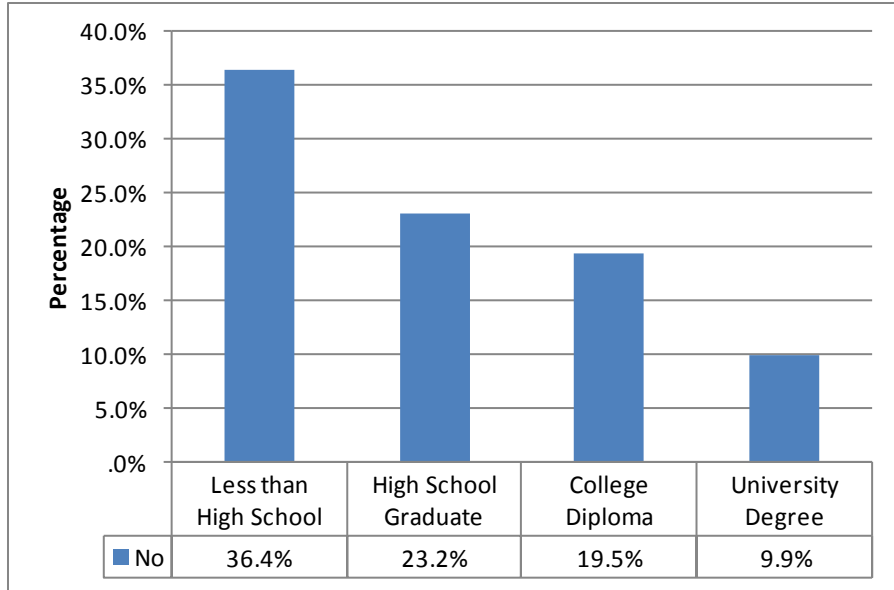


**Figure 48 - Did Not Receive Breastfeeding Support From Hospital Staff, by Hospital**

### **Breastfeeding in Hospital (BFHI Step 6)**

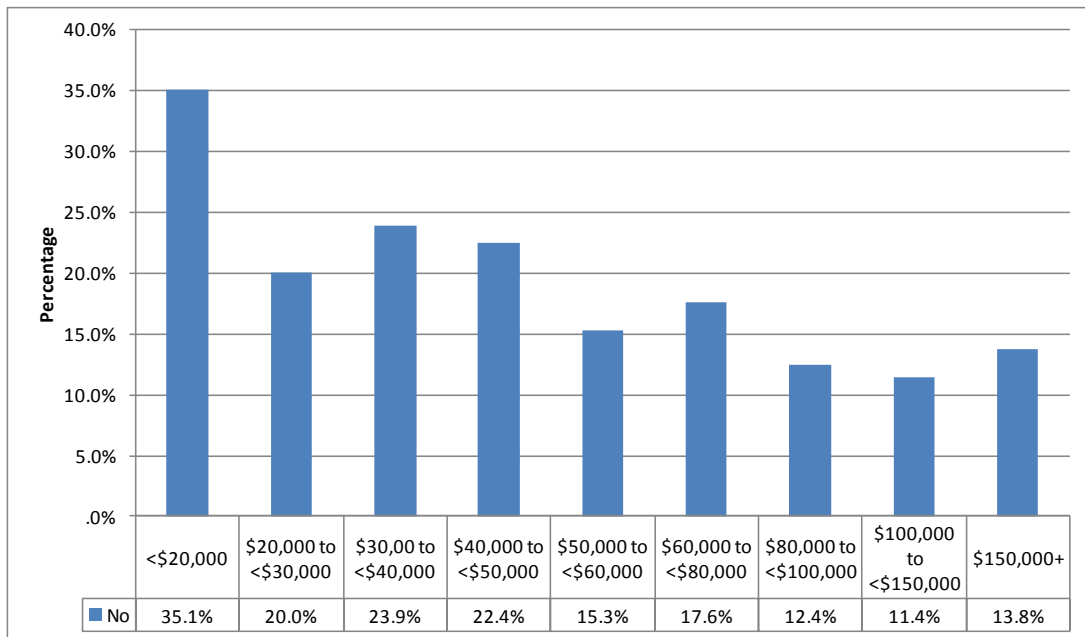
Step 6 of the BFHI says that hospitals should not give newborns any food and drink other than breast milk. Mothers were asked three questions that address Step 6. They were asked whether they breastfed their baby at the hospital, whether breastfeeding was exclusive and whether they were given formula by the hospital.

Breastfeeding at the hospital was strongly associated with the mother's income and level of education. The higher a mother's level of education, the more likely she was to have breastfed at the hospital (Figure 49).



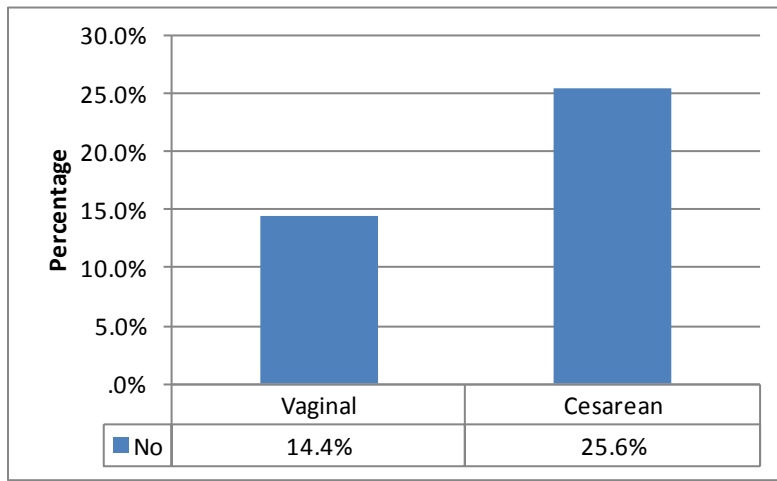
**Figure 49 - Did Not Breastfeed Infant in Hospital, by Level of Education**

Similar to level of education, as the household income increased the percentage of women who breastfed while at the hospital also increased (Figure 50).



**Figure 50 - Did Not Breastfeed Infant in Hospital, by Income**

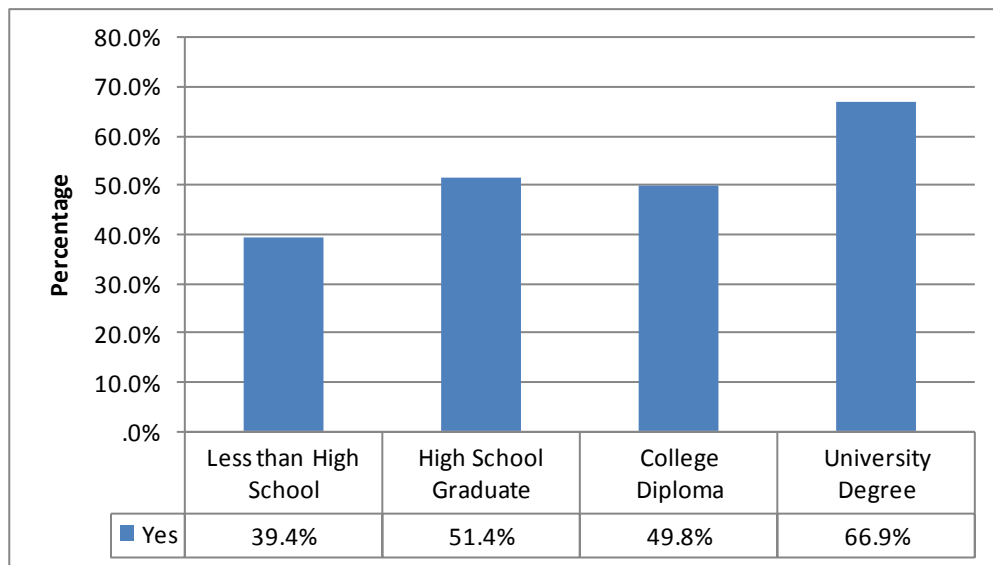
Women who had a cesarean birth were less likely than women who had a vaginal birth to have breastfed their infants in the hospital (Figure 51).



**Figure 51 - Did Not Breastfeed Infant in Hospital, by Type of Birth**

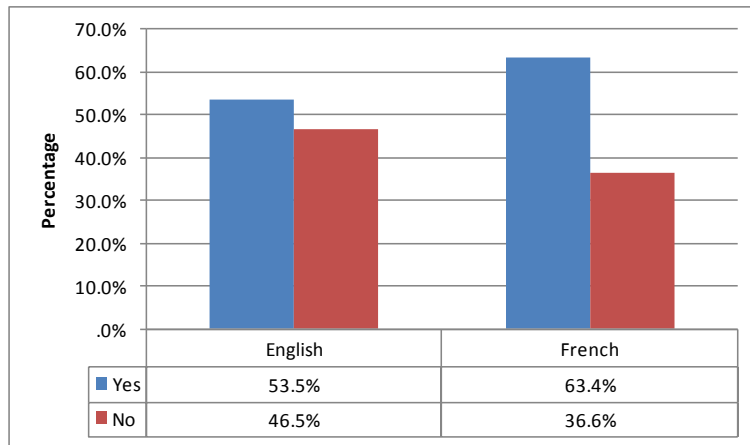
#### Exclusive Breastfeeding in Hospital

Mothers with a university education were more likely to have given their infant breast milk exclusively during their hospital stay. Women with less than a high school education were the least likely to have fed their infant breast milk exclusively (Figure 52).



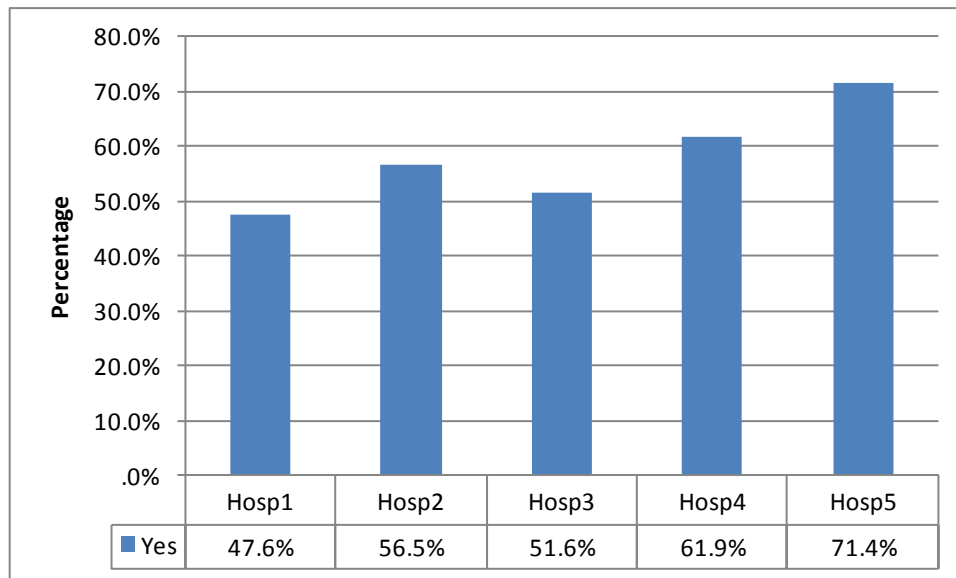
**Figure 52 - Breastfeeding Exclusively While at the Hospital, by Level of Education**

French-speaking mothers were more likely than English-speaking mothers to report breastfeeding exclusively while in the hospital (63.4% vs. 53.3%) (Figure 53).



**Figure 53 - Breastfed Exclusively at the Hospital, by Language of Preference**

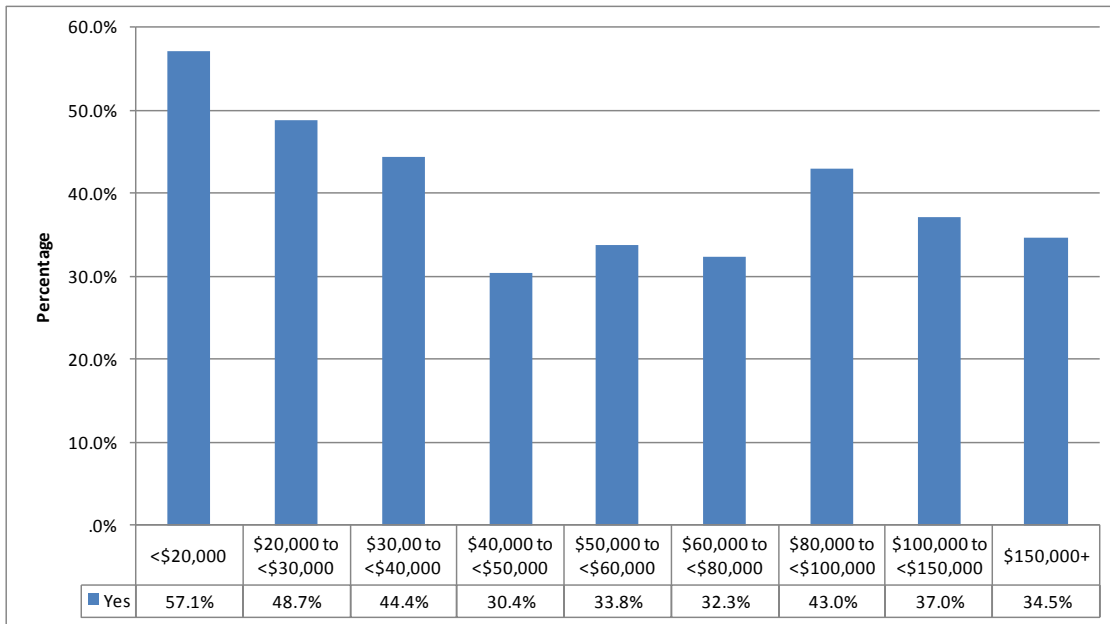
At Hospital 5 in the EOHU region, nearly three quarters of respondents said they breastfed exclusively, while at Hospital 1 it was less than half of new mothers (Figure 54). There is a clear and statistically significant difference by institution for mothers who breastfed exclusively while they were hospitalized.



**Figure 54 - Breastfed Exclusively at the Hospital, by Hospital**

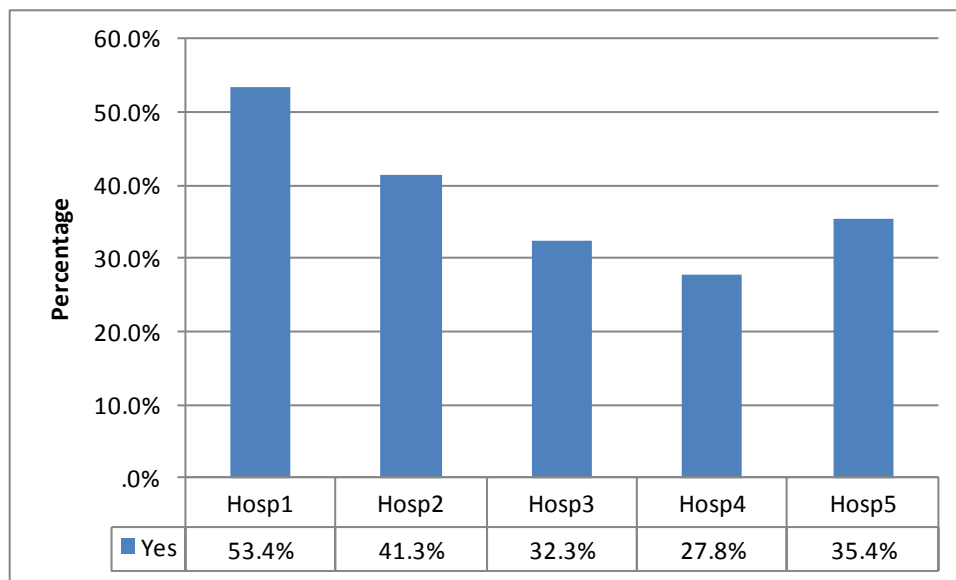
### Mothers Given Formula at the Hospital

There is a significant association between a mother’s household income and whether she was given formula from the hospital. Mothers with the lowest levels of household income were significantly more likely to have received formula from the hospital than mothers with highest levels of income (Figure 55).



**Figure 55 - Given Formula in Hospital, by Income**

There is a significant difference in whether the mother was given packaged formula at the hospital depending on which hospital she was at when she gave birth. As can be seen in Figure 56, there was a wide variation among local hospitals; at Hospital 1 women were more likely to have been given formula, and at Hospital 4 nearly three quarters of women were not given formula, in accordance with BFHI standards.



**Figure 56 - Given Formula in Hospital, by Hospital**

### Stayed in the Same Room (BFHI Step 7)

To address Step 7 of the BFHI (the practice of rooming-in or allowing mothers and infants to remain together 24 hours a day), new mothers were asked if the infant stayed in the same room as them while they were at the hospital.

93% of respondents said that their new baby stayed in the same room as them at the hospital. Of those who were separated from their infant, the mothers were significantly more likely to have given birth via cesarean than vaginal birth (12.8% vs. 4.7%) (Figure 57).

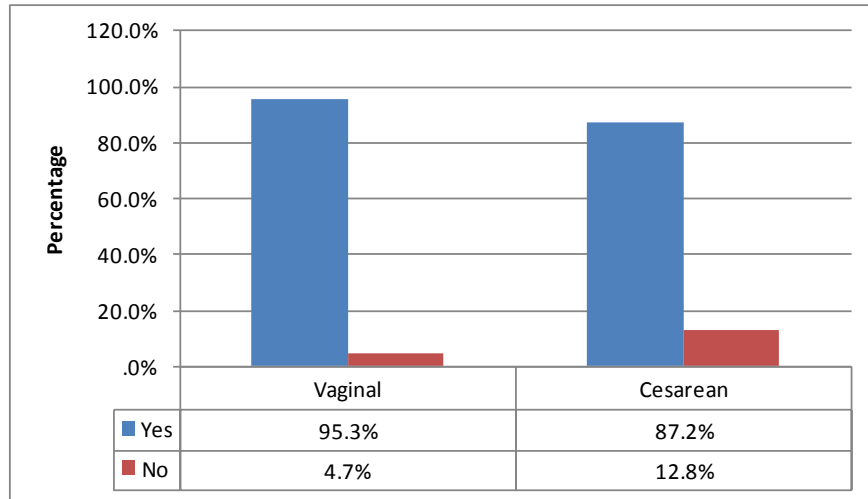
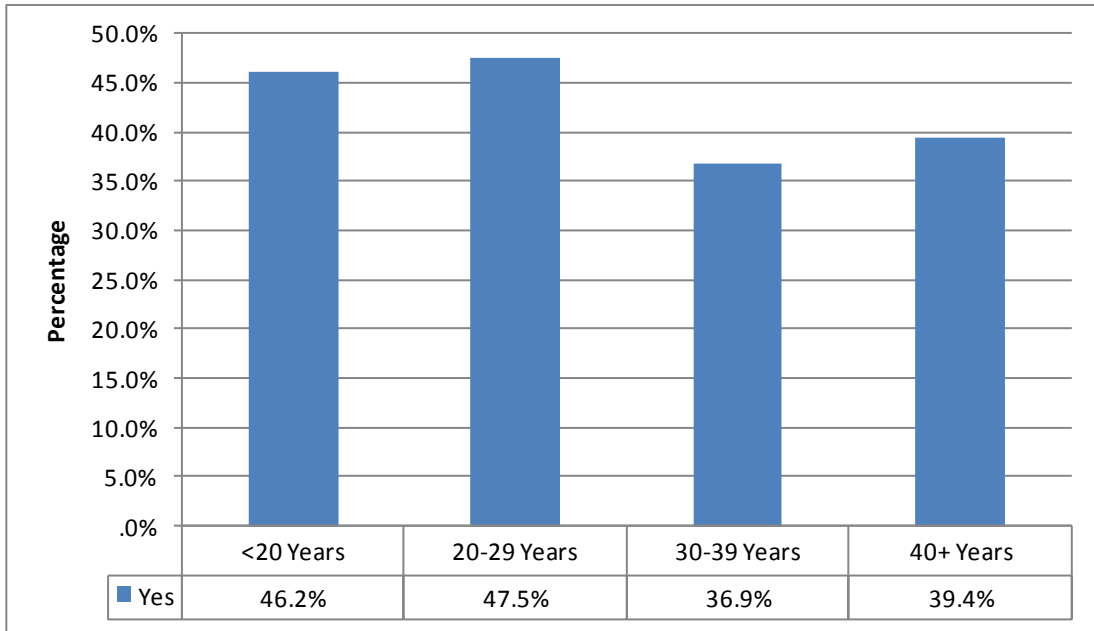


Figure 57 - Infant Stayed in the Same Room as Mother at the Hospital, by Delivery Type

### Infants Given a Pacifier (BFHI Step 9)

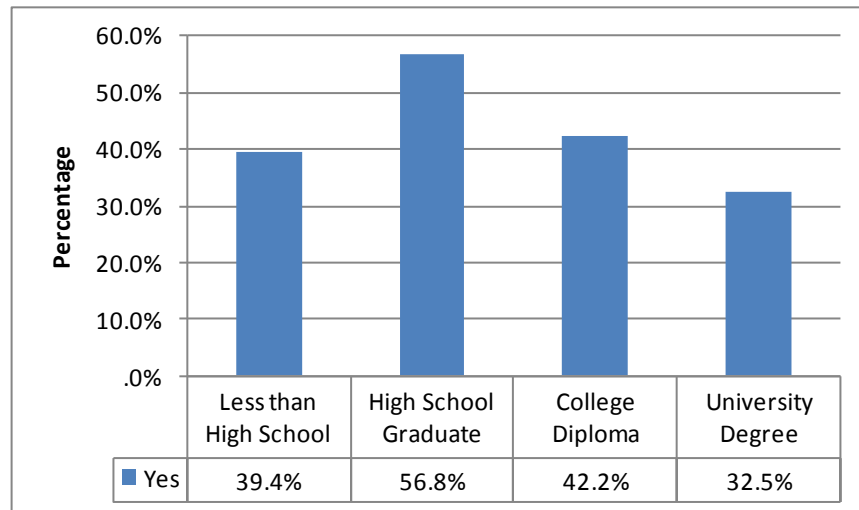
The BFHI also recommends in Step 9 that breastfeeding infants not be given a pacifier. Overall, 40% of mothers said they used a pacifier at the hospital.

The infants of younger mothers (<20 and 20-29) were more likely than those of older mothers (30-39 and 40+) to have used a pacifier at the hospital (Figure 58).



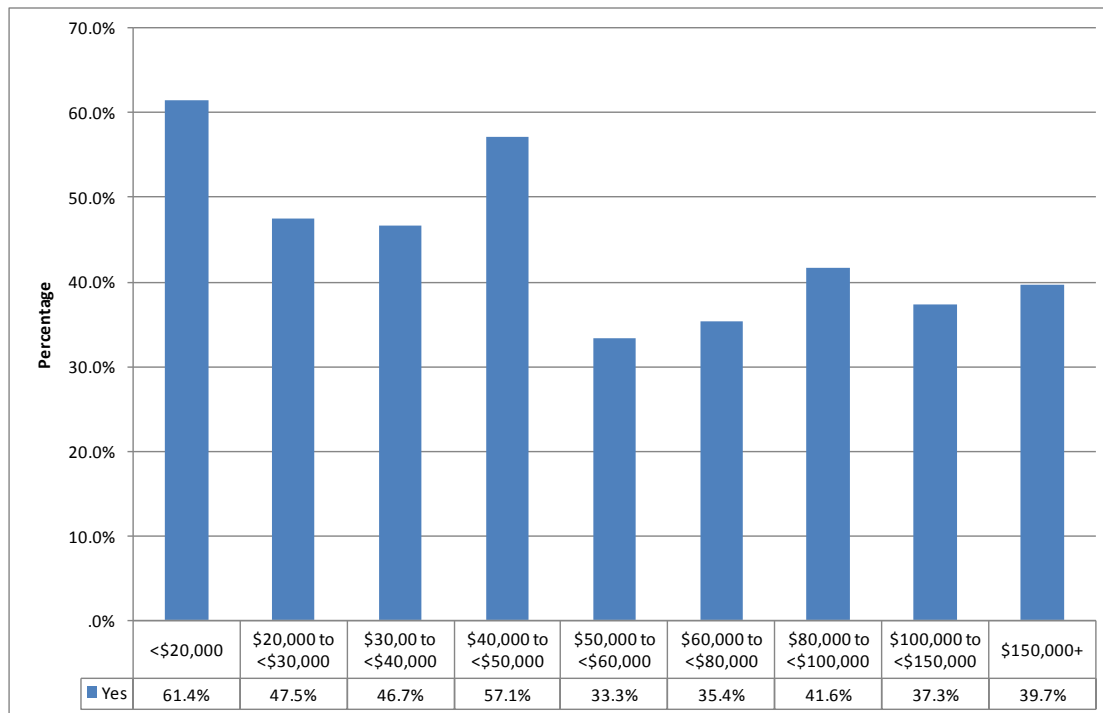
**Figure 58 - Infant Given a Pacifier, by Mother's Age**

There was an association between the mother's level of education and whether the infant was given a pacifier in the hospital. 56.8% of mothers with a high school education used a pacifier for their infant at the hospital, compared to approximately 40% of mothers with a college diploma and around 30% of women with a university degree (Figure 59).



**Figure 59 - Infant Given a Pacifier, by Level of Education**

There was also a significant association between household income and whether the infant was given a pacifier in the hospital. Having a household income below \$50,000 made it more likely that the infant would have been given a pacifier in the hospital than if the mother had a higher household income (Figure 60).



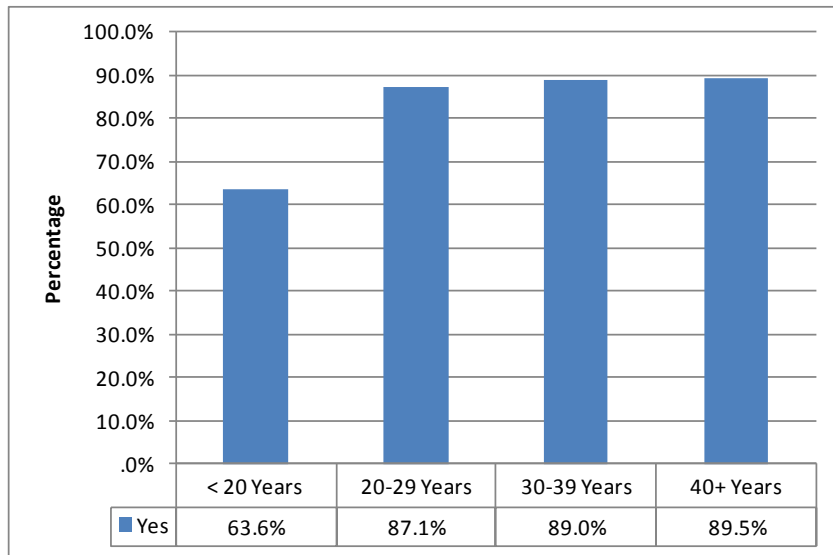
**Figure 60 - Infant Given a Pacifier, by Income**

## Breastfeeding in General

Breastfeeding is recognized as the optimal method of infant feeding due to its beneficial effects on infant growth, immunity and cognitive development. Breastfeeding also has many benefits for the mother, which include reduced postpartum bleeding, delayed resumption of ovulation, and improved bone re-mineralization. The Public Health Agency of Canada, Health Canada, the Canadian Pediatric Society and the Dietitians of Canada all recommend exclusive breastfeeding for the first 6 months after birth, with the introduction of complementary foods at 6 months of age and continued breastfeeding for up to 2 years of age and beyond.

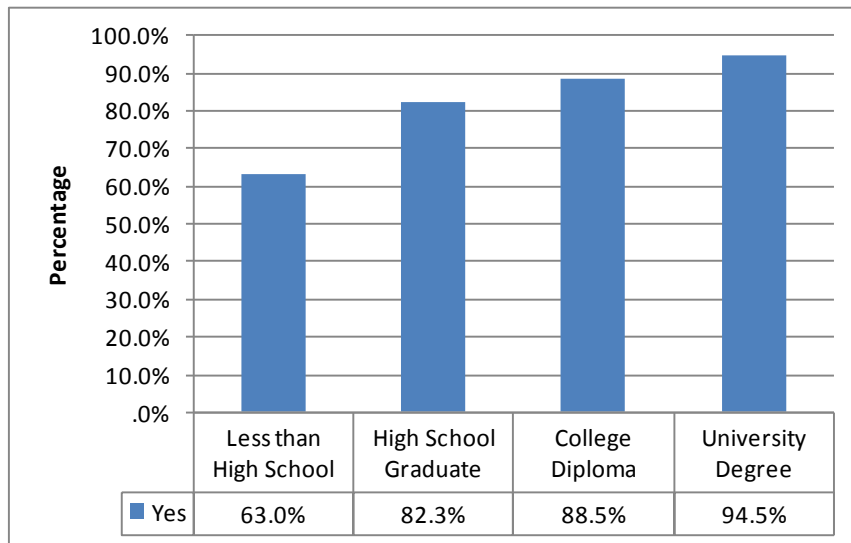
Overall, 87% of women reported that they attempted to breastfeed, even if only for a short time. Mothers who did not breastfeed at all were more likely to be in the youngest age group (<20 years), to have less than a high school education and to have a household income of less than \$50,000 a year.

Mothers under 20 years of age were 3 times less likely than mothers in older age groups to have attempted to breastfeed (Figure 61).



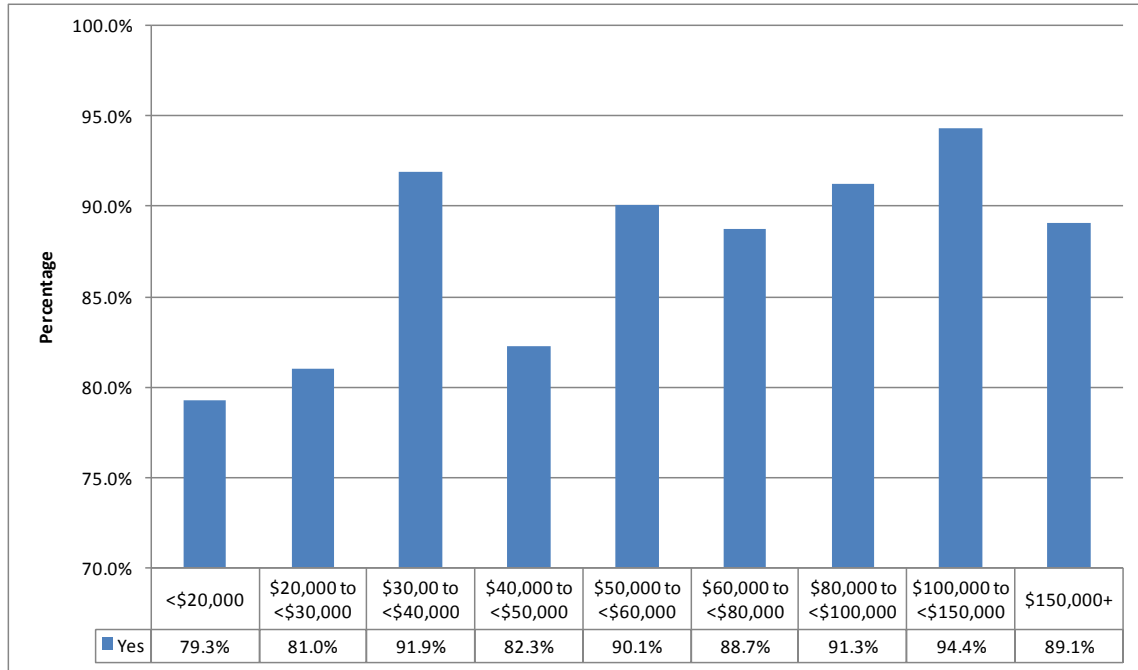
**Figure 61 - Breastfeeding, by Mother's Age**

There is a clear association between breastfeeding and the mother's level of education. The more education a mother has, the more likely she was to have attempted to breastfeed her baby (Figure 62).



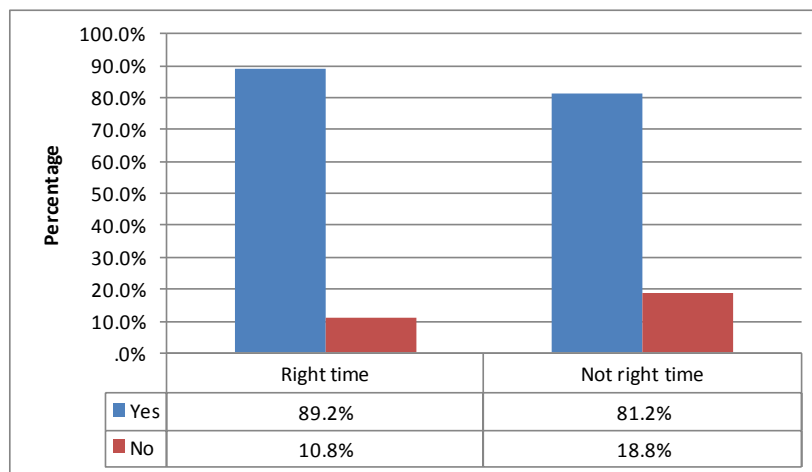
**Figure 62 - Breastfeeding, by Level of Education**

In general, mothers with a household income of less than \$50,000 a year were less likely to have attempted to breastfeed than mothers with a higher household income (Figure 63).



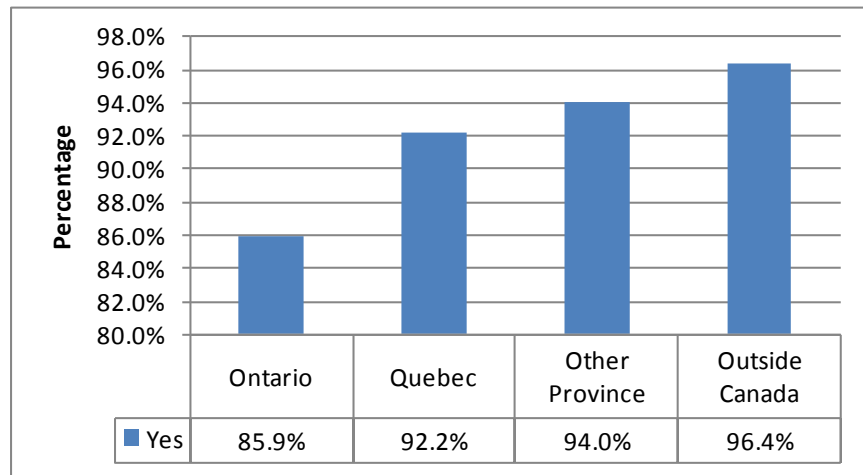
**Figure 63 - Breastfeeding, by Household Income**

Mothers who did not feel it was the right time for them to be pregnant were significantly less likely to have breastfed than mothers who wanted to be pregnant at that time (Figure 64).



**Figure 64 - Breastfeeding, by Satisfaction With the Timing of the Pregnancy**

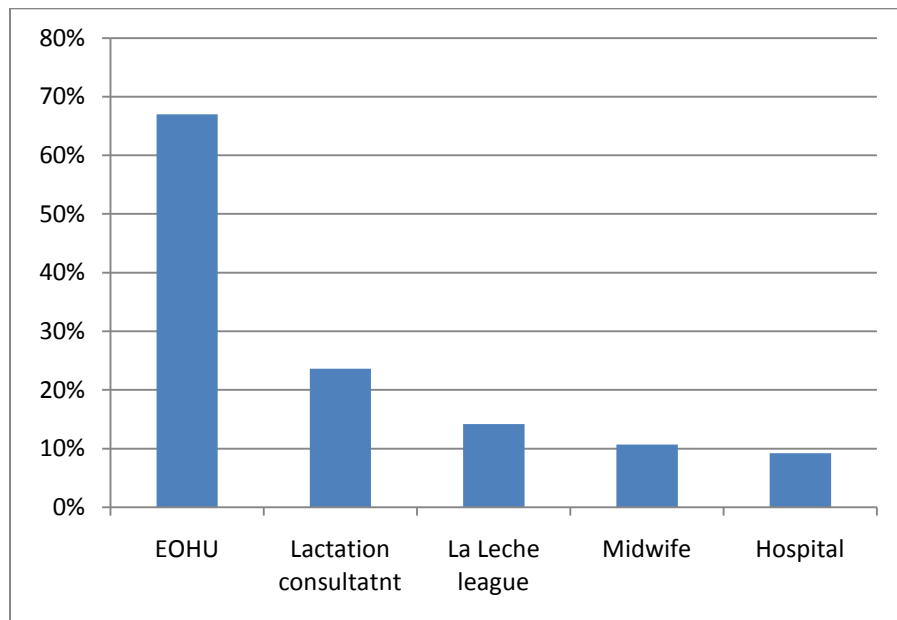
Compared to mothers born outside of Ontario, mothers from Ontario were less likely to have attempted to breastfeed their infants (Figure 65).



**Figure 65 - Breastfeeding, by Mother's Birthplace**

**Breastfeeding Support From a Local Agency**

Mothers were asked whether they had received any breastfeeding support from a local agency once they had left the hospital. Of the 487 respondents (55.7%) who did receive breastfeeding support, 67% said they received it from the EOHU. Other key support services included a lactation consultant (23.6%), La Lèche League (14.2%), their midwife or doula (10.7%) and the Cornwall Community Hospital staff (9.2%).



**Figure 66 - Breastfeeding Support, by Local Agencies**

### **Exclusive Breastfeeding**

Although the majority of women initiated breastfeeding (87.6%), the proportion of women who reported continued breastfeeding at 4 months was 51.4% and 39.0% after 6 months.

Exclusive breastfeeding or breastfeeding without any introduction of formula, other liquids or solids is recommended by the World Health Organization for the first 6 months of life for optimal infant health outcomes. In this study, only 13.6% of respondents said they were breastfeeding exclusively at 4 months and this number dropped to 5.2% at 6 months after the baby's birth.

### **Why Mothers Did Not Attempt to Breastfeed**

For the 12.4% of women who did not attempt to breastfeed, their reasons included:

- 'I did not like breastfeeding' (19%),
- 'Personal choice/Personal reasons' (15.8%),
- 'Not comfortable/Embarrassed' (10.5%),
- 'Bad previous experience' (9%)
- 'Feeling unwell/Too tired' (8.3%)

### **Conflicting Messages About Breastfeeding**

About 20% of respondents said that at some point after the birth of their baby they felt that they received conflicting messages about breastfeeding.

### **Introduction of Liquids and Solid Foods**

The infants in this sample were an average of 11 weeks old (median=4 weeks) when formula was first introduced. They were about 5 months old when solid foods such as cereal or vegetables were introduced and 6 months old when other liquids such as juice or water were first added.

### **Breastfeeding Stopped**

Infants were an average of 4.5 months old when breastfeeding was stopped completely. Mothers reported that they stopped breastfeeding when the infant was between 1 and 78 weeks old. The most common reasons for no longer breastfeeding were that mothers thought they were not producing enough milk (26.4%), the infant had difficulty nursing (15.1%), mothers felt that breast milk alone did not satisfy the baby (13.3%), the mothers felt it was the right time to stop (11.5%) or the mothers went back to work or school (11.5%) (Table 17).

**Table 17 - Leading Reasons Mothers Stopped Breastfeeding**

<b>Reasons Stopped Breastfeeding</b>	<b>Percent</b>
I thought I was not producing enough milk	26.4%
Baby had difficulty nursing	15.1%
Breast milk alone did not satisfy baby	13.3%
I felt it was the right time	11.5%
I went back to work/school	11.5%

## Infant at Home

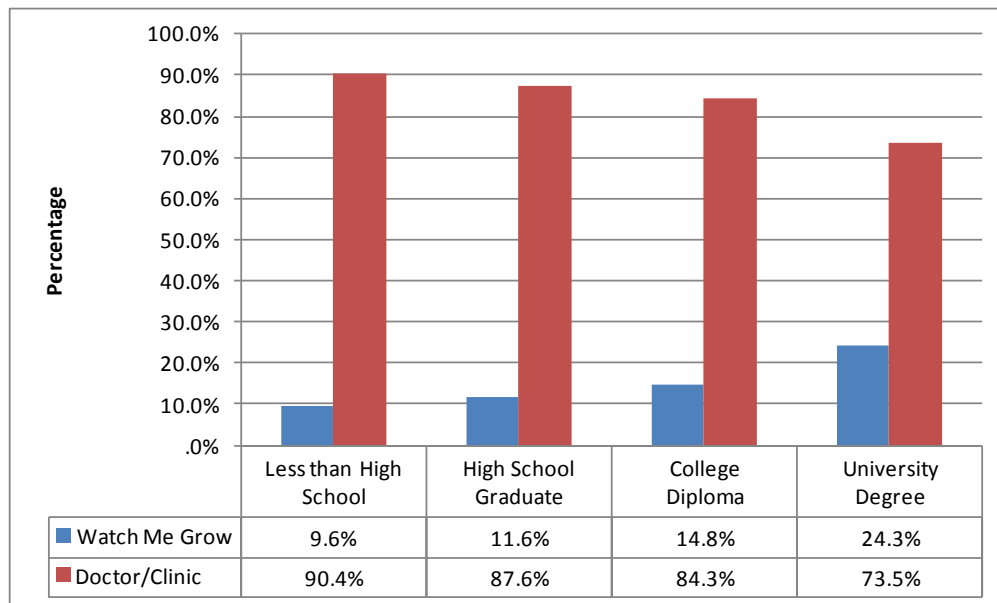
### Medical Check-Ups

When the infants were an average of 5 weeks old they had had at least one medical check-up by a healthcare provider. For 95% of the infants this check-up was done by a pediatrician or other medical doctor. The mothers were also asked which other types of healthcare providers had seen their infants for medical follow-up since birth. The most common responses were a public health nurse (43.6%) or a nurse at Watch Me Grow (26.3%) (Table 18).

**Table 18 - Type of Healthcare Provider Other Than a Doctor Who Examined the Child**

Healthcare Provider Other Than Doctor Who Examined the Child	Percentage of Cases
Public Health Nurse	43.6%
Watch Me Grow	26.3%
Midwife	11.3%
Home Visitor	5.9%
Medical Specialist (e.g. Neurologist)	4.2%

Mothers with a university education were significantly more likely to have gotten their infants' check-ups from the Watch Me Grow than mothers with less education (Figure 67).

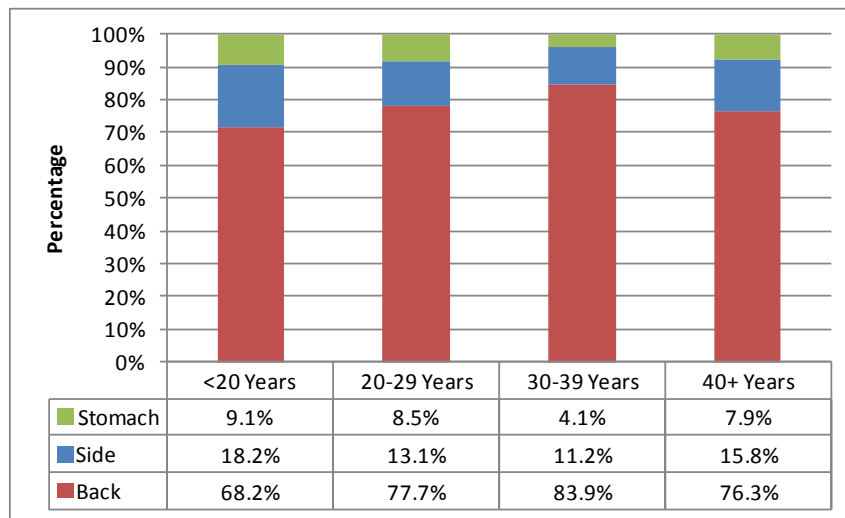


**Figure 67 - Location for Well-Baby Check-Ups, by Level of Education**

### Infant's Sleep Position

Studies show that putting infants to sleep on their back is associated with a decreased risk of sudden infant death syndrome (SIDS), which is the sudden, unexplained death of an infant under the age of one year.<sup>5</sup> The risk of SIDS is greatest for infants between 2 and 4 months old and the majority of SIDS deaths occur before 6 months of age.

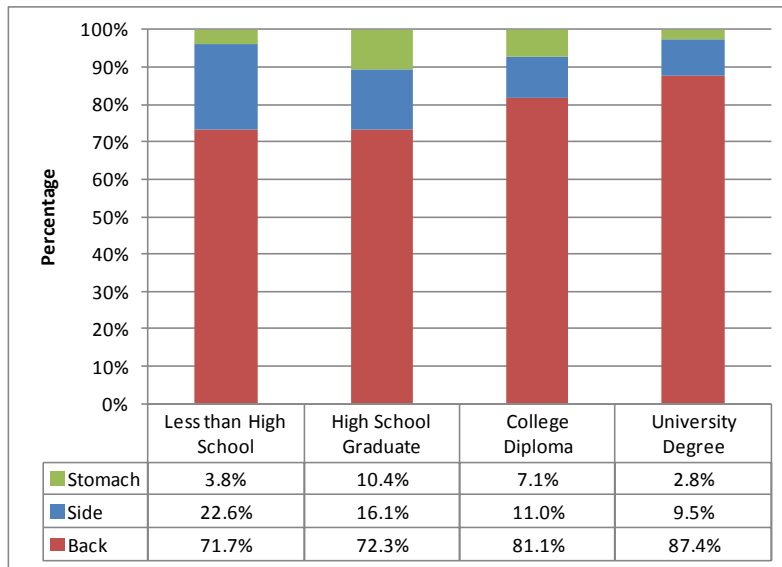
In the first 4 months after birth, 80% of mothers reported putting their infants down to sleep on their back; 12% put their infants to sleep on their side and 6% on their stomach. Mothers in their 30s were the most likely to have put their infants to sleep on their back. In general, younger mothers were the least likely to put their infants to sleep on their back and the most likely to put their infants to sleep on their stomach (Figure 68).



**Figure 68 - Infant's Sleep Position, by Mother's Age**

<sup>5</sup> Rusen ID, Lui S, Sauve R, Joseph KS, Kramer M. Sudden infant death syndrome in Canada: trends in rates and risk factors, 1985–1998. *Chronic Dis Can.* 2004;25(1):1–6

The more education the mother had, the more likely she was to put her infant to sleep on his or her back. High school graduates were the most likely to put their infant to sleep on his or her stomach (Figure 69).



**Figure 69 - Infant's Sleep Position, by Level of Education**

### **Infant's Sleep Location**

The majority of women said they currently put their infant to sleep in a crib (86.7%). Other responses included in bed with the mother (6.5%), in a playpen (2.3%) and in a cradle or bassinette (1.5%).

### Infant's Overall Health

When asked to rate their child's current overall health, 90% of mothers rated their infant as either in very good (19.7%) or excellent health (70.7%).

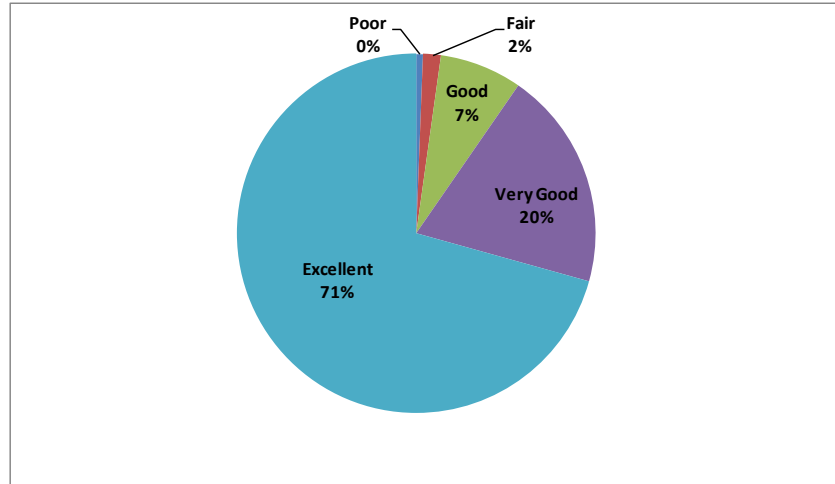


Figure 70 - Infant's Current Overall Health

## Mother at Home

### Postpartum Contact at Home

96.7% of mothers said that they were contacted at home by a healthcare provider to check on them and their infants. The new babies were an average of 6 days old when the mothers were first contacted.

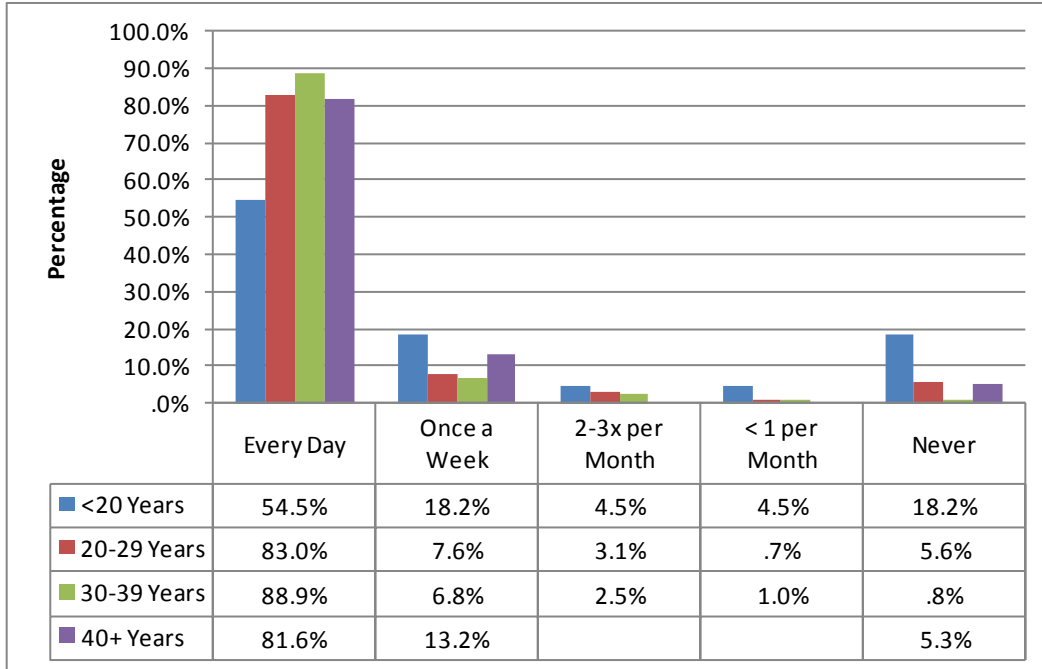
### Mother's Overall Health

Overall 68.7% of mothers rated their own current health as either very good (36.0%) or excellent (32.7%).

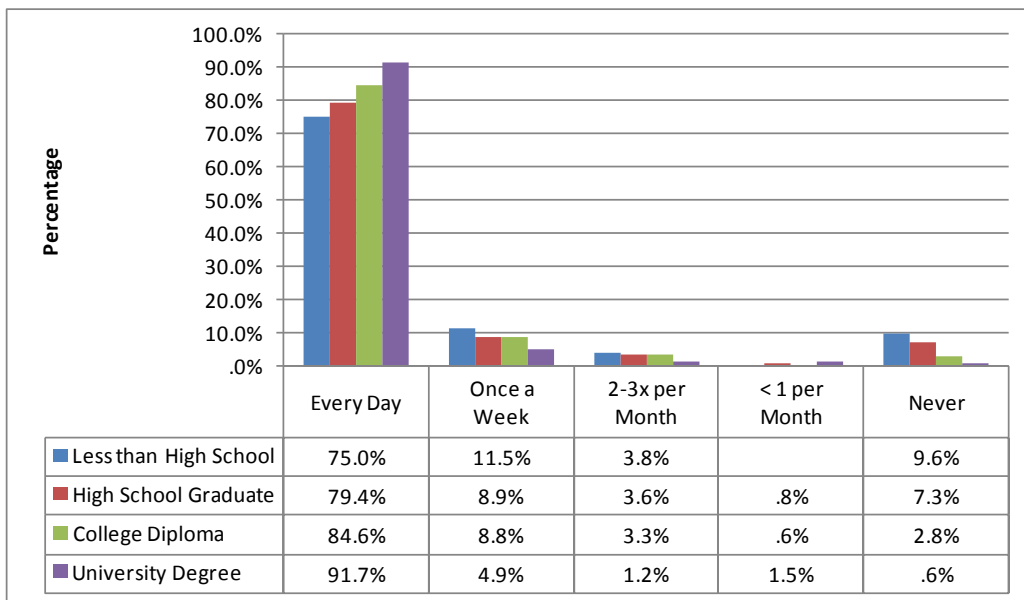
### Mother's Support at Home

As mentioned previously, having a strong support system is a key buffer against the negative effects of life stresses, which can include the birth of a new baby. 93.2% of mothers said that they were able to count on their husband or partner for support. 83.9% said that they relied on a relative, friend or neighbour. Other respondents also relied on a nurse, midwife and doula (6.4%) or a paid sitter or nanny (6.4%).

In terms of support from the infant's father, mothers in the youngest age group and mothers with the least education were the least likely to have their partner's help on a daily basis. Women in these groups were the most likely to say that they did not have any help from the infant's father at all (Figure 71 and Figure 72).



**Figure 71 - Support From Infant's Father, by Mother's Age**



**Figure 72 - Support From Infant's Father, by Mother's Education**

## Information on the Postpartum Period

### Information on the Postpartum Period

Respondents were asked whether they felt they had enough information on various topics after the birth of their baby (Table 19). The highest percentage of women felt that they had enough general information about caring for their newborns (92.8%), using an infant car seat (92.7%) and SIDS (91.6%). About a quarter of women felt they were lacking information about the possible effects of having a new infant on their relationship (77.6%), formula-feeding (75%) and changes in their sexual response and feelings (72.5%).

**Table 19 - Information on the Postpartum Period**

Information on the Postpartum Period	Frequency	Percentage
General information about caring for a newborn baby	928	92.8%
Using an infant car seat	927	92.7%
SIDS, also known as sudden infant death syndrome	915	91.6%
Shaken baby syndrome	903	90.7%
Developmental milestones to look for in a child	898	90.5%
Postpartum depression	895	89.6%
How to breastfeed your baby	883	88.7%
Birth control after pregnancy, such as when and how you should use it	881	88.5%
Possible negative feelings after having a baby such as feeling insecure or unhappy	878	88.2%
Home safety information, such as baby-proofing your home	861	86.4%
Physical demands on your body during the first few months after having a baby	782	78.6%
Possible effects of having a new baby on your relationship with your husband or partner	764	77.6%
Formula-feeding your baby, such as when to use formula and how to prepare it	747	75.0%
Changes in your sexual response and feelings	721	72.5%

The women in this survey felt that their most useful source of information about the period after the birth of their infant was reading material such as books and pamphlets (17.8%). Other useful sources of information were family and friends (15.3%), a public health nurse (14.3%), their family doctor (13.1%) or a previous pregnancy (11.0%).

An additional 8.8% said that the Internet was their most useful source of information. Internet use in general has been increasing over the past few years and is an emerging source of information for mothers during the perinatal period.

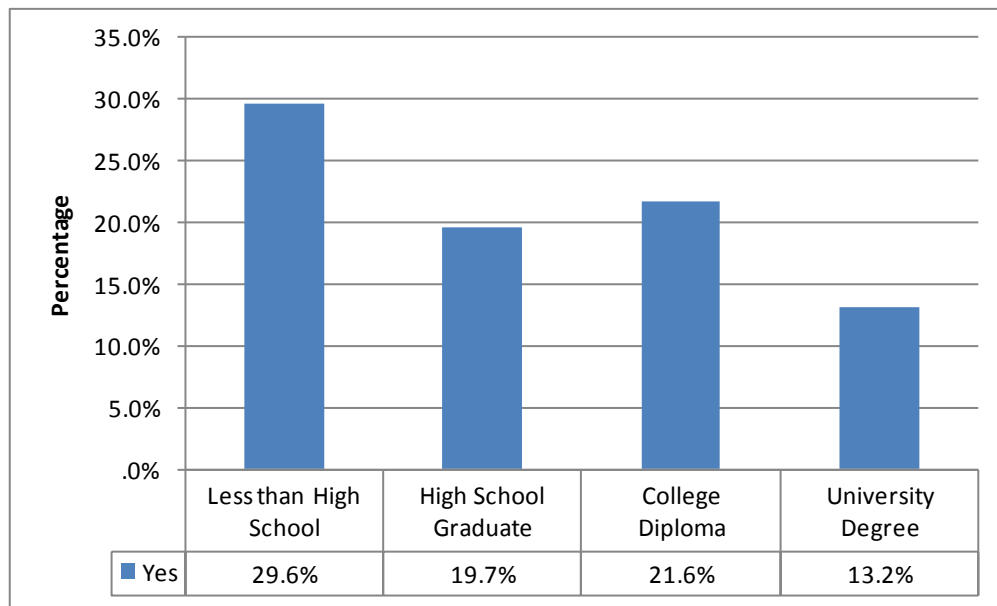
## Postnatal Depression

After giving birth, many women may experience adverse emotional symptoms that vary in severity. Three major categories of postpartum emotional conditions have been identified: postpartum blues (or baby blues), postpartum depression and postpartum psychosis. Postpartum blues occur in up to 80% of women and usually resolve within two weeks. Postpartum depression occurs in 10% to 20% of women, has its onset in the first year after birth, and can last for months or even years. Postpartum psychosis is rare, occurring in about 0.2% of women, but requires immediate medical care. The strongest risk factors for postpartum depression are having had depression or anxiety during pregnancy, recent stressful life events, poor social support and a history of depression.

### Postnatal Depression

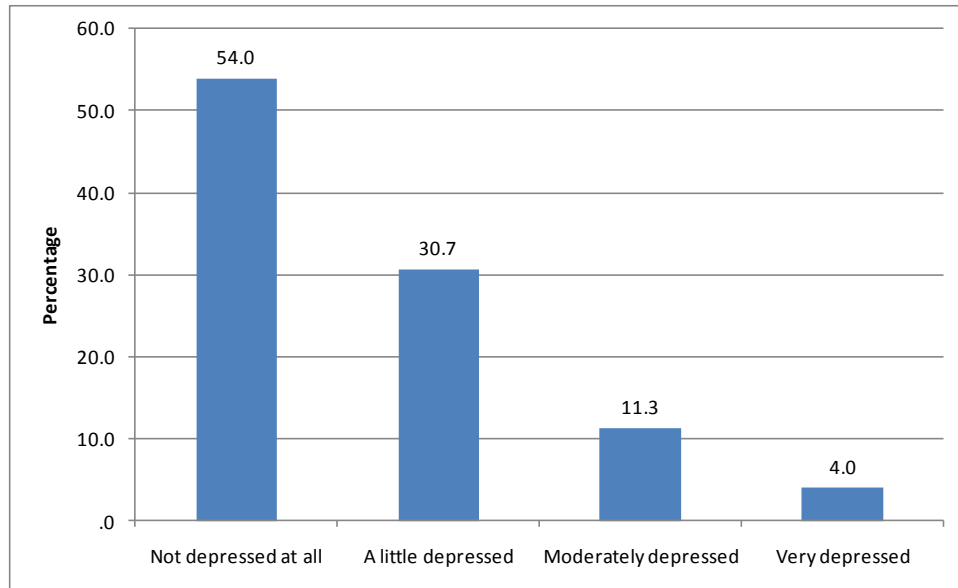
Overall, 75.6% of mothers reported having had a discussion with a healthcare provider about baby blues or postpartum depression at some time before or after their delivery.

19% of respondents reported having been previously diagnosed with depression, or having been prescribed antidepressants. There is a significant association between a mother's level of education and reported previous depression. The more education a mother had, the less likely she was to report having had depression in the past (Figure 73).



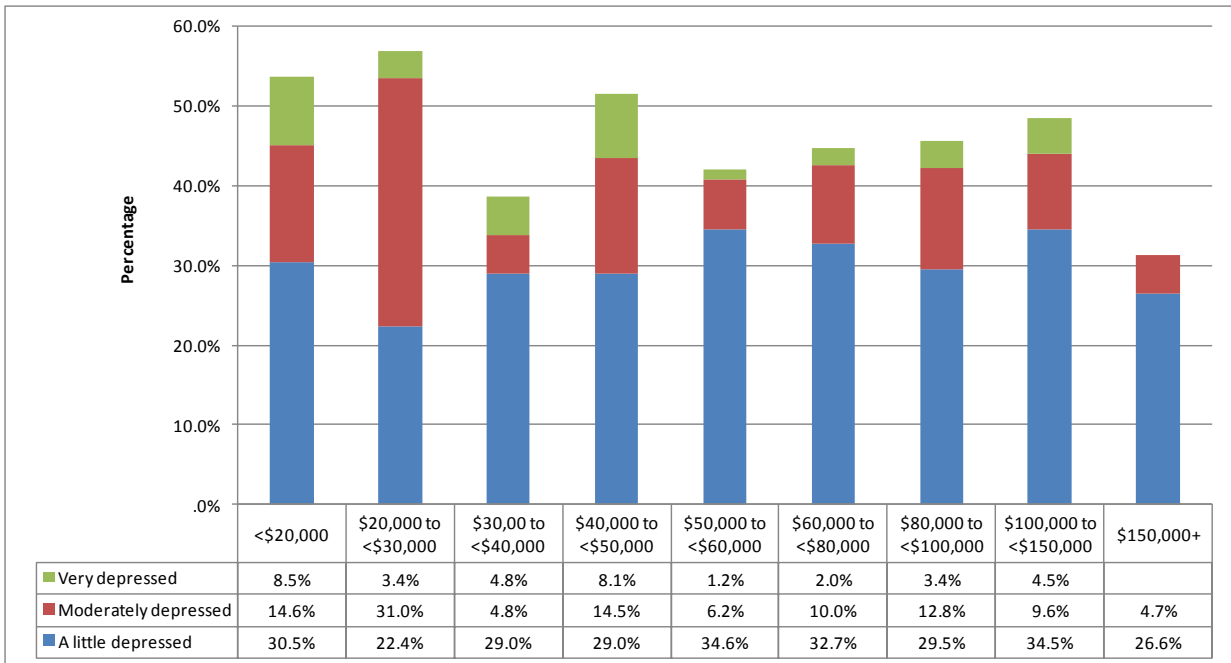
**Figure 73 - Previous Depression, by Level of Education**

In the months following the birth of their new babies 30.7% of women said they were a little depressed, 11.3% were moderately depressed, 4.0% very depressed and the remaining 54% were not depressed at all (Figure 74). Of the new mothers who reported having some postnatal depression, 23.9% said they received professional help with their depression.



**Figure 74 - Percentage of Mothers Who Experienced Postnatal Depression**

Having a lower income was associated with higher reported levels of depression (Figure 75).



**Figure 75 - Level of Depression, by Income**

## Smoking

### Smoking

Cigarette smoking is a strong risk factor for adverse outcomes in pregnancy. Risks are associated with both the amount and duration of smoking. Women who stop smoking before becoming pregnant or who stop during their pregnancy can significantly reduce their risk for negative outcomes compared with women who smoke throughout their pregnancies.

### Smoking During Pregnancy

74% of respondents have been non-smokers for the past two years. 18% of women said they were daily smokers, 5% were occasional smokers, and the remaining 3% were former smokers (Figure 76).

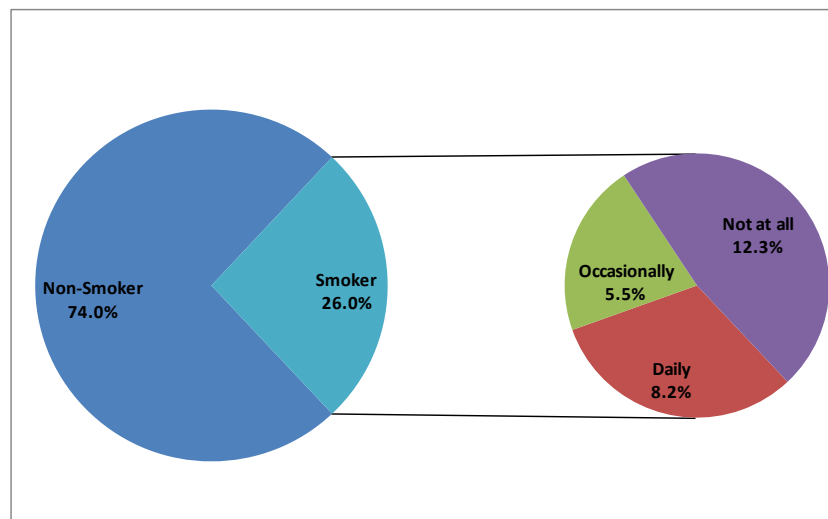
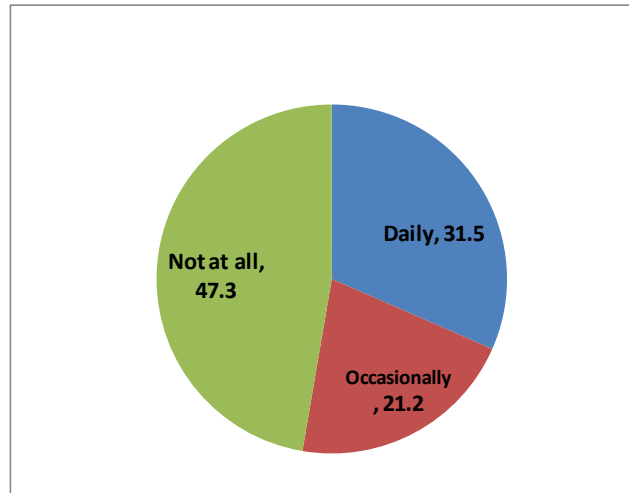


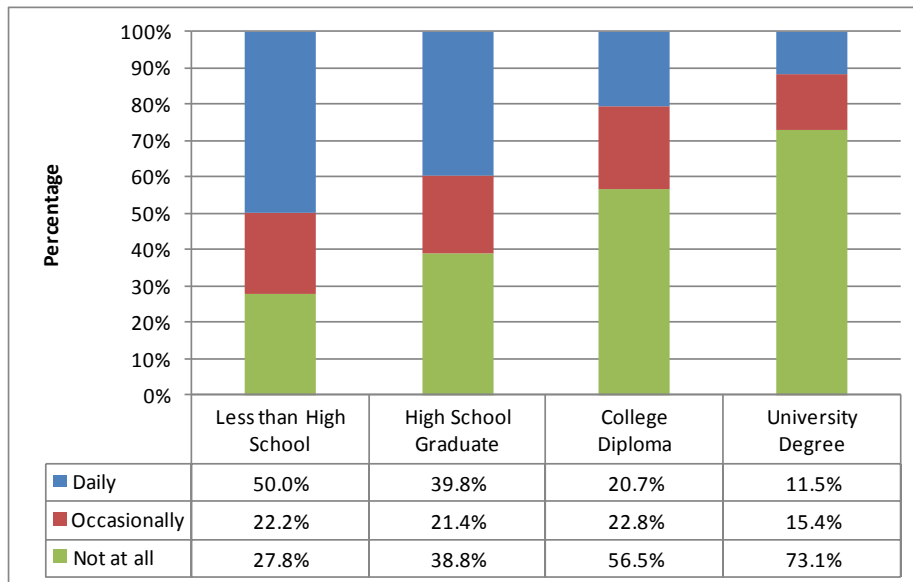
Figure 76 - Smoking Status of Participants

Of the mothers who smoked cigarettes in the past two years, 31.5% smoked daily during the last three months of pregnancy, 21.2% smoked occasionally, and the remaining 47.3% did not smoke at all during that time (Figure 77).



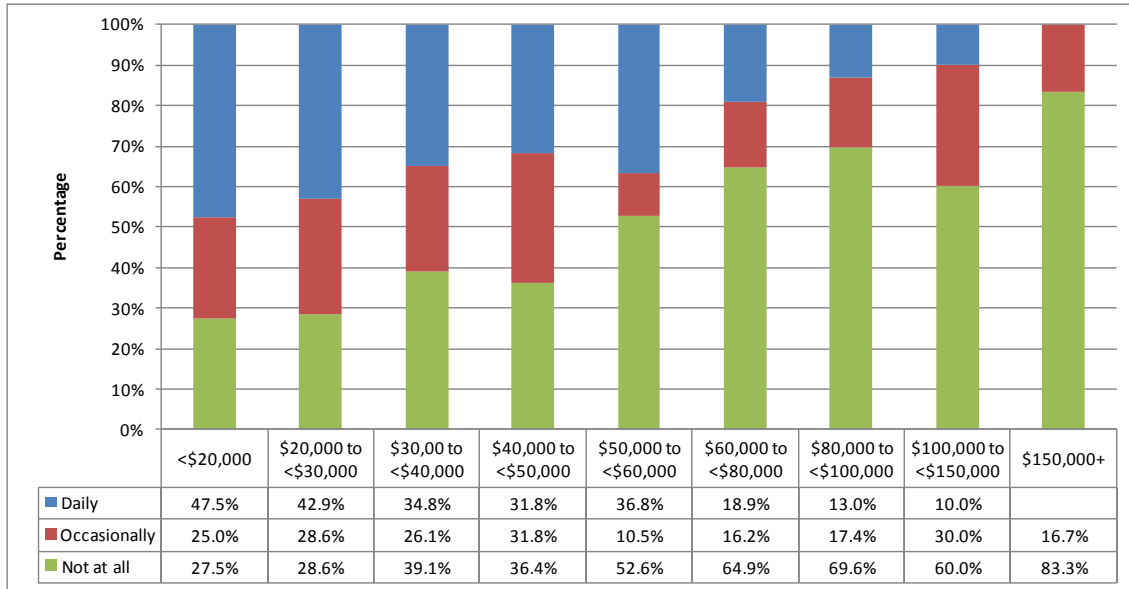
**Figure 77 - Smoking Status During the Last 3 Months of Pregnancy**

The percentage of mothers who said they smoked during the last 3 months of pregnancy decreased significantly as income and education increased (Figure 78 and Figure 79). There was no significant association between smoking during pregnancy and a mother’s age.



\*Only includes respondents who reported smoking sometime the last 2 years

**Figure 78 - Smoking During Pregnancy, by Education, Among Those Who Smoked in the Past 2 Years**



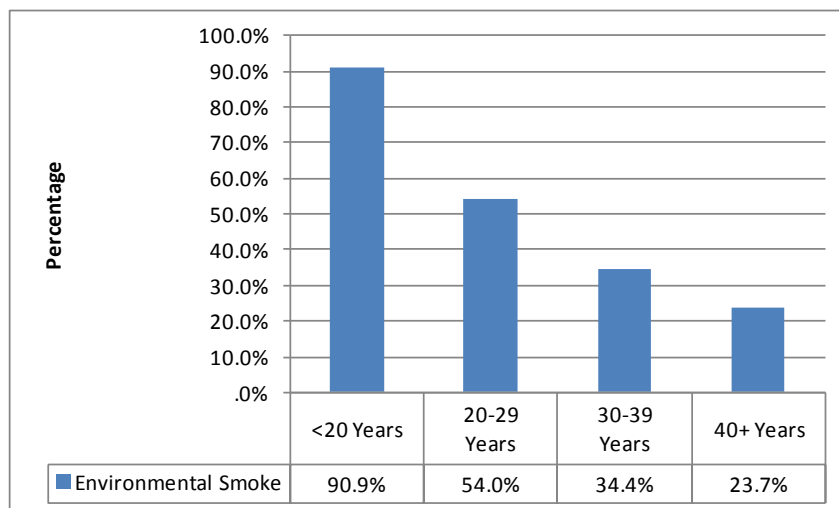
\*Only includes respondents who reported smoking sometime the last 2 years

**Figure 79 - Smoking During Pregnancy, by Income, Among Those Who Smoked in the Past 2 Years**

### Exposure to Environmental Tobacco Smoke During Pregnancy

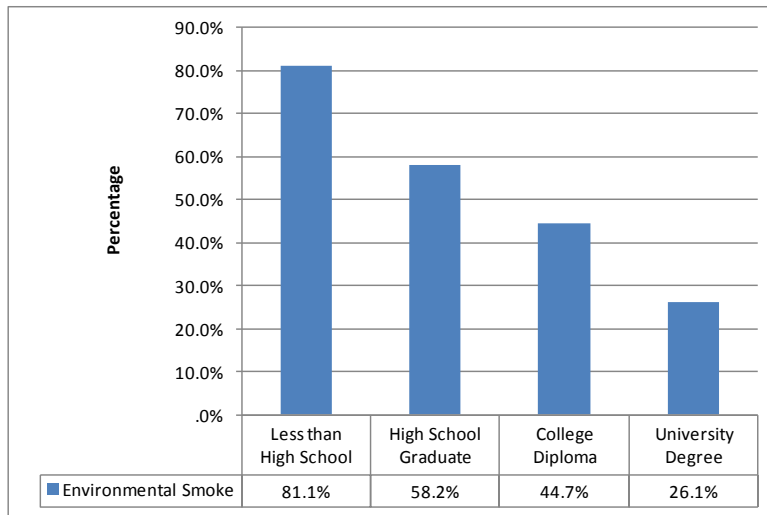
The percentage of mothers who were exposed during pregnancy to environmental tobacco smoke decreased significantly with age, education and income.

Over 90% of mothers in the youngest age group reported spending time during their pregnancy around someone who was smoking, compared to 23.7% of mothers in the oldest age group (Figure 80).



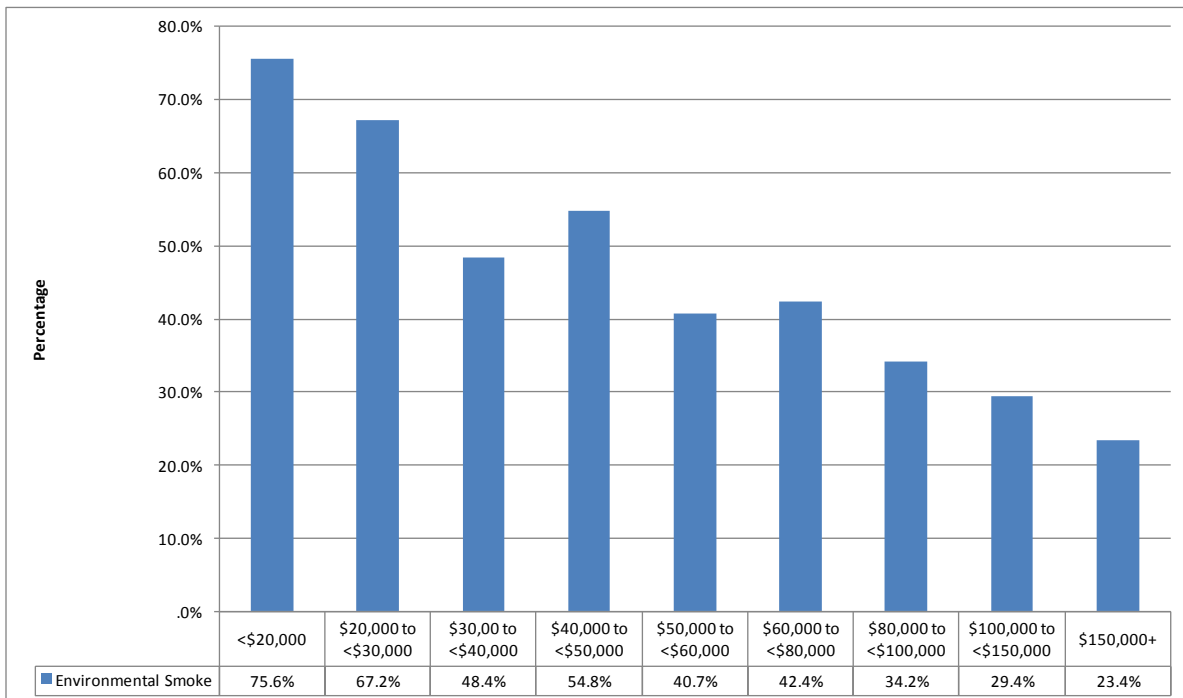
**Figure 80 - Exposure to Environmental Tobacco Smoke During Pregnancy, by Age**

Pregnant women with less than a high school education were between 2 and 3 times more likely than mothers with a university education to have been around someone who was smoking (Figure 81).



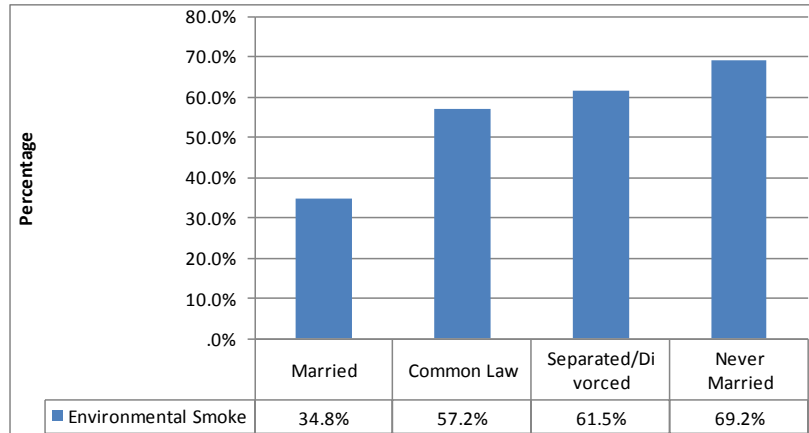
**Figure 81 - Exposure to Environmental Tobacco Smoke During Pregnancy, by Level of Education**

During their pregnancy, women with a household income of less than \$50,000 a year were significantly more likely than women with a higher household income to have been around someone who was smoking (Figure 82).



**Figure 82 - Environmental Smoke During Pregnancy, by Income**

There was a significant association between marital status and whether a woman was around someone who was smoking during her pregnancy. Single mothers were significantly more likely than married mothers to have been exposed to environmental smoke during pregnancy (Figure 83).



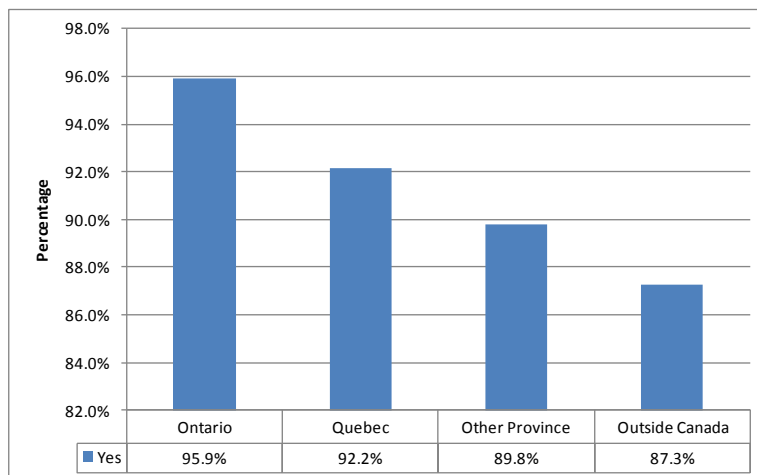
**Figure 83 - Environmental Smoke During Pregnancy, by Marital Status**

### Infant Exposure to Environmental Smoke

Over 95% of respondents said that their infant was not around any smoke during the day. Similarly, 98.5% of respondents said that their infants were never in a car with someone who was smoking.

### Information About Smoking During Pregnancy

94.7% of mothers said that they had enough information about smoking during pregnancy. However, mothers born outside of Ontario, as well as mothers born outside of Canada were more likely to say that they did not have enough information than mothers from Ontario.



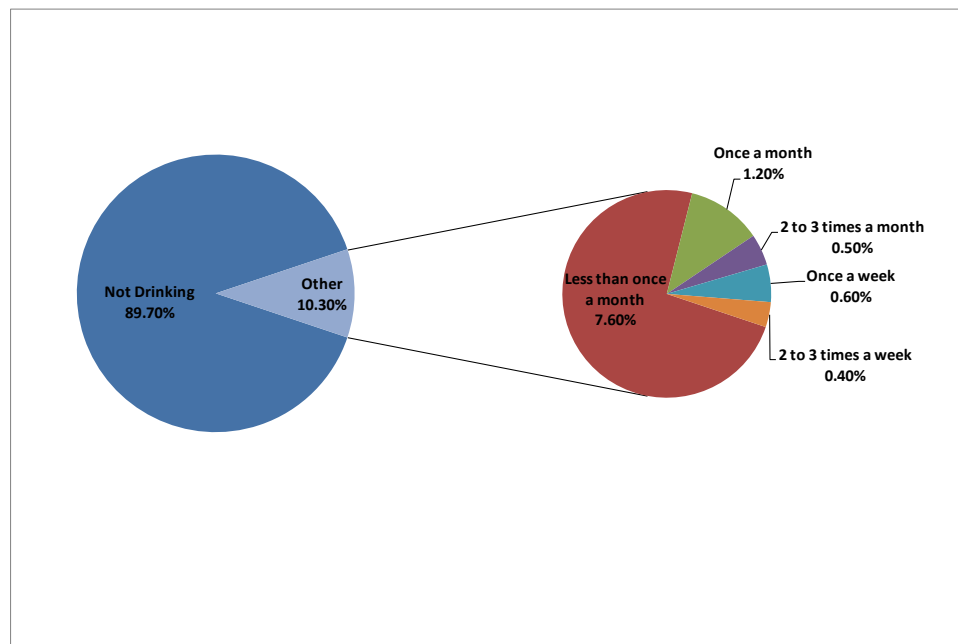
**Figure 84 - Had Enough Information About Smoking, by Mother's Birthplace**

## Alcohol Use

### Alcohol Use

Prenatal exposure to alcohol can lead to a range of conditions known as Fetal Alcohol Spectrum Disorder (FASD), which is a leading cause of developmental disability in Canada. Effects can include vision and hearing problems, as well as slow growth and brain damage that result in lifelong problems with attention, memory, reasoning and judgement.<sup>6,7</sup> Research suggests that drinking even a small amount of alcohol during pregnancy can have a negative impact on brain development, and current clinical guidelines recommend drinking no alcohol when planning a pregnancy and during pregnancy.

After they realized they were pregnant, 89.7% of mothers reported that they were not or had stopped drinking alcohol (Figure 85).

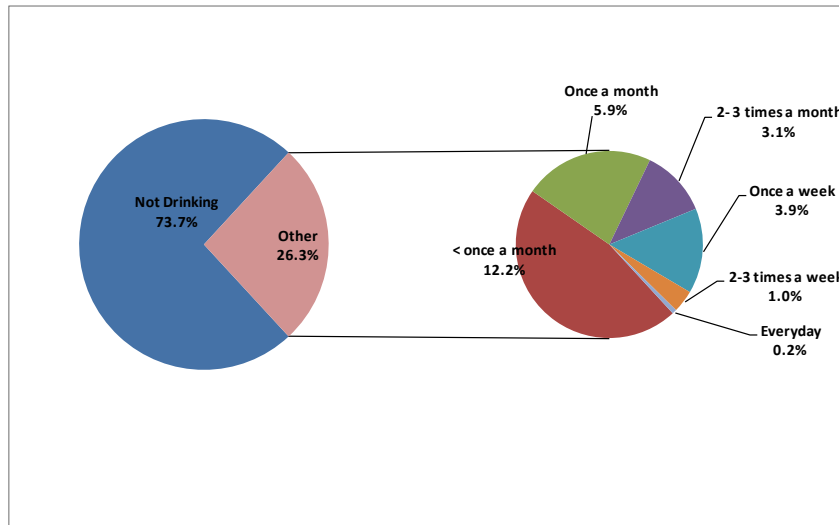


**Figure 85 - Alcohol Consumption During Pregnancy**

When mothers who did not drink alcohol were excluded from analysis, three quarters (73.8%) of the mothers who reported drinking during pregnancy consumed alcohol less than once a month, and the rest were drinking once a month (11.7%), once a week (5.8%), 2 to 3 times per month (4.9%) and 2 to 3 times per week (3.9%) (Figure 86). For the women who did drink, the average was 1 or fewer drinks on each occasion.

<sup>6</sup> (Health Canada (2001). The Facts: Fetal Alcohol Syndrome/Fetal; Alcohol Effects. ON: Health Canada. p. 1).

<sup>7</sup> Public Health Agency of Canada. What Mothers Say: The Canadian Maternity Experiences Survey. Ottawa, 2009.



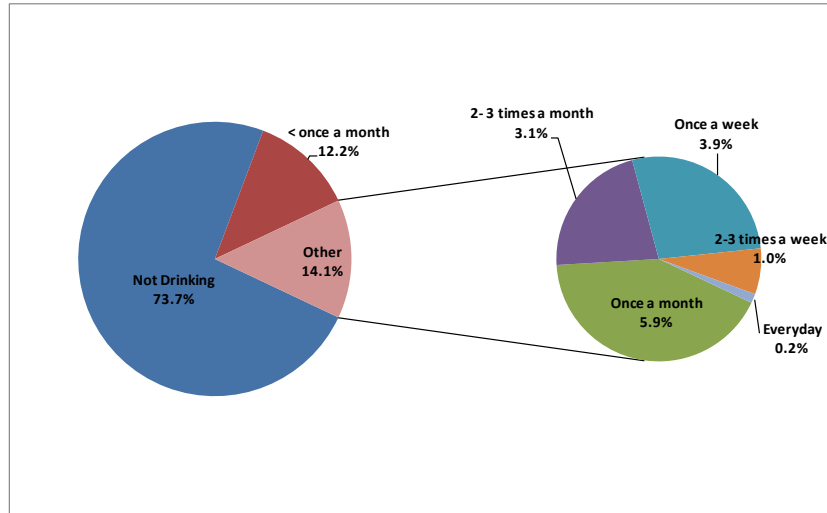
**Figure 86 - Alcohol Consumption During Pregnancy, Excluding Mothers Who Did Not Drink Alcohol**

### **Alcohol and Breastfeeding**

It is a well established fact that alcohol is excreted into breast milk if the mother consumes alcohol while breastfeeding, and in turn the alcohol passes into the newborn's body. The infant's brain and central nervous system continue to grow after birth, and can be affected by the alcohol. Studies show that alcohol in breast milk interferes with the mother's milk production and causes infants to eat and sleep less.<sup>8</sup>

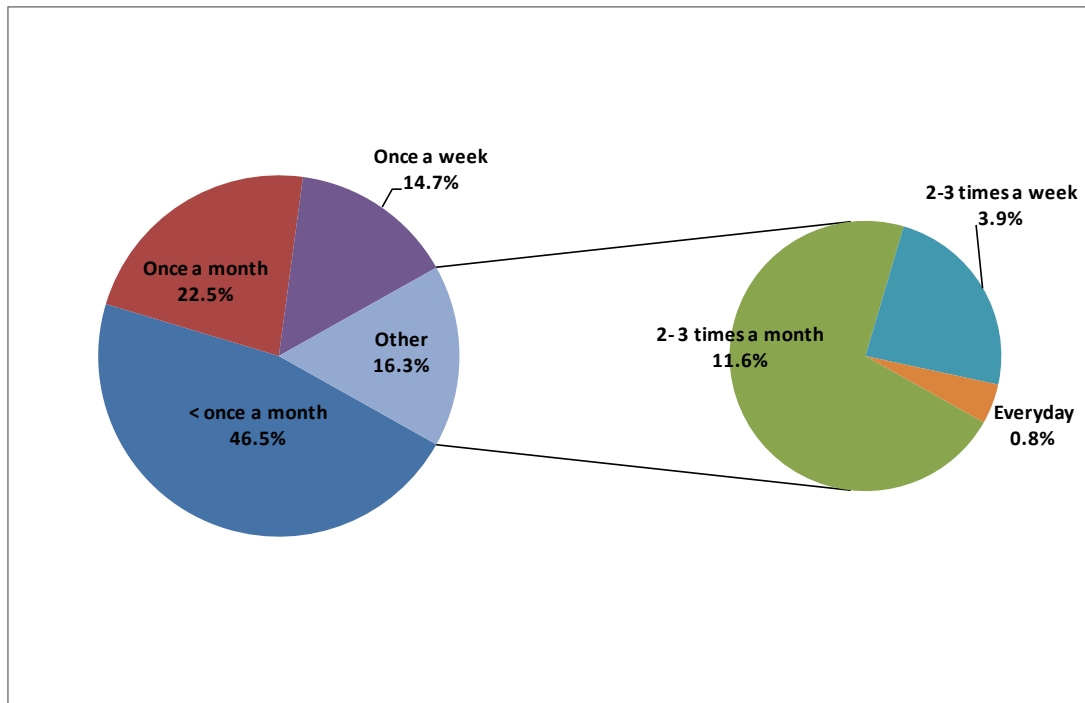
While breastfeeding, 73.7% of respondents reported that they were not drinking any alcohol at all. For the remaining 26.3% who did drink alcohol, the majority had one drink or less per month.

<sup>8</sup> PHAC –FASD Frequently Asked Questions <http://www.phac-aspc.gc.ca/fasd-etcaf/faq-eng.php#9>



**Figure 87 - Alcohol Consumption While Breastfeeding**

When mothers who did not drink any alcohol while breastfeeding were removed from analysis, 46.5% of mothers said they were drinking less than once a month, 22.5% once a month, 14.7% drank once a week and 11.6% drank 2 to 3 times per week (Figure 88).



**Figure 88 - Alcohol Consumption While Breastfeeding, Excluding Mothers Who Did Not Drink**

During pregnancy 94% of respondents felt that they had enough information about how drinking alcohol during pregnancy could affect the baby.

## Drug Use

### **Prescription Drug Use During Pregnancy**

32.9% of respondents reported using some kind of prescription drug during their pregnancy.

### **Street Drugs During Pregnancy**

The use of street drugs or illicit drugs around the time of pregnancy is a concern and is associated with low birth weight, preterm birth, and developmental as well as behavioural issues during childhood.<sup>9</sup>

Before pregnancy or before they knew they were pregnant, 6% of respondents said they had used street drugs. During pregnancy this number dropped dramatically to 0.7% of respondents.

Among women who reported using illicit drugs before pregnancy, over 85% of them said they used marijuana. Other drugs used included cocaine, ecstasy, speed and GHB. Of those who used drugs during pregnancy, all of them reported using marijuana exclusively.

### **Information About Drug Use During Pregnancy**

90.5% of respondents said that they had enough information about the effects of using street drugs during pregnancy.

## Abuse and Violence

### **Physical Violence**

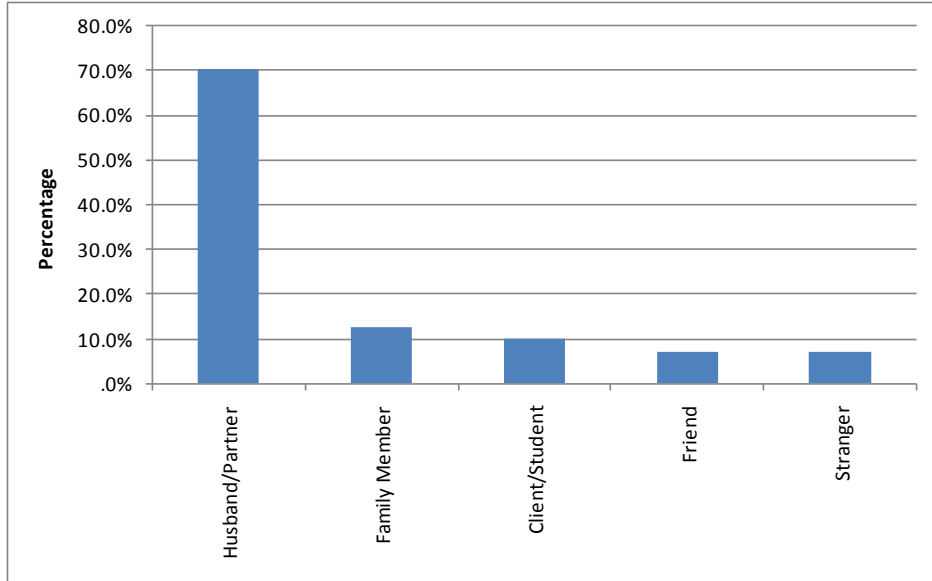
Violence against women is a serious problem. Several studies have shown an association between physical abuse during pregnancy and adverse pregnancy outcomes such as fetal trauma, low birth weight, preterm birth, and maternal mortality.

7.4% of respondents said that they experienced some violence in the past two years. This includes being hit, pushed, slapped, and kicked, etc. Of the 7.4% women who experienced violence, .6% said the violence occurred during their pregnancy.

For the majority of respondents the person who was violent towards them was their husband, partner or boyfriend (65%). Others experienced violence from a family member (1.7%), a client or student (9.9%), a friend or acquaintance (7.0%) or from a stranger (7%) (Figure 89).

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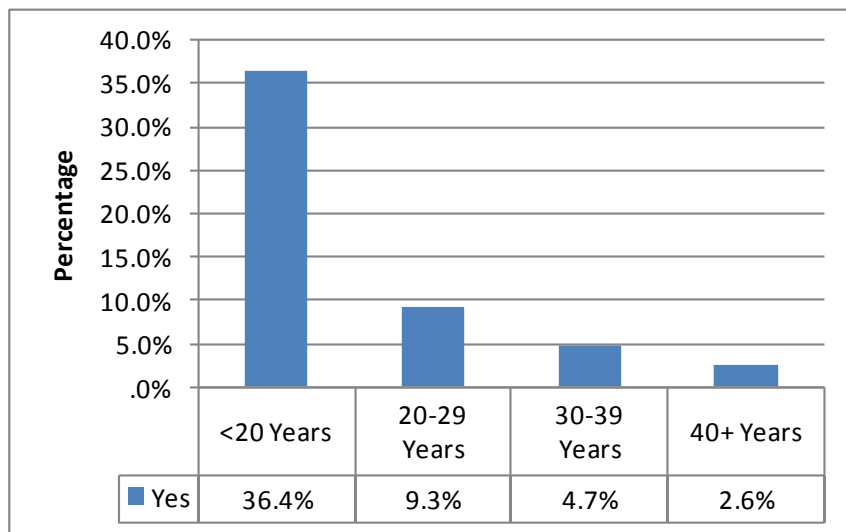
<sup>9</sup> Public Health Agency of Canada. What Mothers Say: The Canadian Maternity Experiences Survey. Ottawa, 2009.



**Figure 89 - Physical Violence and the Relationship to Respondent**

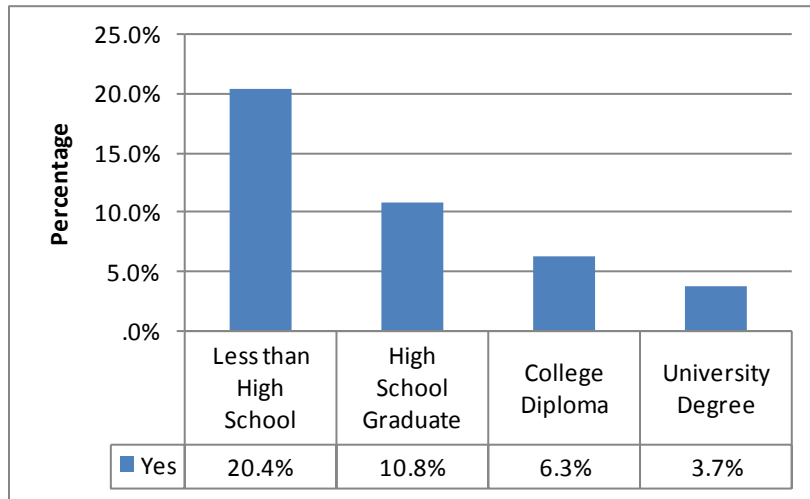
Having experienced violence in the last two years was significantly associated with age, education and income.

Women in the youngest age group were the most likely to have experienced physical violence in the past two years. The percentage of women who experienced violence decreased significantly as age increased (Figure 90).



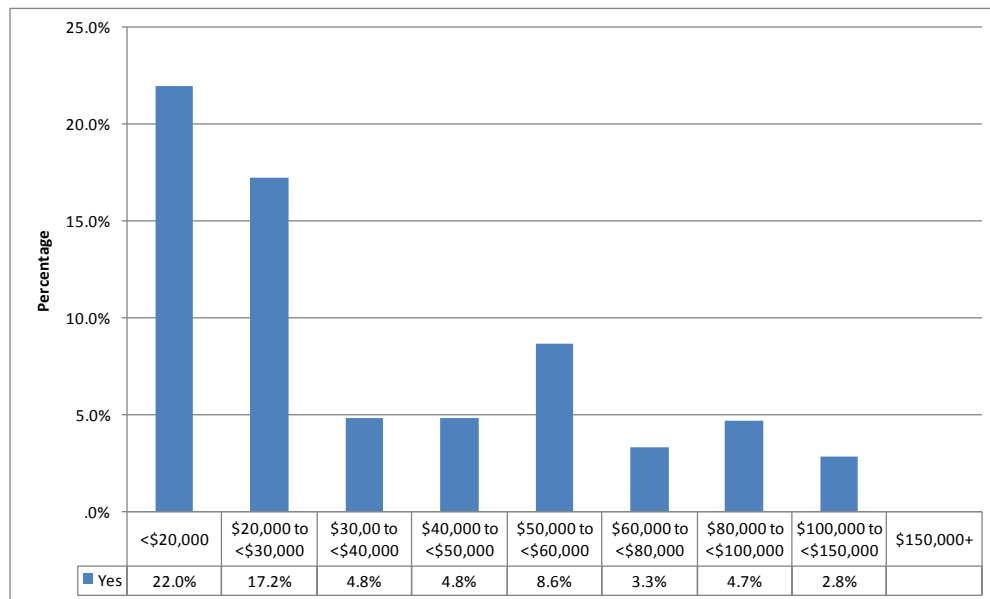
**Figure 90 - Experienced Violence, by Age**

Similar to the trend seen with age, women with less than a high school education were the most likely to have experienced violence in the past two years. The percentage of women who reported violence decreased significantly as the level of education increased (Figure 91).



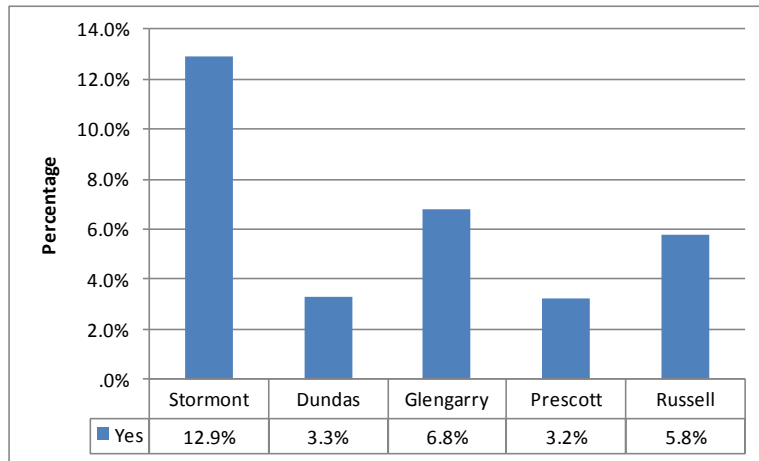
**Figure 91 - Experienced Violence, by Level of Education**

Women with the lowest household income were the most likely to have experienced violence in the past two years. As household income increased, the likelihood of having experienced violence decreased significantly (Figure 92).



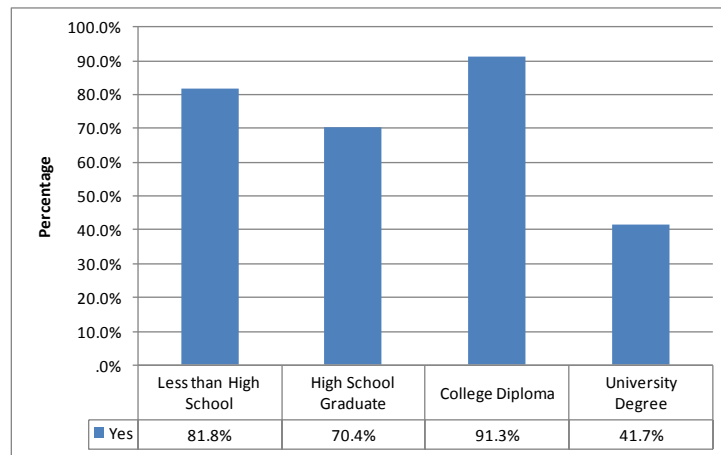
**Figure 92 - Experienced Violence, by Income**

Of those women who reported experiencing violence in the past two years, a significantly higher proportion lived in Stormont County (including the City of Cornwall) than the other counties in the region. Women living in Prescott and Dundas Counties were the least likely to have experienced violence (Figure 93).



**Figure 93 - Experienced Violence, by County**

Three quarters (74.0%) of women who said that they had experienced violence in the past two years also said that they had received information or had a discussion with a professional about physical abuse. Women with a university degree were the least likely to have received information about abuse, while women with a college degree were the most likely to have gotten this information (Figure 94).



**Figure 94 - Received Information on Abuse, by Level of Education**

## EOHU Services

Respondents were asked whether they had heard of specific EOHU programs. Watch Me Grow was the program that respondents were the most familiar with (93.3%), followed by Prenatal Classes (92.1%). On the other hand, Smoking Cessation Services (22.9%) and the Birth Companion program (10.9%) were the two programs respondents were least familiar with (Table 20).

The EOHU programs with the highest satisfaction ratings were the Car Seat Inspection services (9.44) and the Home Visiting Program (9.02). The Smoking Cessation Services (7.14) and Prenatal Classes (8.16) had the lowest satisfaction ratings (Table 20).

**Table 20 - EOHU Services Accessed by Respondents and Their Average Satisfaction**

<b>EOHU Program Name:</b>	<b>Heard of Program</b>	<b>Have Used the Service</b>	<b>Average Satisfaction Rating (Between 1 and 10)</b>
Watch Me Grow	93.3%	60.2%	8.79
Prenatal Classes	92.1%	39.8%	8.16
Car Seat Inspection	67.1%	27.9%	9.44
Home Visiting Program	54.1%	28.2%	9.02
Baby's Best Start	42.7%	14.2%	8.70
Speech and Language Services	41.5%	7.8%	8.46
Smoking Cessation Services	22.9%	0.7%	7.14
Birth Companion	10.9%	0.9%	8.44

## Part 4: Discussion

### Mothers at Risk

Throughout the report we see several trends showing that specific groups of women are at higher risk for risky health behaviours during pregnancy.

#### **Young Mothers (<20 Years)**

Mothers in the youngest age group were often the most likely to report risky behaviours during pregnancy. They were more likely to say that their pregnancy did not come at the right time for them and to be lacking in emotional support from their partner. The youngest mothers reported much higher levels of stress and were the most likely to have experienced violence in the past two years.

Young mothers were also less likely to have taken a folic acid supplement before or during pregnancy, less likely to put their infant on his or her back to sleep and nearly 3 times less likely to breastfeed.

#### **Education (Less Than University)**

Mothers with the least education were the most likely to report behaviours that could put their pregnancy at risk for negative outcomes. They were more likely to say that their pregnancy did not come at the right time, more likely not to have taken folic acid before or during pregnancy and more likely to have experienced violence in the past two years.

A common trend seen throughout this report is an inverse association between a mother's level of education and her risk behaviours; the more education she had, the less likely she was to report negative behaviours and outcomes. The amount of life stress a woman reported decreased as her level of education increased, and she was more likely to breastfeed and less likely to be around someone else who was smoking while she was pregnant. The proportion of women who took prenatal classes also increased along with the woman's level of education.

#### **Household Income (Less Than \$50,000 a Year)**

A mother's household income was another influential factor in whether or not she was likely to engage in risky behaviours during her pregnancy. Risks were increased for mothers in households that were making less than \$50,000 a year. Women in the lowest income groups were less likely to say that their pregnancy came at the right time for them, to take folic acid or to breastfeed. They were more likely to report three or more stressful life events and to report higher rates of postpartum depression.

These findings help to reinforce the need to place special attention on and provide extra services for pregnant women and new mothers who are very young, have less education and have a household income of less than \$50,000 a year.