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The Socio-Economic Characteristics of First Nation Teen Mothers

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Abstract

Using data from the 2006 Census, this study examines the socio-economic characteristics of First Nations and non-Aboriginal teenage mothers, and compares these to those of non-teenage mothers in a cohort of women aged 25 to 29 years old. Results indicated that First Nations women were more likely than non-Aboriginal women to be teenage mothers. In general, teenage mothers were less likely to have graduated high school, more likely to live in overcrowded housing, and in a home in need of major repair. Furthermore, teenage mothers had lower household incomes after adjusting for the composition the household. Characteristics also differed significantly between First Nations and non-Aboriginal women, as well as between Registered Indian women living on- and off-reserve.

French Abstract

LES CARACTÉRISTIQUES SOCIOÉCONOMIQUES DES MÈRES ADOLESCENTES DES PREMIÈRES NATIONS

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Résumé

En utilisant les données du recensement de 2006, cette étude se penche sur les caractéristiques socioéconomiques des mères adolescentes des Premières Nations et non autochtones, et les compare à celles des mères plus âgées dans une cohorte de femmes de 25 à 29 ans. Les résultats indiquent que les femmes des Premières Nations sont plus susceptibles que les femmes non autochtones de devenir des mères à l'adolescence. En règle générale, les mères adolescentes sont moins susceptibles d'avoir terminé leurs études secondaires et plus susceptibles de vivre dans un logement surpeuplé et dans une maison nécessitant des réparations importantes. De plus, les mères adolescentes comptent sur un revenu de ménage inférieur après l'ajustement effectué pour tenir compte de la composition de ce dernier. Les caractéristiques sont également très différentes entre les femmes des Premières Nations et les femmes non autochtones, ainsi qu'entre les Indiennes inscrites vivant dans les réserves et celles vivant hors réserve.

Spanish Abstract

CARACTERÍSTICAS SOCIOECONÓMICAS DE LAS MADRES ADOLESCENTES DE LAS PRIMERAS NACIONES

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Resumen

En este estudio se emplean los datos del censo de 2006 para examinar las características socioeconómicas de las madres adolescentes de las Primeras Naciones y de las no indígenas, comparándolas con las de las madres no adolescentes de la cohorte de mujeres entre 25 y 29 años. Los resultados muestran que las mujeres de las Primeras Naciones tienen mayores probabilidades de ser madres adolescentes que las mujeres no indígenas. En general, es menos probable que las madres adolescentes tengan un diploma de estudios secundarios, es más probable que vivan en viviendas hacinadas o en viviendas que requieren reparaciones importantes. Además, las madres adolescentes tienen menores ingresos en su hogar una vez ajustada la composición de dicho hogar. También hay diferencias considerables entre las mujeres de las Primeras Naciones y las mujeres no indígenas, así como entre las mujeres registradas como indias que viven en reservas o fuera de ellas.

Keywords

teenage motherhood, socio-economic characteristics, First Nations, Census

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The Socio-Economic Characteristics of First Nation Teen Mothers

In 2006, there were approximately 355,000 live births in Canada, of which 4.1% were to women under the age of 20 (Statistics Canada, 2008c). There are reports that the teenage birth rate is substantially higher among First Nations women than it is among non-Aboriginal women (Guimond & Robitaille, 2008; Robitaille, Kouaouci, & Guimond, 2004). For example, in 2006, 8% of non-Aboriginal children under the age of 6 had mothers between the ages of 15 and 24. This compares to 27% of off-reserve First Nations children under the age of 6 (Zukewich & O'Donnell, 2008). In a study commissioned by the Ontario Federation of Indian Friendship Centres in 2001, 44% of interviewed youth had conceived a child. Of those who had conceived a child, nearly 53% of young females indicated that they conceived their first child before the age of 18 (Anderson, 2002).

Teenage pregnancy is an issue of importance to First Nations youth. In 2005, the National Aboriginal Health Organization conducted a survey through educational institutions serving First Nations students. Teenage pregnancy was the most commonly cited health issue among respondents, followed by the effects of alcohol, and suicide prevention (First Nations Centre, 2006).

While Western culture generally posits that pregnancy and parenthood among teenagers is a problem, this view may not necessarily be shared by members of First Nations communities. When examining the rates of teenage pregnancy among First Nations women, many point to historical cultural trends whereby the early onset of pregnancy was the norm in many communities (Dion-Stout & Kipling, 1999; Regional Health Survey National Team, 2007). Within this context, the *Aboriginal Roundtable on Sexual and Reproductive Health* report suggested that the breakdown and loss of traditional social support structures and values may have contributed to the difficulties faced by young First Nations parents (Dion-Stout & Kipling, 1999).

Consequences of Teenage Childbearing

There are a number of risk factors associated with teenage pregnancy in the general population. These include a lack or inadequate use of prenatal care (Chen, Wen, Fleming, Demissie, Rhoads, & Walker, 2007; Gortzak-Uzan, Hallak, Press, Katz, & Shoham-Vardi, 2001), a greater risk of the child being born prematurely or at low birth weight (Chen et al., 2007; da Silva et al., 2003; Fraser, Brockert, & Ward, 1995; Gortzak-Uzan et al., 2001; Lao & Ho, 1997; Miller, Lesser, & Reed, 1996), a greater risk of birth defects (Reefhuis & Honein, 2004) and higher rates of infant mortality (Markovitz, Cook, Flick, & Leet, 2005). In many cases, these risks are minimized after controlling for the relative socio-economic disadvantage of teenage mothers (Chen et al., 2007; Cunningham, 2001; Fraser et al., 1995; Markovitz et al., 2005).

There is little information specific to the consequences of teenage pregnancy among Aboriginal women. This is primarily due to the lack of an Aboriginal identifier on most administrative data files, such as birth and death records. Furthermore, most general population surveys do not recruit Aboriginal people in sufficient numbers to examine their responses as a separate group. As a result, it is often assumed that what occurs in the general population also holds true for Aboriginal people. Alternately, conclusions are based on findings from small surveys of Aboriginal people that may not be generalizable to others.

Present Study

The objective of the current study was to examine the socio-economic characteristics of First Nations teenage mothers. These characteristics were compared with those of women who delayed childbearing until their twenties. The purpose of this study was not to determine the optimal time from a socio-economic standpoint for a woman to bear children. Rather, it was to understand the impact of early childbearing on women's socio-economic and living conditions.

Methods

Data were drawn from the 2006 Canadian Census. For the majority of the Canadian population, one in five households receive a long census questionnaire (Form 2B)¹, which elicits significantly more information than the short-form received by most other Canadians. Conversely, all individuals living in the three territories and on Aboriginal settlements and communities receive a long census questionnaire (Form 2D)¹. Some First Nations communities ($n = 22$) were incompletely enumerated in the 2006 Census and their information has been censored, and, as a result, no data is available for these communities. Census forms were made available in 62 languages other than English or French, including 18 Aboriginal languages. Data derived from the long census questionnaires forms the basis of this study.

Based on previous work conducted by Robitaille et al. (2004), the target population was women aged 25 to 29 living with children. Figure 1 depicts the sample selection flow for both women and children. Of the 208,775² women aged 25 to 29 in the Census, 35,610 were themselves listed as adult children living in a census family with their parent(s) and were therefore excluded. A further 43,475 women were excluded from the sample because they were not listed as being part of a census family, which is defined as "a married couple (with or without children of either or both spouses), a couple living common-law (with or without children of either or both partners), or a lone parent of any marital status, with at least one child living in the same dwelling" (Statistics Canada, 2008a, p. 125). Married couples, including common-law partnerships, may be opposite or same sex. Children in a census family include grandchildren living with a grandparent where no parent is present. This left a sample of 129,690 women aged 25 to 29 who were members of a census family but were not themselves a child in that census family.

Measures

First Nations identity groups. Three questions were used in a sequential fashion to classify women on the basis of their First Nations identity. First, women who indicated that they were a Treaty or Registered Indian were classified as a *Registered Indian*. Using the second question to classify remaining women, those who indicated that they self-identified with as a North American Indian (but not as Métis or Inuit) and did not have registered or Treaty status were classified as *non-Registered Indian*. Women who self-identified with more than one Aboriginal identity group were excluded from the current analysis. Using the third question, the remaining women were classified as *non-Aboriginal* if they did not: (a) report being a Treaty Indian or a Registered Indian; (b) self-identify as either North

¹ Electronic versions of the 2006 Census long form questionnaires (Form 2B and Form 2D) are available online at

² Due to random rounding requirements from the Census, not all numbers may sum to the total.

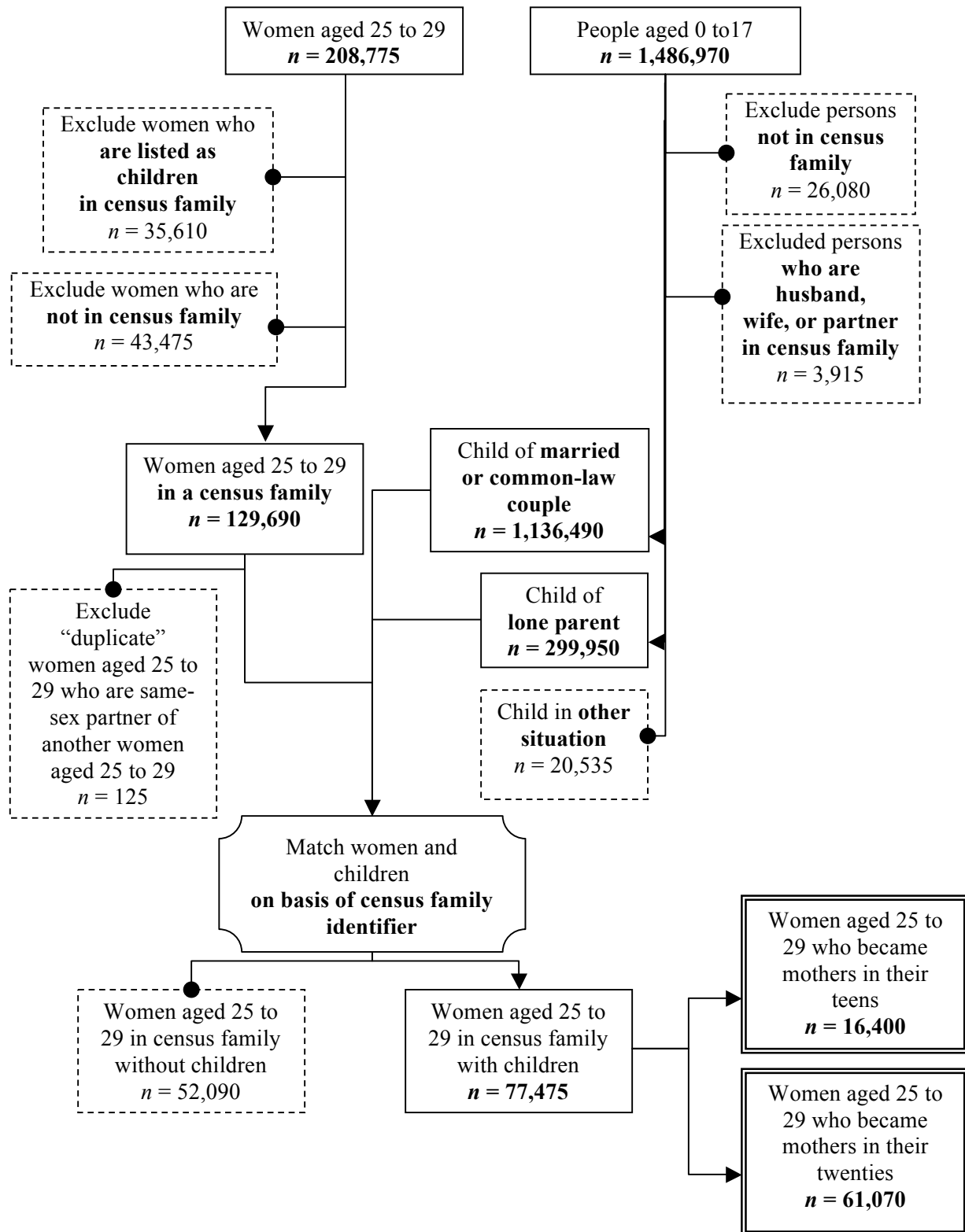


Figure 1. Selection and matching of women aged 25 to 29 to children aged 0 to 17, 2006 Census (unweighted).

American Indian, Métis, or Inuit; or (c) report being a member of an Indian Band or First Nations community. It should be noted that Registered Indian women were further subdivided into those living *on-reserve* and those living *off-reserve*, based on the type of census subdivision in which a person resided and using criteria established by Indian and Northern Affairs Canada (Statistics Canada, 2008a).

Teenage mothers. Women living in census families where children were present were classified as teenage or non-teenage mothers based on their current age and the age of the oldest child (up to age 17) in the household. If the difference between the woman's age on the day of census and the age of the oldest child was less than 20, she was classified as a teenage mother. Other mothers were defined as non-teenage mothers. Non-mothers, that is women living in census families where no children were present, were excluded from the sample.

Educational attainment. This characteristic is based on the woman's highest educational certificate, degree, or diploma received. Women's educational attainment was categorized into three groups: (a) less than a high school education (no certificate, diploma, or degree); (b) high school graduate (high school certificate or equivalent); and (c) at least some post-secondary education (anything higher than a high school certificate or equivalent). Although Census response options allowed for further specificity of this variable, small sample size precluded further sub-dividing the above categories.

Labour force participation. Women's participation in the labour force was categorized as employed, unemployed, or not in the labour force. Those *not in the labour force* included students, homemakers, retired workers, seasonal workers in an "off" season who were not looking for work, and persons who could not work because of a long-term illness or disability. *Employed* persons included women who worked for pay or in self-employment in the week prior to the Census. This group also included those who were absent from a job in the week prior to the Census due to illness, vacation, labour dispute, maternity leave, bad weather, fire, and personal or family responsibilities. Other individuals were considered to be *unemployed*.

Income. Income was examined at the individual and household level in this study. *Total individual income* is defined as the total income received from all sources during the 2005 calendar year by individuals 15 years of age and over. *Household income* was defined as the sum of all individual incomes of each person aged 15 and over living in the household. However, total income at the household level did not take into account the number of individuals being supported by that income. Therefore, household income was adjusted using a correction factor based on the number and age of individuals in the household, following criteria set out by Statistics Canada (Income Statistics Division, 2006). Total household income was divided by the adjustment factor for household to yield an *adjusted per capita household income*.

Multiple family household. Households that included more than one census family were said to be *multiple family households*.

Dwelling in need of major repair. Individuals indicated in the Census long form if their dwelling was in need of any repairs. *Major repairs* were described as things such as defective plumbing or electrical wiring, structural repairs to walls, floors or ceilings, etc. It should be noted that individuals responded to this question regardless of whether they rented or owned the dwelling.

Overcrowded housing. Households in which there was more than one person per room were considered to be *overcrowded*. Bathrooms, hallways, vestibules, and rooms used solely for business purposes were not included in the count of number of rooms.

Analyses

Descriptive statistics were examined separately for Registered Indian, non-Registered Indian, and non-Aboriginal women, and were also analyzed separately for teenage and non-teenage mothers. Differences between groups were examined using chi-square or t-tests, as appropriate. No adjustments for multiple comparisons were applied.

Linear regression models were derived for the following income-related characteristics: (a) total personal income; (b) proportion of personal income derived from government transfers; and (c) household income adjusted for household size. For income measures, only those Census respondents reporting any income were included in the analyses, in keeping with Census standards (Statistics Canada, 2008a). However, negative income values indicating income loss in the previous tax year were retained. Logistic regression models were derived for the following dwelling-related characteristics: (a) likelihood of living in overcrowded housing; and (b) likelihood of living in a dwelling in need of major repair.

Covariates in the regression models included: (a) First Nations identity group (with non-Aboriginal women as reference); (b) whether the woman had been a teenage mother; (c) whether the woman had graduated from high school; (d) whether the woman was a single parent; (e) the region of the country in which the woman resided (Atlantic region, Québec, Ontario, Prairies, British Columbia, Territories); and (f) for non-Aboriginal women, whether the woman was a first generation immigrant. This last adjustment was made because immigrant women tend to have higher fertility rates but lower income levels than non-immigrant women (Bélanger & Gilbert, 2006; Palameta, 2004). The presence of interactions between Aboriginal identity, teenage motherhood, and educational attainment were also examined in the models.

All analyses were weighted using normalized sampling weights and were conducted in SAS version 9.1.

Results

Descriptive Results

Among women aged 25 to 29 responding to the 2006 Census, including single women without children, 6.5% gave birth to children when they were in their teens (Table 1). Among women aged 25 to 29 with a partner and/or children (i.e., excluding women without a partner or children), 10.4% had become mothers in their teens. The proportion of women who were teenage mothers was significantly higher for Registered Indian and non-Registered Indian women than was the proportion among non-Aboriginal women (Table 1). Among Registered Indian women in our sample, the proportion of teenage mothers was significantly higher among those living on-reserve as compared to those living off-reserve (48.1% vs.

Table 1. Proportion of women aged 25 to 29 who were teenage and non-teenage mothers, 2006 Census

	As % of all women aged 25 to 29			As % of all women aged 25 to 29 with a partner or children in their census family		
	Not a mother	Teenage mother	Non-teenage mother	Not a mother	Teenage mother	Non-teenage mother
Non-Aboriginal	65.2	5.7	29.2	43.4	9.2	47.4
Registered Indian	34.0*	31.1*	34.9*	13.4*	40.8*	45.8*
Off-reserve	38.3*	26.2*	35.6*	17.3*	35.1*	47.6*
On-reserve	28.3*§	37.7*§	34.1*	8.5*§	48.1*§	43.4*§
Non-Registered Indian	51.3*	17.1*	31.6	30.4*	24.5*	45.2

*Estimate is significantly different ($p < .05$) from that among non-Aboriginal women

§Estimates are significantly different ($p < .05$) between Registered Indian women living off-reserve and on-reserve.

35.1%, respectively). All subsequent analyses were limited to include only women aged 25 to 29 with children in their census families.

Educational attainment and labour force participation. In general, teenage mothers were more likely to have less than a high school education as compared to non-teenage mothers (Table 2). In addition, among non-Aboriginal women, teenage mothers were significantly more likely to be unemployed than non-teenage mothers. However, employment and unemployment rates among Registered and non-Registered Indian women were similar between teenage and non-teenage mothers.

Among all teenage mothers, Registered Indian women differed significantly from non-Aboriginal women on all socio-demographic measures. Similar patterns were found for non-Registered Indian women, although some of the differences were not statistically significant. It was found that, among Registered Indian teenage mothers, those living on-reserve were significantly more likely to have not graduated from high school as compared to women living off-reserve (54.9% vs. 45.1%). This difference also occurred among the group of Registered Indian women who were non-teenage mothers (Table 2).

Census family and partner characteristics. Among non-Aboriginal women, teenage mothers were significantly more likely to be single parents than non-teenage mothers (34.2% vs. 17.5%; Table 3). However, the proportion of single mothers was similar between teenage and non-teenage mothers among Registered Indian and non-Registered Indian women in the sample. Furthermore, non-Aboriginal and First Nations teenage mothers had significantly more children and significantly older partners as compared to non-teenage mothers. It should be noted, however, it was not possible from the

Table 2. Educational attainment and labour force participation of women aged 25 to 29 with children, by Aboriginal and teenage motherhood groups, 2006 Census

	Educational attainment			Labour force participation		
	Less than high school (%)	High school graduate (%)	Any post-secondary (%)	Not in the labour force (%)	Unemployed (%)	Employed (%)
Teenage mothers						
Non-Aboriginal (<i>n</i> = 11,292)	29.2‡	30.4‡	40.4‡	31.6	8.2‡	60.1‡
Registered Indian (<i>n</i> = 1491)	50.2*‡	24.6*‡	25.2*‡	46.6*	13.8*	39.5*
Off-reserve (<i>n</i> = 716)	45.1*‡	28.0	26.9*‡	45.2*	13.4*	41.4*
On-reserve (<i>n</i> = 775)	54.9*§‡	21.4*§‡	23.7*	48.0*	14.2*	37.8*
Non-Registered Indian (<i>n</i> = 161)	44.9*‡	29.7	25.4*‡	35.8	13.6*	50.7*
Non-teenage mothers						
Non-Aboriginal (<i>n</i> = 58,292)	11.8	27.9	60.4	30.7	7.6	61.7
Registered Indian (<i>n</i> = 1672)	34.5*	29.7	35.8*	44.6*	12.6*	42.9*
Off-reserve (<i>n</i> = 971)	25.8*	31.9*	42.3*	43.1*	11.3*	45.6*
On-reserve (<i>n</i> = 701)	46.5*§	26.7§	26.8*§	46.7*	14.3*	39.0*§
Non-Registered Indian (<i>n</i> = 298)	24.9*	37.0*	38.1*	36.6*	15.3*	48.0*

*Estimate is significantly different ($p < .05$) from that for non-Aboriginal women within a given category of mother.

§Estimate among Registered Indian women living on-reserve is significantly different ($p < .05$) from that for Registered Indian women living off-reserve within a given category of mother.

‡Estimate for teenage mothers is significantly different ($p < .05$) from that among non-teenage mothers within a given Indian/non-Aboriginal group.

Table 3. Census family and partner characteristics of women aged 25 to 29 with children, by Aboriginal and teenage motherhood groups, 2006 Census

	Single parent %	# children in census family		Partner's age ^a	
		mean	(sd)	mean	(sd)
Teenage mothers					
Non-Aboriginal (<i>n</i> = 11,292)	34.2‡	2.20‡	(1.04)	32.63‡	(6.33)
Registered Indian (<i>n</i> = 1491)	42.3*	2.89*‡	(0.77)	31.52*‡	(3.44)
Off-reserve (<i>n</i> = 716)	50.7*‡	2.69*‡	(1.15)	31.87*‡	(5.98)
On-reserve (<i>n</i> = 775)	34.5§	3.07*§‡	(0.64)	31.27*§‡	(2.76)
Non-Registered Indian (<i>n</i> = 161)	42.9*	2.39*‡	(1.08)	32.41‡	(6.23)
Non-teenage mothers					
Non-Aboriginal (<i>n</i> = 58,292)	17.5	1.51	(0.72)	31.34	(5.33)
Registered Indian (<i>n</i> = 1672)	41.6*	1.77*	(0.56)	30.68*	(3.86)
Off-reserve (<i>n</i> = 971)	44.1*	1.65*	(0.77)	31.01	(6.31)
On-reserve (<i>n</i> = 701)	38.1*§	1.93*§	(0.46)	30.26*§	(2.70)
Non-Registered Indian (<i>n</i> = 298)	37.0*	1.61*	(0.72)	30.79	(5.99)

^aMeasured only for those with a partner in the household

*Estimate is significantly different ($p < .05$) from that among non-Aboriginal women within a given category of mother.

§Estimate among Registered Indian women living on-reserve is significantly different ($p < .05$) from that among Registered Indian women living off-reserve within a given category of mother.

‡Estimate among teenage mothers is significantly different ($p < .05$) from that among non-teenage mothers within a given Indian/non-Aboriginal group.

data collected to determine whether women's current partners were the biological fathers of the children in their census family.

Among teenage mothers, Registered Indian women living on-reserve were as likely as non-Aboriginal women to be single mothers. Moreover, Registered Indian women living off-reserve and non-Registered Indian women were more likely to be single mothers than non-Aboriginal women (Table 3). First Nations teenage mothers also had more children on average than non-Aboriginal teenage mothers.

Household and dwelling characteristics. Overall, teenage mothers were significantly more likely to live in overcrowded housing (9.3% vs. 5.4%) and in homes in need of major repair (15.7% vs. 9.1%) than non-teenage mothers (Table 4). Yet, there was no difference between teenage and non-teenage mothers regarding the proportion of women living in multiple-family households.

Comparing teenage and non-teenage mothers by Aboriginal identity group, the proportion of women living in multiple census family households was higher among non-teenage mothers than teenage mothers for non-Aboriginal and non-Registered Indian women; rates of multiple census family households were similar for teenage and non-teenage mothers among Registered Indian women, both living on- and off-reserve. In addition, the proportion of women living in overcrowded housing was significantly higher among teenage mothers than non-teenage mothers in most groups. And, the proportion living in a dwelling in need of major repair was higher only for non-Aboriginal teenage mothers. That is, the proportion of Aboriginal teenage mothers living in a dwelling in need of major repair was not statistically different from that of non-teenage Aboriginal mothers (Table 4).

Among all teenage mothers, First Nations women were generally more likely to live in multiple census family households. They were also more likely to live in dwellings that were overcrowded or in need of major repair as compared to non-Aboriginal women. Specifically, Registered Indian women on-reserve were most likely to live in overcrowded housing (34.6%) and to live in housing in need of major repair (44.0%). To help add context to these numbers, according to the 2006 Census 26% of First Nations people on-reserve lived in overcrowded housing compared to 3% of the non-Aboriginal population. Furthermore, 44% of First Nations people on-reserve lived in dwellings in need of major repairs compared to 7% of the non-Aboriginal population (Statistics Canada, 2008b).

Income characteristics. Total personal income levels were similar for teenage and non-teenage mothers among non-Aboriginal and non-Registered Indian women. However, the personal income levels of Registered Indian women, whether living on- or off-reserve, were significantly higher among teenage mothers than non-teenage mothers (Table 5). Furthermore, while non-Aboriginal and Registered Indian teenage mothers derived a greater proportion of their income from government transfers than did their non-teenage mother counterparts, the proportion of income from government transfers remained similar between teenage and non-teenage mothers for non-Registered Indian women.

However, after adjusting household income for the age and number of people being supported by this income, the households of non-Aboriginal and First Nations teenage mothers had less income per person at their disposal than did the families and households of non-teenage mothers. Among all teenage mothers, Registered Indian women, whether living on- or off-reserve, had lower income levels and

Table 4. Household and dwelling characteristics of women aged 25 to 29 with children, by Aboriginal and teenage motherhood groups, 2006 Census

	Household & dwelling		
	Multiple family household (%)	Overcrowded housing (%)	Dwelling in need of major repair (%)
Teenage mothers			
Non-Aboriginal (<i>n</i> = 11,292)	8.0‡	7.0‡	13.5‡
Registered Indian (<i>n</i> = 1491)	13.8*	24.4*‡	30.9*‡
Off-reserve (<i>n</i> = 716)	7.5	13.2*‡	16.7*
On-reserve (<i>n</i> = 775)	19.7*§	34.6*§‡	44.0*§
Non-Registered Indian (<i>n</i> = 161)	4.4‡	9.9‡	19.5*
Non-teenage mothers			
Non-Aboriginal (<i>n</i> = 58,292)	8.8	5.2	8.3
Registered Indian (<i>n</i> = 1672)	13.0*	11.6*	27.6*
Off-reserve (<i>n</i> = 971)	6.4*	6.9*	16.6*
On-reserve (<i>n</i> = 701)	22.1*§	18.1*§	42.8*§
Non-Registered Indian (<i>n</i> = 298)	9.6	2.7	20.6*

*Estimate is significantly different ($p < .05$) from that for non-Aboriginal women within a given category of mother.

§Estimate for Registered Indian women living on-reserve is significantly different ($p < .05$) from that for Registered Indian women living off-reserve within a given category of mother.

‡Estimate for teenage mothers is significantly different ($p < .05$) from that for non-teenage mothers within a given Indian/non-Aboriginal group.

Table 5. Personal and household income characteristics of women aged 25 to 29 with children, by Aboriginal and teenage motherhood groups, 2006 Census

	Total personal income (mean)	% personal income from government transfers (mean)	Household income	
			Total (mean)	Adjusted for family size (mean)
Teenage mothers				
Non-Aboriginal (<i>n</i> = 11,292)	\$21,277	51.89‡	\$54,720‡	\$25,931‡
Registered Indian (<i>n</i> = 1491)	\$18,743*‡	70.07*‡	\$39,293*	\$16,383*‡
Off-reserve (<i>n</i> = 716)	\$19,751*‡	70.19*‡	\$40,181*	\$18,022*‡
On-reserve (<i>n</i> = 775)	\$17,815*§‡	69.96*‡	\$38,472*	\$14,869*§‡
Non-Registered Indian (<i>n</i> = 161)	\$20,761	57.11	\$45,047*	\$22,026*‡
Non-teenage mothers				
Non-Aboriginal (<i>n</i> = 58,292)	\$21,457	45.71	\$63,132	\$32,609
Registered Indian (<i>n</i> = 1672)	\$16,492*	61.20*	\$40,357*	\$19,651*
Off-reserve (<i>n</i> = 971)	\$17,532*	58.57*	\$42,543*	\$22,060*
On-reserve (<i>n</i> = 701)	\$15,053*§	64.84*§	\$37,331*§	\$16,316*§
Non-Registered Indian (<i>n</i> = 298)	\$19,158*	51.86	\$49,096*	\$25,539*

*Estimate is significantly different ($p < .05$) from that for non-Aboriginal women within a given category of mother.

§Estimate for Registered Indian women living on-reserve is significantly different ($p < .05$) from that for Registered Indian women living off-reserve within a given category of mother.

‡Estimate for teenage mothers is significantly different ($p < .05$) from that for non-teenage mothers within a given Indian/non-Aboriginal group.

obtained a greater proportion of their personal income from government transfers as compared to non-Aboriginal women.

Regression Model Results

Personal income characteristics. Two measures related to personal income were examined using multiple linear regression models: (a) total personal income; and, (b) the proportion of income derived from government transfers. Beta coefficients from the models are given in Table 6. The characteristic that was found to have the largest impact on personal income was whether or not a woman had graduated from high school. Teenage motherhood had no independent effect on personal income level, although it was associated with a significant increase in the proportion of personal income derived from government transfers (Table 6).

The presence of interactions in the model for personal income indicates that the impacts of teenage motherhood and not graduating high school differed for First Nations and non-Aboriginal women. For example, while there was no main effect of teenage parenthood for non-Aboriginal and non-Registered Indian women, Registered Indian women who were teenage mothers saw an increase in their personal income compared to Registered Indian women who were non-teenage mothers (Table 6). Furthermore, while there was a significant decline in personal income for non-Aboriginals who had not graduated high school, this decline was less steep among Registered and non-Registered Indian women. Lastly, there was a significant interaction between teenage motherhood and high school graduation, indicating that the combined effect of these factors was more than the sum of the two main effects. There were no interactions with Aboriginal identity found in the model examining the proportion of personal income from government transfers.

The impact of interactions and main effects on personal income are shown in Figure 2. Women are classified into one of four groups: (a) those who are neither a teenage mother nor a non-graduate from high school (*Neither*); (b) those who were a teenage mother but who graduated from high school (*Teenage mother*); (c) those who did not graduate from high school but were not a teenage mother (*Not high school graduate*); and (d) those who were both teenage mothers and who did not graduate from high school (*Both*). It is worth pointing out that, while there was no discernable change in personal income between *Neither* and *Teenage mothers* for non-Aboriginal and non-Registered Indian women, Registered Indian teenage mothers had a significant increase in their personal income compared to women in the *Neither* group. Furthermore, the personal incomes of non-Aboriginal and non-Registered Indian women in the *Not high school graduate* and *Both* categories were similar to one another.

Adjusted per capita household income. The results shown in Table 6 indicate that both teenage childbearing and not graduating high school were associated with significant decreases in adjusted per capita household income. Additionally, being a lone parent also significantly decreased adjusted per capita household income.

The model also included significant interaction terms. There was a significant interaction between teenage motherhood and high school graduation, as was the case in the models of personal income. Furthermore, interactions with First Nations identity indicate that the impact of high school graduation did not have the same effect for non-Aboriginal as compared to First Nations women. These interactions

Table 6. Regression estimates (B) and standard errors (SE) from linear regression models predicting personal and household income characteristics of mothers aged 25 to 29, 2006 Census

	Total personal income (nearest \$)		% total income from government transfers		Household income adjusted for family size	
	B	(SE)	B	(SE)	B	(SE)
Intercept	22,403*	(129)	36.89	(0.45)	39,654	(181)
Aboriginal group						
Non-Aboriginal		Ref.		Ref.		Ref.
Registered Indian, off-reserve	-4,782*	(501)	14.46*	(1.25)	-9,661*	(607)
Registered Indian, on-reserve	-6,123*	(644)	15.52*	(1.34)	-14,043*	(748)
Non-Registered Indian	-2,836*	(801)	4.98*	(2.32)	-5,015*	(929)
Teenage mother	126	(169)	2.10*	(0.58)	-4,456*	(233)
Not high school graduate	-6,787*	(180)	17.74*	(0.62)	-9,181*	(250)
Lone parent	2,082*	(131)	8.60*	(0.46)	-11,567*	(183)
Region of residence						
Atlantic region	-2,505*	(223)	9.36*	(0.78)	-7,414	(312)
Québec	1,994*	(158)	6.88*	(0.55)	-4,447*	(221)
Ontario	1,201*	(151)	0.83	(0.53)	-609*	(210)
Prairies		Ref.		Ref.		Ref.

	Total personal income (nearest \$)		% total income from government transfers		Household income adjusted for family size	
	B	(SE)	B	(SE)	B	(SE)
British Columbia	-1,320*	(201)	-0.04	(0.70)	-2,600*	(281)
Territories	7,791*	(971)	-11.08*	(3.39)	8,588*	(1357)
First generation immigrant	-5,275*	(136)	9.83*	(0.47)	-7,196*	(188)
Interact <i>Not high school graduate</i> with:						
... Registered Indian, off-reserve	2,047*	(761)	...		3,662*	(1044)
... Registered Indian, on-reserve	1,540*	(758)	...		3,051*	(1059)
... Non-Registered Indian	3,058*	(1420)	...		...
Interact <i>Teenage mother</i> with:						
... Registered Indian, off-reserve	2,471*	(727)	...		...
... Registered Indian, on-reserve	2,635*	(758)	...		...
... Non-Registered Indian	...		...		...
Interact <i>Teenage mother</i> with:						
... Not high school graduate	1,079*	(326)	2.62*	(1.12)	2,494*	(452)

*Estimate significant at p<.05

... Interaction term was non-significant and was removed from model

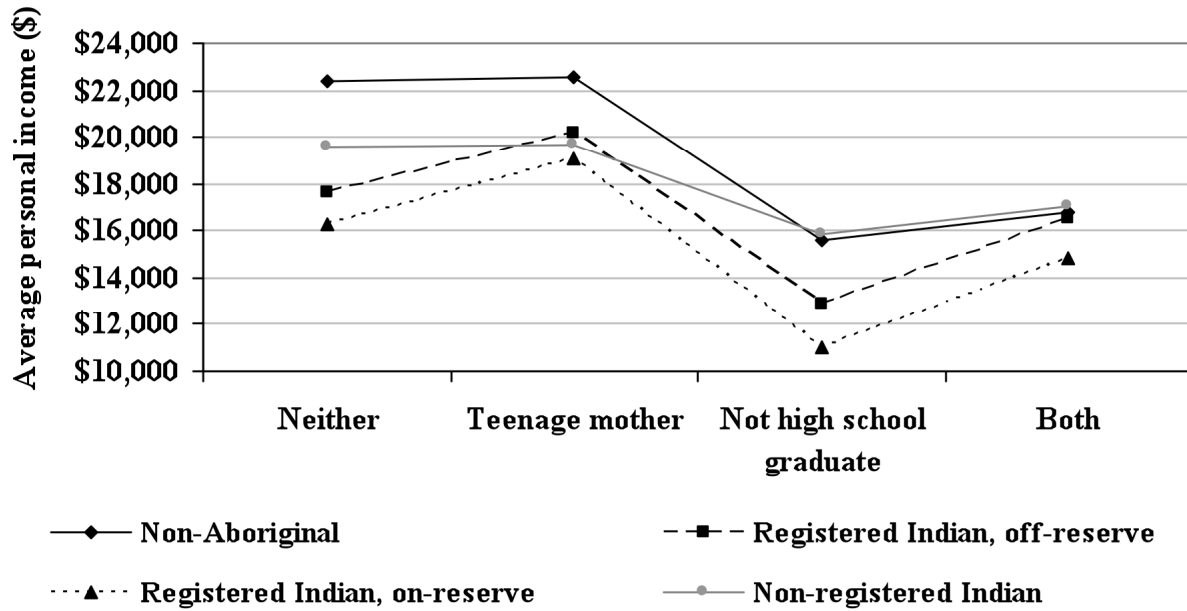


Figure 2. Combined impact of First Nations group, teenage motherhood, and not graduating from high school on women's personal income, from regression models. Values in figure assume a constant demographic profile; that is individuals living in Prairie Provinces, not lone parents, and non-Aboriginal women are not first generation immigrants.

indicate that the decline in per capita household income was not as severe among Registered Indian women, whether living on- or off-reserve, as it was for non-Aboriginal women. The impact of interactions and main effects on adjusted per capita household income are shown in Figure 3. Notice that Registered Indian women living on-reserve consistently had the lowest adjusted per capita household income levels among all groups.

Dwelling characteristics. Two dwelling characteristics were examined using regression models: (a) living in a dwelling in need of major repair; and, (b) living in overcrowded housing. Logistic models were fit to both outcomes; odds ratios and 95% confidence intervals are given in Table 7. Teenage motherhood and not graduating from high school each independently increased the likelihood of living in overcrowded housing or in a dwelling in need of major repair. Interestingly, these effects were often dwarfed by the impact of First Nations identity: the odds of living in overcrowded housing were more than 10 times greater among Registered Indian women living on-reserve than among non-Aboriginal women; and, the odds of living in a dwelling in need of major repair were more than 6 times greater among the former than the latter. Significant interaction terms in both models indicate that teenage motherhood and/or educational attainment had different impacts on these dwelling characteristics among First Nations women than among non-Aboriginal women.

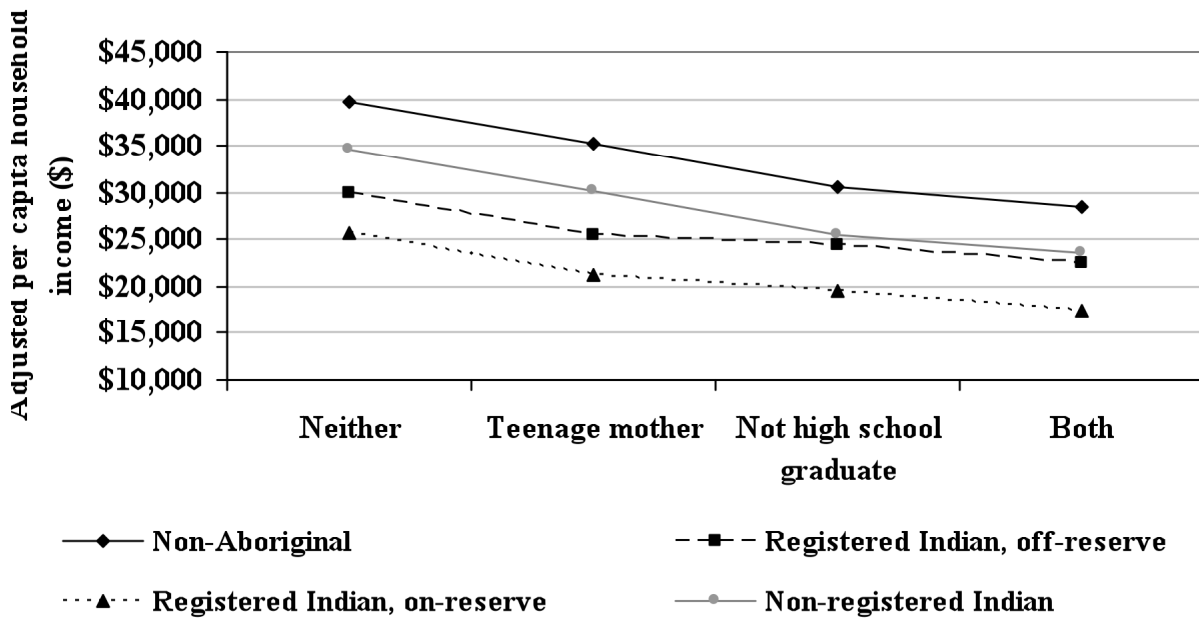


Figure 3. Combined impact of First Nations group, teenage motherhood, and not graduating high school on a woman’s adjusted per capita household income, from regression models.

Values in Figure assume a constant demographic profile; that is individuals living in the Prairie provinces, not lone parents, and non-Aboriginal women are not first generation immigrants.

Table 7. Odds ratios (OR) and 95% confidence intervals (CI) from logistic regression models predicting dwelling characteristics of mothers aged 25 to 29, 2006 Census

	Living in overcrowded housing		Dwelling in need of major repair	
	OR	(95% CI)	OR	(95% CI)
Aboriginal group				
Non-Aboriginal		Ref.		Ref.
Registered Indian, off-reserve	3.34*	(2.60, 4.28)	1.82*	(1.53, 2.16)
Registered Indian, on-reserve	10.49*	(8.53, 12.90)	6.52*	(5.58, 7.62)
Non-Registered Indian	1.11	(0.52, 2.37)	2.42*	(1.83, 3.21)
Teenage mother	1.80*	(1.66, 1.96)	1.47*	(1.38, 1.57)
Not high school graduate	1.75*	(1.61, 1.89)	1.49*	(1.41, 1.59)
Lone parent	0.66*	(0.60, 0.72)	1.50*	(1.42, 1.58)
Region of residence				
Atlantic region	0.56*	(0.45, 0.70)	1.09	(0.99, 1.21)
Québec	0.91	(0.82, 1.01)	1.18*	(1.10, 1.27)
Ontario	1.13*	(1.03, 1.24)	1.01	(0.94, 1.08)
Prairies		Ref.		Ref.
British Columbia	1.32*	(1.18, 1.47)	1.04	(0.95, 1.14)
Territories	1.07	(0.67, 1.73)	0.93	(0.64, 1.36)
First generation immigrant	9.87*	(9.15, 10.64)	0.77*	(0.72, 0.83)
Interact <i>Not high school graduate</i> with:				
... Registered Indian, off-reserve	1.48*	(1.06, 2.06)	...	...
... Registered Indian, on-reserve	...	...	...	...
... Non-Registered Indian	3.05*	(1.24, 7.55)	...	...

	Living in overcrowded housing		Dwelling in need of major repair	
	OR	(95% CI)	OR	(95% CI)
Interact <i>Teenage mother</i> with:				
... Registered Indian, off-reserve	...	...	0.62*	(0.48, 0.81)
... Registered Indian, on-reserve	1.30*	(1.01, 1.68)	0.70*	(0.57, 0.87)
... Non-Registered Indian	...	...	0.57*	(0.35, 0.92)
Interact <i>Teenage mother</i> with:				
... Not high school graduate	...	...	...	...

*Estimate significant at $p < .05$

... Interaction term was non-significant and was removed from model

The impact of interactions and main effects on living in overcrowded housing or a dwelling in need of major repair are shown in Figure 4. Regardless of differences between Aboriginal identity groups, in every case the probability of living in overcrowded housing was highest among women who were both teenage mothers and had not graduated high school.

In addition to examining the impact of teenage motherhood and high school dropout, it is important to keep in mind the size of the population represented by the intersection of these two characteristics (Table 8). Nearly three-quarters of non-Aboriginal women aged 25 to 29 were neither a teenage mother nor a high school dropout (73.9%), compared to only 25.4% of Registered Indian women living on-reserve. Conversely, nearly one in three Registered Indian women living on-reserve (28.8%) were both teenage mothers and had not graduated high school, compared to only 4.7% of non-Aboriginal women.

Discussion

This study demonstrates that the proportion of young women who become mothers in their teens is significantly higher among Aboriginal than non-Aboriginal women. While less than 6% of non-Aboriginal women aged 25 to 29 became mothers in their teens, more than three times as many First Nations women became mothers before the age of twenty. The highest rates of teenage motherhood were found among Registered Indian women living on-reserve (38%). These findings confirm what others have found (Anderson, 2002; First Nations Centre, 2006; Guimond & Robitaille, 2008; Regional Health Survey National Team, 2007; Robitaille et al., 2004).

Births to teenaged women have been declining in Canada over the past decades. While 5.9% of live births in 1986 were to women under the age of 20 (Statistics Canada, 1997), this dropped to 4.1% of live births in 2006 (Statistics Canada, 2008c). However, there does not seem to have been a similar trend among First Nations women. Work by Robitaille et al. (2004) showed that fertility rates among Registered Indian teenaged women increased between 1986 and 1999. In the general population, a growing number of women are postponing marriage, cohabitation, and childbearing until later ages (Beaupré, Turcotte, & Milan, 2006; Clark, 2007; Terry-Humen, Manlove, & Moore, 2005). In most

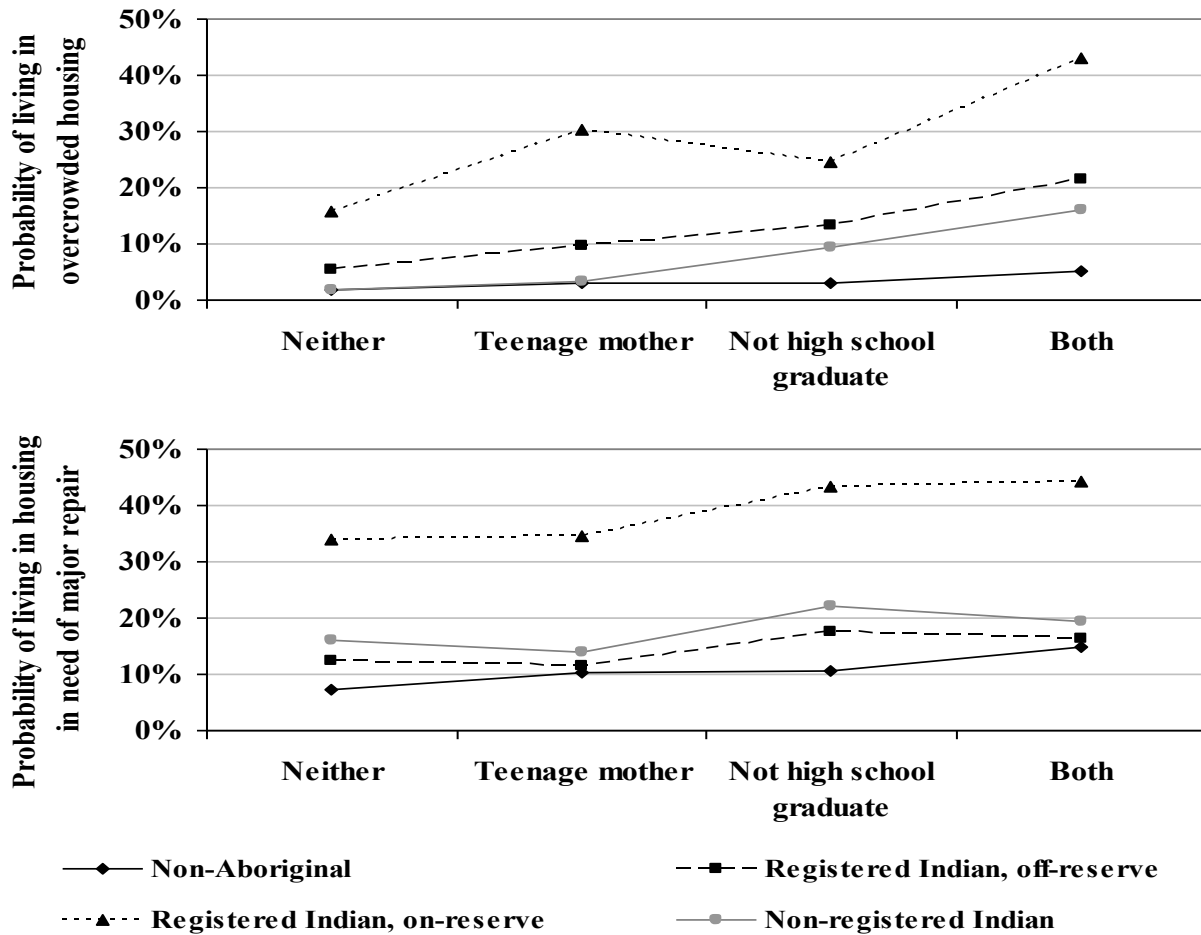


Figure 4. Combined impact of First Nations group, teenage motherhood, and not graduating from high school on women’s probability of living in overcrowded housing (upper figure) or living in a home in need of major repair (lower figure), from regression models.

Values in Figure assume a constant demographic profile; that is, individuals living in Prairie provinces, not lone parents, and non-Aboriginal women are not first generation immigrants.

Table 8. Proportion of women who are teenage mothers, high school dropouts, neither or both, by Aboriginal identity group, 2006 Census

	Neither a teenage mother nor high school dropout (%)	Teenage mother Only (%)	High school dropout only (%)	Both teenage mother and high school dropout (%)
Non-Aboriginal (<i>n</i> = 69,584)	73.9	11.5	9.9	4.7
Registered Indian (<i>n</i> = 3,163)	34.6	23.5	18.2	23.7
Off-reserve (<i>n</i> =1,687)	42.7	23.3	14.9	19.2
On-reserve (<i>n</i> = 1,476)	25.4	23.7	22.1	28.8
Non-Registered Indian (<i>n</i> = 459)	48.7	19.4	16.2	15.8

cases, these delays are the result of young women's pursuit of higher education. It is not clear, however, whether this trend applies equally to First Nations and non-Aboriginal women. This is an area that requires further research.

The present study also demonstrated that there are large differences in educational attainment. While 85% of non-Aboriginal women aged 25 to 29 completed high school, two-thirds (67%) of whom had at least some post-secondary education, the proportions were significantly lower among First Nations women. Although there is evidence that high school graduation rates are higher for Aboriginal women than for Aboriginal men (Richards, 2008), the present study found that women who became mothers in their teens, which is more prevalent among First Nations women, were significantly less likely to graduate from high school than women who postponed childbearing until their twenties.

Despite lower rates of high school graduation among First Nations women in this study's sample, the proportion of Aboriginal adults obtaining high school and post-secondary education has increased over time. For instance, between 1981 and 2001, the proportion of Aboriginal youth without a high school education dropped, while the proportion of 25 to 34 year-olds completing post-secondary education increased (McMullen, 2005). There are also indications that Aboriginal adults who drop out of high school often return to school to obtain their diploma or equivalent at older ages. Data from the 2006 Census shows that the Aboriginal/non-Aboriginal gap in obtaining a high school degree or greater gets smaller among increasingly older groups, suggesting that there may be some "catch-up" occurring (Richards, 2008).

This study highlights the importance of high school graduation in determining a woman's socio-economic profile, whether related to income or housing characteristics. Other studies also point to maternal education level as an important predictor of children's long-term health and development, as well as children's own academic achievement (Terry-Humen et al., 2005). Furthermore, failure to complete a high school education not only exerts costs on the individual and her children, but there are larger societal costs as well. For example, a 2008 report by the Canadian Council on Learning reported that high school non-completion resulted in an annual loss of \$969 million in social assistance spending, \$350 million in crime-related costs, and \$23.8 billion in health care spending (Hankivsky, 2008).

Although both non-Aboriginal and First Nations teenage mothers were significantly less likely to have graduated high school than non-teenage mothers, it was not possible to determine whether pregnancy preceded or followed dropping out of high school. However, using data from the 2001 Aboriginal Peoples Survey, we find that 34% of North American Indian women ages 15 to 34 living off-reserve, who had not graduated high school, indicated that pregnancy or taking care of children was the main reason for not completing their secondary education (Statistics Canada, 2003).

This study does have certain limitations. First, the choice of data source means that the scope of characteristics that can be examined is limited. Other variables that may be of interest, such as the child's health and development, cannot be examined in this study. However, by using the Census, our study benefits from a large sample, particularly among the First Nations on-reserve population. Second, due to incomplete enumeration and refusal rates, the estimates for Registered Indian women living on-reserve may not be fully generalizable. Although there were 22 incompletely enumerated Indian reserves in the 2006 Census, this number is lower than previous years (30 in 2001 and 77 in 1996), which may indicate that current figures are more comprehensive than they were for previous Censuses. Third, women may be misclassified across our groups of mothers. The definition of teenage motherhood, and motherhood in general, requires that a woman be living in a household with her children at the time of the Census. Children may be absent from the household on the day of Census for various reasons, including shared custody arrangements, children given up for adoption, or children who were placed in foster care. In May 2008, the Auditor General of Canada reported that nearly 5% of First Nations children on-reserve were living in foster care, which is thought to be nearly 8 times the rate among children living off-reserve (Fraser, 2008). As such, it is possible that the misclassification of motherhood and age at first birth may be greater among First Nations women in the sample. Fourth, the Census does not allow one to verify a biological relationship between a woman and the children in her census family. Therefore, the children may be the biological, adoptive, or step-children of the 25 to 29-year-old women. However, all non-mother-child census families were omitted from the present sample (e.g., children living with their aunt). Finally, the comparison group, that is women aged 25 to 29 who had their first child in their twenties, still represents a relatively young group of mothers. The mean age of women who gave birth in Canada in 2006 was 29.3 and many women delay childbearing into their thirties (Fraser, 2008; Statistics Canada, 2008c). However, it was not possible to use an older cohort of women as a comparison group because older children may have already left home to live on their own, which makes identification of teenage mothers in a group of women in their thirties significantly more difficult. Nevertheless, significant differences found in the present study may well be even more exaggerated had an older comparison group been used.

Teenage mothers face certain socio-economic challenges. These difficulties are greater if the young woman has not completed her secondary school education. Future research may wish to examine the familial and community-level factors that influence a young mother's ability to complete her high school education, with the goal of increasing graduation rates for teenage mothers. However, it was also found that many young mothers are able to thrive despite the difficulties they face. The nature of the factors leading to this situation could also be examined in further research.

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