Fragile families and health in early childhood in Canada

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Abstract

The current study had three goals: (1) to describe the prevalence of fragile families among first time mothers in Canada, (2) to test whether children born into cohabiting twobiological-parent households and never-married lone-mother households are at greater risk for asthma and otitis media (ear infection) relative to children born into married two-biologicalparent households, and (3) to evaluate whether observed differences are attributable to the fewer economic resources and greater risk for family instability among unmarried parent households. Data come from combined cross-sectional data from cycles 5 through 8 of the Early Child Development (ECD) cohort of the National Longitudinal Survey of Children and Youth (NLSCY), with analysis restricted to firstborn children aged 0 and 1 in each cycle (N=5,925). Findings suggested that rates of asthma and otitis media were associated with family structure at birth. Economic resources were not associated with risk for either asthma or otitis media, net of controls, whereas multiple changes in family structure were significant predictors. Importantly, neither economic resources nor family instability accounted for the effects of family structure at birth on health outcomes. Implications of these findings are discussed.

Introduction

Nonmarital childbearing and high rates of divorce have increased the likelihood that Canadian children will spend at least some of their childhood outside of a married parent household, leading to intense debate about how these transformations in family life are affecting child development and wellbeing. In the United States, researchers have concluded that nonmarital childbearing has a negative impact on child development and that these differences are likely attributable to the reduced economic resources, diminished parenting and greater family instability experienced by children born to unmarried parents (Klausli & Owen, 2009; Manning, Smock & Majumdar, 2004; McLanahan, 2009; Smock & Greenland, 2010; Waldfogel, Craigie, & Brooks-Gunn, 2010).

Given very different patterns of marital behaviour in Canada compared to the United States, there is some question as to whether and how the health of Canadian children might be shaped by belonging to a fragile family. Analyzing data from the National Longitudinal Survey of Child and Youth, the purpose of this syudy was to describe contemporary patterns of nonmarital childbearing for first time mothers in a nationally representative Canadian sample, to determine whether family structure at birth was associated with pediatric asthma and otitis media in the first two years of life, and to test whether observed differences were attributable to the greater economic resources and reduced risk for family instability among married parent households.

Background

Twenty five years ago, 81% of Canadian children under the age of 14 lived in a marriedparent household. According to the most recent census in 2006, this family arrangement is now true for only 66% of children (with 18% in single parent, 15% in cohabiting, and 1% in other types of households). The retreat from marriage, evidenced in increased rates of nonmarital childbearing and greater relationship instability, is not unique to Canada but characterizes family life in much of the western world including the United States (Smock & Greenland, 2010) and Europe (Sobotka & Toulemon, 2008) and is a fundamental feature of what has been called the second demographic transition (Lesthaeghe, 1995). The trend is seen as cause for concern given an emerging literature that finds young children born to single-parent and cohabiting-parent households fare less well on a variety of developmental outcomes relative to children born to married-parent households (Harknett, 2009; Schmeer, 2011, Waldfogel, et al., 2010) and a more established literature showing that relationship instability poses both short and long term threats to child development and wellbeing (Cavanagh & Huston, 2006; Fomby & Cherlin, 2007; Osborne & McLanahan, 2007; Strohschein, Roos & Brownell, 2009). To the extent that nonmarital childbearing, poverty and relationship instability increasingly appear hand in hand and are becoming concentrated in disadvantaged segments of the population, there is also broader concern that the type of family structure in which a child starts life operates as a critical mechanism in reproducing poverty and entrenching inequality (McLanahan, 2004, 2009; McLanahan & Percheski, 2008). To draw attention to their vulnerable status in society, researchers have coined the term fragile families to refer to children who are born outside of marriage.

Although the links between nonmarital childbearing, poverty, and relationship stability and their combined effects on child health and wellbeing have begun to receive systematic attention in the United States, there is virtually no Canadian research in this area. Given that these dynamics operate somewhat differently in Canada than the United States, there is a need to establish whether and how these might apply in the Canadian context. For example, although rates are increasing in both countries (Kennedy & Bumpas, 2008; Ventura, 2009), nonmarital childbearing in the United States is split equally between children born to single mothers and cohabiting couples (Chandra et al., 2005; Manlove et al., 2010; Smock & Greenland, 2010), whereas in Canada, the majority of nonmarital births are to cohabiting parent households (Erfani & Beaujot, 2009). Moreover, there are different factors that characterize within country variation in nonmarital childbearing in both countries. In the US, racial differences in nonmarital childbearing are stark: 76% of births among white households occurred within marriage, but only 29% and 51% of births occurred within marriage for black and Hispanic households respectively (Manlove et al., 2010). In contrast, attention to variation in nonmarital childbearing in the Canadian context is typically focused on differences between Quebec and the rest of Canada, where rates of cohabitation in that province far exceed the national average (LeBourdais & Lapierre-Adamcyk, 2004; LeBourdais & Marcil-Gratton, 1996).

Secondly, the association between socioeconomic disadvantage and family structure is not the same in Canada as it is in the United States. With higher overall poverty in the United States, the poverty rate is comparable for children living in single parent households (55.4% and 48.3% in the US and Canada respectively) and married parent households (13.9% and 10.4%) (Heuveline & Weinshenker, 2008). In contrast, 29.7% of children in cohabiting parent households in the United States are poor, whereas in Canada, the poverty rate for children living in cohabiting parent households is not only much lower (14.4%), but is only slightly higher than the poverty rate for children in married-parent households. Finally, although it is clear that family structure at birth is associated with subsequent changes in family structure in both countries, the United States is unique with rates of family instability that surpass those of all other countries in the world (Cherlin, 2009). In the United States, findings from the Fragile Families and Child Wellbeing Study (FFCWS) study indicate that the risk for a change in family structure in the first three years of a child's life is 12% for children born into married-parent households but 49% for cohabiting-parent households and approximately 70% for single mother households (Osborne & McLanahan, 2007). Although there are no recent equivalent Canadian studies for children in the first few years of life, estimates from studies that evaluate family instability for older Canadian children are comparable to those based on much younger children in the United States. For example, Juby and her colleagues reported that the risk of a change in family structure for Canadian children winder the age of 14 was 12% for children born into a married parent household, but 44% and 76% for children born into cohabiting-parent and single-mother households respectively (Juby, Marcil-Gratton, & LeBourdais, 2005).

Given that cohabitation is more rapidly becoming an acceptable alternative to marriage in Canada in general and Quebec in particular, that poverty in Canadian families is more concentrated in single-parent than cohabiting parent households, and that there is greater family instability in the United States, it is an open question as to whether nonmarital childbearing operates in the same way to reproduce inequality and whether these factors have similar implications for child outcomes in Canada. In the next section, I describe and evaluate the evidence that links family structure at birth, poverty and family instability to the two physical health outcomes in early childhood that are of interest in the current study.

Fragile families and risk for pediatric asthma and otitis media

Few studies collect detailed family structure histories that make it possible to link family structure at birth to child outcomes, but of those that do, the evidence suggests that children born to cohabiting and single mother households fare less well than children born to married parent households across a wide range of outcomes, including behavioural and emotional outcomes (Cavanagh & Huston, 2006; Fomby & Osborne, 2010), cognitive outcomes (Waldfogel et al, 2010), school performance (Cavanagh, Schiller, & Riegle-Crumb, 2006) and physical health (Bsoztek & Beck, 2010; Harknett, 2009; Schmeer, 2011). In the current study, I investigate the effects of family structure at birth on two conditions in early childhood, asthma and otitis media. There is some evidence that links family structure at birth to pediatric asthma, but to date, there are no studies that evaluate whether children born outside of marriage are at greater risk for otitis media. Nonetheless, both conditions are of importance in their own right.

With origins in early childhood (Gelfand, 2009; Martinez, 2002), asthma is a developmental disease of the respiratory and immune system that affects approximately one in ten Canadian children (Gershon et al., 2010; Thomas, 2010). Given that asthma is the leading cause of missed school days (Newacheck & Halfon, 2000) and that a significant proportion of young children with asthma continue to be asthmatic into adulthood (Fletcher, Green & Neidell, 2010; Ruotsalainen et al., 2010), there is a critical need to identify the early life risk factors for pediatric asthma. With its peak incidence and prevalence occurring in the first two years of life, otitis media (also known as a middle ear infection) is the most common reason for visiting a doctor (Vergison et al., 2010). Although otitis media occurs mainly in infants, the condition is of concern to the extent that it is costly to the health care system and to caregivers (Dubé et al.,

2011) and operates as a risk factor for other health conditions (Dhooge, 2003; Macintyre et al., 2010; Vergison et al., 2010).

Evidence also indicates that pediatric asthma and otitis media are socially patterned. Children whose parents have attained low levels of education and whose households are poor are at greater risk for both asthma (Newacheck & Halfon, 2000; Violato, Petrou, & Gray, 2009) and otitis media (Dhooge, 2003; Paradise et al., 1997; Vahkaria, Shapiro, & Bhattacharyya, 2010). Additional risk factors for pediatric asthma include male gender, a family history of asthma, exposure to stressful events, living in a single parent household, low birth weight, and premature birth (Berz et al., 2007; Kaugars, Klinnert & Bender, 2004; Schaubel et al., 1996). Although much less is known about the risk factors for otitis media, the research suggests that it is more prevalent among children who are male, born prematurely, were low birthweight, and had more siblings in home (Dhooge, 2003; Bentdal et al., 2010).

Although the connections between single parenthood and asthma have already been established, only two studies, both based on the American Fragile Families and Child Wellbeing Study (FFCWS), have shown that children born into married biological parent households are less likely to be diagnosed with asthma relative to children in cohabiting and single mother households. Harknett (2009) evaluated the risk for pediatric asthma in children whose mothers were recruited into the survey following birth and re-interviewed when their child was one year of age. Her results indicated that children born to married parent households were at significantly lower risk for asthma at one year of age relative to single mother and cohabiting parent households, and that differences between cohabiting and married parent households disappeared after adjusting for socioeconomic resources and private health insurance. Her work also suggests that changes in family structure increased the risk for asthma, however, she did not evaluate whether family instability explained some of the association between family structure and pediatric asthma. Bzostek and Beck (2011) found that the risk for pediatric asthma when these children were five years old was also significantly higher for children born to single mother and cohabiting parent households relative to married parent households. Following Harknett's example, the authors also created categories for each combination of family structure at birth and change in family structure, making it impossible to assess whether family instability accounted for observed differences by family structure at birth in risk for pediatric asthma, however, posthoc comparisons of coefficients suggest that changes in family structure are not significant predictors of asthma. The authors also reported that reduced risk among children born into married parent households with no subsequent changes in family structure for asthma remained significant when adjusted for socioeconomic resources, parenting behaviour and parental social support. Taken together, these two studies suggest that family structure at birth has an effect on risk for pediatric asthma, but provide much less conclusive evidence that socioeconomic resources and family instability mediate the association.

Although the FFCWS has enhanced knowledge about fragile families, the study has several shortcomings. First, the survey is not nationally representative of the American population but rather is representative of non-marital births in large US cities (Reichman et al., 2001). Moreover, there is substantial attrition in the survey over the five year period, with drop out more likely to occur among socioeconomically disadvantaged households, leading to concerns about attrition bias. Finally, given that exploring the interconnections between family structure at birth and family instability in the first few years of a child's life can produce categories that have very few children in them, there is some question as to whether the American studies had sufficient power to detect significant differences.

The current study overcomes some of these limitations. First, data come from a nationally representative sample of Canadian children and as such, is the first study to use national data to link family structure at birth to pediatric asthma. By relying on cross-sectional data with retrospective information on family structure histories, this study also avoids the problem of attrition bias. The sample size in the current survey is larger than the US FFCWS, however, because family instability is lower in Canada than in the United States, power to detect significant differences remains an issue in the current analysis.

Beyond the descriptive comparison of patterns of nonmarital childbearing among first time mothers between Canada and the United States, the purpose of this paper is to test the following hypotheses. The first hypothesis is that the risk for pediatric asthma and otitis media will be significantly higher for firstborn children who begin life in a cohabiting two-biological parent household or a single, never-married mother household relative to a married twobiological parent household, net of controls. I also hypothesize that socioeconomic resources and family instability account for observed differences by family structure at birth in the risk for pediatric asthma and otitis media. In line with more recent evidence that multiple changes in family structure are more damaging for child development than a single change in family structure (Fomby & Cherlin, 2007), family instability is differentiated into single and multiple changes in family structure.

METHODS

Sample

Designed to track the health and development of a nationally representative sample of Canadian children, the National Longitudinal Survey of Children and Youth (NLSCY) was launched in 1994 and continues to re-interview the original cohort of children every two years. To retain insight into the determinants of health of younger children, a new cohort of children ages 0 - 1 was selected in subsequent cycles and tracked until they reached age 5. As with the original cohort, households selected to participate in the Early Child Development (ECD) component of the NLSCY were drawn using the sampling frame of the Labour Force Survey (LFS), which is representative of the Canadian population. Because less than 3% of Canadian households have a child in the first year of life in any given year, the LFS facilitates quick determination of in-scope households, is cost effective and allows for sampling of immigrant children (Baribeau, Wedseltoft, & Franklin, 2007). The current analysis is based on the combined cross-sectional data on the new cohort of children aged 0 and 1 in each of the four cycles between 2002 and 2008. Response rates in each cycle were as follows: 74% in 2002, 81.3% in 2004, 80.8% in 2006, and 76% in 2008. When weighted, data are representative of Canadian children under the age of 2 who were born between 2000 and 2008.

Because it was important to select households that were at the beginning of the childrearing stage, the sample was restricted to firstborn children, dropping the sample from 14,858 to 6,622. Given the focus of the study, the sample was further restricted to children who were born into a two-biological-parent married household, two-biological-cohabiting parent household and children born into a never married, single mother household (N=6,233). This excluded children whose parents split up prior to birth of the child or who did not provide information about family structure at birth, children living with two adoptive or foster parents

(and for whom a question about family structure at birth was not asked), and children born into same sex-parent households (N=389, 5.9%). These households were deemed to be too heterogenous to be grouped together and too small to be analyzed separately; therefore, they were excluded from further analysis. In a final step, cases where there was missing information on variables of interest were dropped from the sample, leading to a final sample size of 5,925 children.

Measures

Asthma and otitis media are coded 1 when parent reports that child has been diagnosed with the respective conditions by a physician, and 0 otherwise. Family structure at birth is coded with dummy variables that compare children born into a cohabiting, two-biological parenthousehold and children born into a single, never-married mother household with children born into a married, two-biological-parent household (reference omitted category). Economic resources include maternal education and household income. Maternal education contrasts mothers who have less than high school to mothers who completed high school or beyond (reference category). Based on the parent's best estimate of income from all sources in the past year, household income is coded in units of ten thousand dollars and capped for values above \$250,000. Family instability is coded with dummy variables to compare households where there has been a single change in family structure since the child's birth and households where there has been multiple changes in family structure with households with a stable family structure since the birth of the child. Changes in family structure include those who had a new partner or spouse move into the household as well as the occurrence of separation or divorce. Households that were cohabiting at the time of the child's birth but subsequently formalized the relationship

into marriage were not treated as a change in family structure as this change does not alter the composition of the household.

All models control for child age (in months), child gender, whether the child was born prematurely, whether the child had a birthweight under 2500 grams, maternal age (in years), whether there are other siblings in the household, cycle and region of residence. A maternal history of asthma is added as a control variable for models for child asthma to adjust for both the hereditary component of asthma as well as their similar environmental exposures. The survey did not contain questions about a previous history of ear infection of either parent.

Analysis

Logistic regression analysis was used as both outcomes are dichotomous. In a logistic regression model, regression coefficients are interpreted as the log of the odds of an event before and after a one unit change in an explanatory variable, with all other terms held constant. Normalized sampling weights were used in all analyses to adjust for non-response and differential selection probabilities.

RESULTS

Figure 1 describes differences in family structure at birth for firstborn children between Canada and the United States. Adapted from Chandra and her colleagues (2005), American data come from the 2002 National Survey of Family Growth, representing family structures at birth for firstborn children born between 1997 and 2002. As such, the American data capture a somewhat earlier period than the Canadian data that span the period from 2000 to 2008. Although the proportion of children born into married parent households is nearly identical (62.7% in Canada and 62.4% in the US), cohabitation is much more common in Canada than in the US (30.1% versus 15.8%). Conversely, more than one in five firstborn children in the United States are born to single never-married mothers, far fewer than in Canada (7.2%). Within Canada, Quebec continues to exhibit rates of cohabitation that are far higher than elsewhere in Canada, with nearly twice as many children in Quebec born into cohabiting unions than into married parent households (63.5% versus 32.7%). Excluding Quebec, 27.8% of Canadian children were born outside of a married parent household, a proportion that is lower than the 37.6% recorded in the United States.

Sample characteristics, stratified by family structure at birth, are presented in Table 1. Rates of asthma and otitis media were significantly lower among children born into married twobiological-parent households relative to child born to cohabiting two-biological and single, never-married mother households. Rates of maternal asthma were also significantly higher in cohabiting two-biological parent and single, never married mother households relative to married, two-biological parent households. Children born to single never-married mothers were older on average than children born to married two-biological parents, but both single, never married mothers and mothers who were cohabiting when their first child was born were younger on average than mothers who were married when their first child was born. Relative to married two-biological parent households, cohabiting two-biological parent and single never-married mother households reported lower household income and a higher proportion of mothers had not completed high school. Family instability was also significantly higher in households where children were born to single never-married mother and cohabiting two-biological parent households relative to married two biological-parent households.

A series of logistic regression models for pediatric asthma (Table 2) and otitis media (Table 3) present a formal evaluation of the main hypotheses of this study. Model 1 of Table 2 evaluates the influence of family structure at birth on risk for pediatric asthma, net of controls. The odds of pediatric asthma were nearly six times higher for children born to single nevermarried mothers and more than twice as high for children born into cohabiting two-biological parent households relative to married two-biological parent households. Children who were male, older in age, born prematurely and had mothers with a history of asthma were also at greater risk for pediatric asthma. Model 2 evaluated the influence of socioeconomic resources as mediators of the association between family structure at birth and risk for pediatric asthma. Although both household income and maternal education were associated for risk for pediatric asthma at the bivariate level (results not shown), neither were significant predictors once adjusted for other terms in Model 2 and had minimal influence on the coefficients for family structure at birth. In the third model, terms for family instability were added to evaluate whether family instability accounted for family structure differences in pediatric asthma. The coefficient for multiple changes in family structure was at the threshold for statistical significance, suggesting that children with multiple changes in family structure were at greater risk for asthma than children in stable families; however, the coefficients for family structure at birth remain largely unchanged.

Model 1 of Table 3 evaluates the influence of family structure at birth on otitis media, net of controls. The odds of otitis media were 55% higher among children born to single nevermarried mothers and 28% higher for children born to cohabiting two-biological parent households compared to children born to married two-biological parent households. Children who were older, had a birthweight above 2500 grams, were born prematurely, had no other siblings in the household, and had mothers who were younger were at greater risk for otitis media. Adding socioeconomic resources to the model (Model 2) revealed that household income and maternal education were unrelated to the risk for otitis media. The coefficients for family structure at birth remained unchanged. In Model 3, terms for family instability were added to the model. Children who experienced two or more changes in family structure since birth were significantly more likely to have received a diagnosis of otitis media relative to children who experienced no changes in family structure since birth. The coefficients for family structure were somewhat reduced (20.5% reduction in the coefficient for single never-married mothers and 4.2% for cohabiting two-biological parent households), but both coefficients remained statistically significant.

The literature has inconsistently reported that the effects of changes in family structure depend on the type of change that is occurring i.e., differences between the gain versus the loss of a spouse from the household (Osborne & McLanahan, 2007) and diverging effects for the dissolution of marriage versus the dissolution of a cohabiting relationship (Wu, Hou, & Schimmele, 2008). In further analyses (not shown), models that evaluated whether the effects of changes in family structure on pediatric asthma and otitis media depended on family structure at birth were tested. In these analyses, family instability was treated as a single dummy variable comparing whether children experienced any change in family structure since birth to children who remained in a stable family structure. In both models, interactions of family instability with family structure at birth were not statistically significant and did not improve the fit of the model.

DISCUSSION

<u>References</u>

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Source: ¹National Longitudinal Survey of Children and Youth, 2002 – 2008 ²Chandra A, Martinez GM, Mosher WD, Abma JC, Jones J. Fertility, family planning, and reproductive health of U.S. women: Data from the 2002 National Survey of Family Growth. National Center for Health Statistics. Vital Health Stat 23(25). 2005.

Sample size, n (%) Child characteristics	household	Cohabiting two-biological parent household	Single, never- married mother household
Child characteristics	3716 (62.7%)	1781 (30.1%)	428 (7.2%)
Child ever diagnosed with asthma	1.4	3.7***	8.6***
Child ever diagnosed with otitis media	23.8	31.1^{***}	35.0***
Child is male	52.6	51.2	55.3
Child's age (in months)	14.6	14.6	15.7***
	(6.3)	(6.1)	(5.9)
Birthweight < 2500 g	7.1	8.6	8.2
Premature birth	10.9	11.9	8.6
Household characteristics			
Other siblings present in household	8.3	7.3	8.0
Maternal asthma	6.7	9.0*	12.1***
Maternal age	30.3	27.4***	25.9***
	(4.6)	(5.3)	(6.4)
Household income 58	58,622.33	43,459.74***	19,154.83***
	(48, 195.71)	(36, 439.18)	(22, 365.55)
Mother did not finish high school	3.7	12.4***	22.8***
One change in family structure	1.4	8.6***	13.2***
Two or changes in family structure	0.3	1.7***	8.9***

Sample characteristics by family structure at birth, firstborn children aged 0 and 1, 2002-2008 National Longitudinal Survey Table 1. of

	V	Model 1	Mc	Model 2	Model 3	Э
	b (s.e)	Odds	b (s.e.)	Odds	b (s.e.)	Odds
Child is male	0.70***	2.01	0.69***	1.99	0.68***	1.98
	(0.18)		(0.18)		(0.18)	
Child age in months	0.12^{***}	1.13	0.12^{***}	1.13	0.12^{***}	1.13
	(0.01)		(0.01)		(0.01)	
Birth weight $< 2500 \text{ g}^{a}$	-0.08	0.93	-0.07	0.93	-0.04	0.96
	(0.33)		(0.33)		(0.33)	
Premature birth	0.58*	1.78	0.56*	1.75	0.54*	1.72
Other siblings in household	0.19	1.22	0.18	1.20	0.21	1.23
	(0.25)		(0.25)		(0.25)	1
Maternal asthma	1.70***(0.20)	5.46	1.68*** (0.20)	5.35	1.71*** (0.20)	5.51
Maternal age	-0.01	0.99	-0.01	0.99	-0.01	0.99
)	(0.02)		(0.02)		(0.02)	
Family structure at birth ^b	~		~		~	
Single-mother household	1.75***	5.77	1.61***	4.99	1.54***	4.68
	(0.25)		(0.26)		(0.26)	
Cohabiting two bio parent	0.86*** (0.22)	2.36	0.82***	2.27	0.79***	2.21
Household income			-0.05	0.95	-0.05	0.96
			(0.03)		(0.03)	
Mother did not finish high school ^c			0.03	1.03	0.01	1.01
			(0.27)		(0.27)	
Changes in family structure					0.10	1 20
					0.19	1.20
Two or more changes					0.86*	2.36
			1108.10		(0.42)	

children aged 0 and 1 2002-2008 NI SCY-ECD (N = 5 025) fireth. diatric acth ç Table 2 Rick facto

b (s.e)Child is male 0.07 Child age in months (0.06) Child age in months $(0.13***$ Birth weight < 2500 g ^a (0.11) Premature birth $0.44***$	(e)	Odds				h
nonths < 2500 g ^a th	- (i		b (s.e.)	Odds	b (s.e.)	Odds
nths 2500 g ^a	()	1.07	0.07	1.07	0.06	1.06
onths 2500 g ^a			(0.00)		(0.06)	
2500 g ^a	***	1.14	0.13^{***}	1.14	0.13^{**}	1.14
2500 g ^a			(0.01)		(0.01)	
	*	0.73	-0.31*	0.73	-0.30*	0.74
	Ŧ		(0.14)		(0.14)	
(0.11	* *	1.55	0.44***	1.55	0.42***	1.52
			(0.11)		(0.11)	
Other children in the household -0.56	***	0.57	-0.56***	0.57	-0.55***	0.58
(0.12	<u>ົ</u>		(0.12)		(0.12)	
Maternal age -0.02	*	0.98	-0.02**	0.98	-0.02*	0.98
			(0.01)		(0.01)	
Family structure at birth ^b						
d	***	1.55	0.44***	1.56	0.35**	1.42
(0.12	()		(0.12)		(0.13)	
Cohabiting two bio parent 0.24**	**	1.28	0.24**	1.28	0.23**	1.26
	$\widehat{}$		(0.08)		(0.08)	
Household income			-0.01	0.99	-0.01	0.99
			(0.01)		(0.01)	
Mother did not finish high school ^c			-0.12	0.89	-0.15	0.86
			(0.12)		(0.13)	
Changes in family structure ^d						
One change					0.14	1.15
					(0.15)	
Two or more changes					0.94***	2.55

Table 3 Risk factors for otitis media, firstborn children ages 0 and 1, 2002-2008 NLSCY-ECD, (N = 5,925)

