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Childhood hardship, maternal smoking and birth outcomes: a prospective cohort study

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Abstract

Objective—To determine the association between type, chronicity, and severity of childhood hardships and smoking status during pregnancy, preterm birth, and low birth weight.

Design—Prospective cohort study

Setting—The National Child Development Study, a nationally representative study of births in Britain in 1958

Participants—4865 women with at least one singleton live birth

Main exposures—Hardship during childhood, indicated by several variables, including financial/structural hardship, lack of parental interest in education, family dysfunction, violence/mental health issues, and family structure.

Main outcome measures—Smoking in pregnancy, low birthweight (LBW), preterm birth (PTB).

Results—A consistent and graded association was seen between all types of childhood hardships and smoking status during pregnancy (odds ratio (OR) and 95% confidence interval (CI) for 4 or more hardships 2.02, 1.58–2.58; $p < 0.001$ for all comparisons). Most hardships were also associated with risk of LBW and PTB, with associations between number of hardships and both outcomes persisting after controlling for smoking status and adult social class (for LBW, OR 1.51, 95% CI 1.10–2.06; for PTB, OR 1.44, 95% CI 1.08–1.92).

Conclusions—Childhood hardships have an enduring impact on future pregnancy outcomes, in part through their association with smoking during pregnancy and adult socioeconomic position.

Background

Mounting research evidence suggests a relation between psychosocial stressors during pregnancy and poor pregnancy outcomes, such as low birth weight, intrauterine growth retardation, and preterm birth.¹ Yet studies to date fail to explain the persistent associations of poverty and African-American race/ethnicity with poorer pregnancy outcomes.² A shared limitation of past studies is that the time period of investigation is limited to the pregnancy itself.³ Building evidence of the role of adverse exposures in early life calls for investigation of the role of preconception and interconceptional health and pregnancy outcomes.^{4, 5} Hypothetically, psychosocial and material hardships in childhood and adolescence may ultimately influence pregnancy outcome.²

Childhood hardships are associated with health behaviors, including smoking as an adult,^{6–8} as well as numerous health outcomes in adulthood including depression, affective

disturbances, somatic disturbances, and substance use and abuse.^{8,9} These associations are stable over time, despite changing environments and secular trends.¹⁰ Childhood hardships are also associated with increased risk of ischemic heart disease,¹¹ obesity, and diabetes.¹² These hardships also raise the risk for chronic obstructive pulmonary disease, with the association being partly accounted for by smoking behavior.¹³

There are several pathways through which childhood hardships could also influence pregnancy outcomes. First, hardships could directly alter the hormonal, cardiovascular, or metabolic milieu in a way that influences pregnancy outcomes; for instance, by raising cortisol levels,¹⁴ raising the risk of hypertensive disorders of pregnancy, or increasing the propensity to diabetes. The concept of allostatic load encapsulates the idea that chronic exposure to psychosocial stressors over time wears down physiologic systems that are responsible for homeostasis and lead to altered regulation over time.¹⁵ Hardships could also indirectly affect pregnancy through effects on health behaviors. Smoking and other health behaviors are strongly associated with low birthweight, in particular.¹⁶⁻¹⁸ Finally, psychological risk factors, such as maternal depression, have also been associated with both childhood hardships⁸ and adverse birth outcomes.¹⁹

To date, a paucity of research has specifically examined childhood experiences and reproductive outcomes. One study found that childhood adverse experiences, such as sexual abuse or substance abuse in the household, were associated with an increased risk of fetal death in first pregnancy.²⁰ Women who had experienced sexual abuse had more pelvic pain and were less likely to have an episiotomy, but were not otherwise at increased risk for birth complications.²¹ Childhood abuse has also been associated with increased risk of common pregnancy-related complications, such as heartburn, nausea and vomiting, incontinence, and backache.²²

The objective of this study was to examine the associations between childhood hardship and reproductive outcomes in a longitudinal study. We hypothesize that women exposed to greater childhood hardships would have an elevated risk for poor pregnancy outcomes. Improved understanding of the contribution of childhood factors to women's reproductive health may inform public health approaches to addressing disparities in birth outcomes. This study is unique in that we utilize a longitudinal birth cohort with prospective measurement of childhood hardships, health risk behaviors, and future pregnancy outcomes.

Methods

The National Child Development Study was a cohort study of children born in Britain during one week of March 1958. Originally, 17638 participants were enrolled (with an additional 920 immigrants added before age 16), and participants have been followed up at ages 7, 11, 23, 33, and 41. 73% participated at either age 33 or 41,²³ with a small bias towards losses from the unskilled manual labor social class.²⁴ The current study is based on all singleton live births to female cohort members by age 41y (10699 births to 4954 women). 4865 women (10134 pregnancies, 95%) had complete information on low birthweight status, preterm birth, and smoking status for at least one pregnancy. All women had information on at least one childhood hardship; missing data numbers for specific hardships are provided in the tables.

North Thames Multi-Centre Research Ethics Committee approved the 41 year survey and the current analysis was approved by the Institutional Review Board of Tulane University.

Assessment of the Outcome

At the 33-year, and 41-year follow-up, each cohort member was asked if they had ever been pregnant, and if so, the outcome of each pregnancy (miscarriage, abortion, stillbirth, livebirth), the gestational age, and the birthweight of the baby. Two outcomes were identified: 1) low birthweight (LBW), defined as a birthweight below 2500 grams; and 2) preterm birth (PTB), delivery more than 3 weeks prior to the estimated date. Participants were also asked if they smoked before or during the pregnancy.

Assessment of the Exposure

The phrase “childhood hardship” is used here to refer to a number of adverse situations in childhood. Childhood hardships were measured in several ways during the study (table 1). A Local Authority Health visitor interviewed the parents (usually the mothers) at ages 7, 11, and 16; the cohort members were also interviewed at age 16. Principal components analysis was used to categorize the childhood hardships. We performed an exploratory factor analysis using the maximum likelihood method followed by the oblique (promax) rotation. Items with factor loadings > 0.45 were assigned to the factor for which they had the greatest loading. A six factor solution was chosen due to parsimony and consistency with theoretically pre-determined latent constructs of types of hardships. Financial and structural hardship was represented by unemployment, being eligible for free school lunches, sharing a bed at age 11 or 16, and contact with the criminal justice system. Parental lack of interest in education was represented by parents’ lack of interest in education and hope their child would leave school at the minimum age. Indicators of family dysfunction were family problems with tension, alcoholism, or other problems (reported by the health visitor). Lack of supportive caregiving was represented by parents’ not reading to the child and father not taking an active role in the child’s upbringing. Violence/mental health/social services issues was represented by physical neglect (teacher report), maladjustment, mental health, bullying and contact with social services. Family structure disruption was represented by being in foster care, divorced parents, single mother, and parent dead (by age 16). For items measured more than once, participants were categorized as having experienced it if it was reported at any time point. Within each factor, the number of different types of hardships within that factor was considered to be a proxy for severity of that adversity type. We summed the number of hardships in each factor and created scales for each factor. A final summary indicator, the number of overall hardships, was also examined. The number of hardships in each category was assessed, and the top categories collapsed to retain reasonable category numbers.

Finally, we examined hardships by the time they occurred. Hardships were separated into pre-pubertal (11 years or less) and adolescent (16 years). Three of the categories allowed for comparison of timing effects – lack of interest in education, family structure, and violence/mental health. Financial hardship was also measured comparably on more than one occasion, but there was too little variation over time to allow for comparison between early (pre-pubertal) and late (adolescent) hardships. However, this measure was used with the three others for the construction of an overall score for number of hardships.

Confounders and Adulthood Mediators

The most basic potential confounders of the hardship-birth outcome association were considered to be age at the time of pregnancy, inter-birth interval,²⁵ and pre-pregnancy body mass index (BMI, calculated as weight (kg)/height (m)²). Weights and heights were self-reported at age 23y and 41y, and measured at age 33y; the measures closest in time to the birth of the child were used to calculate BMI. Smoking during any trimester of the pregnancy was counted as smoking during pregnancy, but could vary from pregnancy to pregnancy. Finally, we examined indicators of adult social position: social class at the time

of the birth (calculated from own or partner's occupation, using the Registrar General's Social Class classification 1–5),²⁶ partnership status at time of birth (married/partnered or not), and educational level (indicated by qualifications: none, less than O-level or equivalent, O-level or equivalent, A-level, or higher). For the smoking analysis, we also examined grandmaternal smoking, characterized as reported smoking during pregnancy (heavy, medium, variable) or non-smoker. More extensive adjustment for confounders, including alcohol use, adult income, and adult weight gain, did not add substantial information to the results and hence we omit them.

Statistical Analysis

Models were created using generalized estimating equations, with an exchangeable working correlation matrix. This allowed us to consider all the pregnancies reported by each woman, while adjusting for intra-woman correlation. Logistic models were used for dichotomous outcomes (LBW/PTB/smoking). One model predicted smoking during pregnancy, with adjustment for adult social class and grandmaternal smoking. For birth outcomes, two models were run: Model 1 was unadjusted; Model 2 adjusted for age, interbirth interval and pre-pregnancy BMI, smoking during pregnancy, adult social class, level of education, and relationship status at the time of the birth. 1086 (22 %) of cohort members were missing data on at least one confounder, most often BMI. Multiple imputation, using SAS's PROC MI and PROC MIANALYZE, was used to impute missing values for confounders; results are presented using these imputed values. Similar results were obtained when repeating the analyses in the sample to cohort members with complete information (N=7823 pregnancies). All analyses were done with SAS version 9.1.

Results

Most women in this population had their first child in their 20s. Most had 1, 2, or 3 children in their lifetime, and about half were current or former smokers (Table 2). There was little racial or ethnic diversity in this sample (96% European/Caucasian).

The prevalence of childhood hardships ranged from <1 % (family problems with alcohol) to almost 30% (father did not take an interest in child's schooling). Generally, financial problems and minor neglect, particularly from the father, were the most common issues.

7.9% (n=385) of women gave birth to a LBW baby in their first pregnancy, while 7.5% (N=349) gave birth more than 3 weeks early in their first pregnancy. Overall, 5.8% of pregnancies ended LBW, while 6.5% ended PTB. 39% (n=1875) of women had smoked at some point during their first pregnancy. Childhood hardships were associated with smoking during pregnancy, and the risk increased with number of adversities (Table 3). This held even after grandmaternal smoking and social class as an adult were adjusted for.

In bivariate analysis, the majority of childhood hardships were associated with increased risk for LBW for women, with odds ratios ranging from 1.2–1.9 (Table 4). Most strongly associated were violence/mental health issues, and the number of hardships. Adjustment for age, BMI, and interbirth interval did not significantly reduce these associations. Adjustment for smoking weakened the association, as did adjustment for adult social position. Many associations were null or near to null when all the variables were adjusted for. Results were similar, with largely overlapping confidence intervals, when small-for-gestational-age (birthweight below the 10th percentile for gestational age) was modeled (table S1), or when data were limited to LBW without PTB (data not shown), or. In unadjusted analyses, several childhood hardships were associated with moderately increased risk of PTB (Table 4). Most strongly associated were lack of parental interest in education, violence/mental health issues, and overall hardships. These associations were attenuated by adjustment for smoking and

other covariates, with a relation persisting between family structure, the overall number of adversities, and PTB. Of the individual hardships that made up the subscales, most strongly associated with LBW were contact with social services (adjusted OR, 1.30, 95% CI 1.07–1.66), not getting on with one's father (aOR 1.38, 0.97–1.96), and maladjustment (aOR 1.28, 0.98–1.66). Most strongly associated with PTB were contact with social services (aOR 1.22, 1.00–1.47), not getting on with one's father (aOR 1.44, 1.01–2.05), and alcoholism (aOR 2.15, 0.87–5.30) (Complete data in table S2).

When results were examined by timing of exposure (table 5), family structure hardships and violence/mental health hardships most strongly influenced the birth outcomes if they happened in adolescence. Overall, the highest risk for both LBW and PTB was in those who had multiple hardships in adolescence only, but this was also a very small group. Otherwise, hardships at any time raised the risk of LBW, and multiple early hardships or any adolescent hardship raised the risk of PTB.

Discussion

In this analysis, we found a graded association between cumulative childhood hardships and elevated risk of smoking during pregnancy, low birth weight and preterm birth. Most predictive were violence and mental health issues in the family, as well as the overall number of hardships experienced. Generally, hardships experienced during adolescence were most strongly associated with birth outcomes. This could be because adolescence is particularly salient; because they occurred closer in time to the pregnancy; or because they were measured or recalled more accurately. Adjustment for confounders and putative intermediates, particularly adult social position and smoking in pregnancy, reduced the strength of or fully accounted for associations between childhood hardship types and LBW and PTB. Our study is consistent with previous work showing associations between childhood hardships and smoking behavior.^{6, 7, 27} To date, few studies have addressed the impact of childhood hardships on pregnancy outcomes; as this is one of the first studies to evaluate the relation of childhood adversities and pregnancy outcomes prospectively, our findings make a significant contribution to the literature on the role of early life adversity and reproductive health trajectory for women.

We adjusted for several important confounders. This analysis strategy is problematic when, as in this case, the factors considered as “confounders” could be intermediates, or both confounders and intermediates. For example, both age at pregnancy and BMI have been associated with childhood hardships and social class,^{27,12} and are also associated with pregnancy outcomes. Although a reduction in effect size could suggest mediation, it cannot be used to prove it.²⁸

This study has several strengths, including the prospective measure of childhood hardships, the standardized and extensive protocol, and over four decades of follow-up in a large, nationally representative cohort. In addition, there is an added strength in the triangulation of observations on hardships from the mother, the participant during adolescence, and the social visitor/teacher. However, a significant limitation is the intermittent measurement of hardships, some of which were measured only a single time in childhood. Exposure to neglect, abuse, and alcoholism are likely to be under-ascertained.^{29, 30} In addition, all birth outcomes were reported by the mother, not directly measured, although research indicates that maternal reports of birthweight and gestational age are largely accurate.^{31–33} Also, the time period of the study means that report of gestational age is likely to be based on last menstrual period rather than ultrasound, which is more prone to error.³⁴ Finally, the sample has been reduced over time; those who were successfully traced and who consented to be re-

interviewed differ from the overall sample, though bias by social class has not been found to be extensive.²⁴

In summary, our findings suggest that mothers who have experienced childhood hardship are more likely to smoke during pregnancy. They also more often give birth to low birth weight babies who are born prematurely, but this association may be primarily due to health behaviors and associated social class. Cumulative hardships in childhood appear to have an enduring impact on birth outcomes, while greater number of exposures in adolescence or childhood and adolescence has a stronger impact on outcomes than exposure in childhood alone. These findings suggest that there are critical periods for elevated risk, as well as, a cumulative effect of hardships over time. Further research is needed to specify pathways between childhood adversities and reproductive health outcomes, and to evaluate protective factors which could help to alleviate long term influences of early adversity.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Description of Childhood Hardship Factors

Factor	Items	Reported by	Time period assessed
Financial and structural hardship.	Unemployment	Parent	Birth, age 7, 11, 16
	Eligible for free school lunches	Parent, school	Age 11, 16
	Sharing a bed	Parent	Age 11, 16
	Contact with the criminal justice system	Parent	Age 11, 16
Parental lack of interest in education	Lack of interest in child's education	School	Age 7, 11, 16
	Hope child would leave school at the minimum age	Parent	Age 11, 16
Indicators of family dysfunction	Family problems with tension	Health visitor	Age 7
	Alcoholism, or other problems	Health visitor	Age 7
	Does not get along well with parents	Child	Age 16
Lack of supportive caregiving	Parents' not reading to the child	Parent	Age 7
	Father not taking an active role in the child's upbringing.	Parent	Age 7 and 11
Violence/mental health/social services	Physical neglect	Teacher	Age 7 and 11
	Maladjustment	Teacher	Age 7 and 11
	Mental subnormality in family	Health visitor	Age 7
	Experienced Bullying	Parent	Age 7 and 11
	Contact with social services	School, Parent	Age 7, 11, 16
Family structure disruption	Foster care	Parent, child	Age 7, 11, 16, adult report
	Divorced parents	Parent, child	Age 7, 11, 16, adult report
	Single mother at birth	Parent	Birth
	Parent dead	Parent, child, health visitor	Age 7, 11, 16, adult report

Table 2

Description of study population (women with at least one singleton live birth, n=4865)

	N ^a	%
Age at birth of first child		
<=20	668	13.7
>20–25	1664	34.2
>25–30	1480	30.4
>30–35	747	15.4
>35	306	6.3
Social class at age 33		
I	151	3.4
II	1187	26.6
III (manual/non-manual)	1864	41.8
IV	1015	22.8
V	242	5.4
Marital status at time of first pregnancy		
married	3918	80.8
living with partner	452	9.3
single, divorced, widowed	479	9.9
Smoking at age 33		
current	1554	33.1
former	855	18.2
never	2282	48.7
BMI at age 33		
underweight	462	10.1
normal	2457	53.9
overweight	1112	24.4
obese	527	11.6
Parity through age 41		
1	965	19.8
2	2493	51.2
3	1079	22.2
4	281	5.8
5	37	0.8
6	8	0.2
7	1	0.0
8	0	0.0
9+	1	0.0
interbirth interval (2nd–1st)		
<2 years	1021	26.2
2–3 yrs	1254	32.2
>3 yrs	1616	41.5

	N ^a	%
Hardships experienced		
Financial/structural hardship		
0	3269	67.2
1	957	19.7
2+	639	13.1
No interest in education		
0	2609	53.9
1	968	20
2+	1262	26.1
missing	26	
Family dysfunction		
0	3987	85.3
1+	689	14.7
missing	189	
Lack of supportive caregiving		
0	2879	62.6
1	1048	22.8
2+	670	14.6
missing	268	
Violence/mental health issues		
0	2765	56.8
1	1511	31.1
2+	589	12.1
Issues of family structure		
0	3758	77.3
1	1107	22.8
Overall		
0	1007	20.7
1	858	17.6
2	803	16.5
3	619	12.7
4+	1578	32.4

^a numbers may not add to total due to missing data

Table 3

Associations between childhood hardship and smoking in pregnancy (n=4865 women)

	OR^a	95% CI	p for trend
Financial/structural hardship			<0.001
0			
1	1.43	(1.24, 1.66)	
2+	2.23	(1.83, 2.71)	
No interest in education			<0.001
0			
1	1.59	(1.37, 1.86)	
2+	2.34	(2.02, 2.71)	
missing			
Family dysfunction			<0.001
0			
1+	1.70	(1.44, 2.01)	
missing			
Lack of supportive caregiving			<0.001
0			
1	1.33	(1.15, 1.54)	
2+	1.43	(1.21, 1.70)	
missing			
Violence/mental health issues			<0.001
0			
1	1.45	(1.27, 1.65)	
2+	2.30	(1.91, 2.78)	
Issues of family structure			<0.001
0			
1	1.73	(1.51, 1.98)	
Overall			<0.001
0			
1	1.18	(0.96, 1.45)	
2	1.29	(1.05, 1.59)	
3	1.78	(1.43, 2.21)	
4+	2.96	(2.46, 3.55)	

Table 4

Associations between childhood hardship, low birthweight, and preterm birth (n=4865)

	LBW				PTB				
	unadjusted		Adjusted for age, body mass index, interbirth interval, smoking, social class, education, marital status		unadjusted		Adjusted for age, body mass index, interbirth interval, smoking, social class, education, marital status		
	OR ^a	95% CI	p for trend	OR ^a	95% CI	p for trend	OR	95% CI	p for trend
Financial/structural hardship									
0	1		0.01	1		0.49	1		0.06
1	1.03	(0.82, 1.30)		0.92	(0.73, 1.17)		1.03	(0.83, 1.27)	
2+	1.53	(1.17, 2.00)		1.18	(0.88, 1.60)		1.34	(1.03, 1.73)	
No interest in education									
0	1		<0.01	1		0.43	1		0.01
1	1.24	(0.98, 1.57)		1.09	(0.85, 1.40)		1.18	(0.94, 1.49)	
2+	1.43	(1.16, 1.78)		1.11	(0.86, 1.43)		1.28	(1.05, 1.56)	
Family dysfunction									
0	1		0.15	1		0.47	1		0.08
1+	1.21	(0.93, 1.57)		1.10	(0.85, 1.43)		1.24	(0.98, 1.58)	
Lack of supportive caregiving									
0	1		<0.01	1		0.09	1		0.78
1+	1.30	(1.07, 1.58)		1.19	(0.97, 1.46)		1.03	(0.85, 1.23)	
Violence/mental health issues									
0	1		<0.01	1		<0.01	1		<0.01
1	1.38	(1.12, 1.70)		1.23	(1.00, 1.52)		1.22	(1.01, 1.48)	
2+	1.90	(1.47, 2.47)		1.48	(1.12, 1.96)		1.39	(1.08, 1.79)	
Issues of family structure									
0	1		0.09	1		0.71	1		<0.01
1+	1.21	(0.97, 1.50)		1.04	(0.83, 1.31)		1.33	(1.09, 1.61)	
Number of Hardships									
0	1		<0.01	1		0.02	1		<0.01
1	1.28	(0.92, 1.78)		1.26	(0.90, 1.77)		1.14	(0.84, 1.55)	
2	1.47	(1.05, 2.06)		1.39	(0.99, 1.96)		1.43	(1.06, 1.93)	

	LBW				PTB				
	unadjusted		Adjusted for age, body mass index, interbirth interval, smoking, social class, education, marital status		unadjusted		Adjusted for age, body mass index, interbirth interval, smoking, social class, education, marital status		
	OR ^a	95% CI	p for trend	OR ^a	95% CI	p for trend	OR	95% CI	p for trend
3	1.33	(0.93, 1.91)		1.19	(0.82, 1.74)		1.23	(0.88, 1.71)	
4+	1.93	(1.46, 2.55)		1.52	(1.11, 2.09)		1.56	(1.21, 2.01)	

^aOR, odds ratio; CI, confidence interval

Table 5
Associations between timing of childhood hardship, low birthweight, and preterm birth (n=4865)

	N	%	LBW				PTB					
			unadjusted		Adjusted for age, body mass index, interbirth interval, smoking, social class, education, marital status		unadjusted		Adjusted for age, body mass index, interbirth interval, smoking, social class, education, marital status			
			OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI		
No interest in education												
neither early nor late ^a	1591	46.2	1.00		1.00		1.00		1.00		1.00	
early only	415	12.0	1.36	(0.96, 1.92)	1.22	(0.84, 1.77)	1.27	(0.92, 1.74)	1.22	(0.87, 1.70)	1.27	(0.94, 1.71)
late only	726	21.1	1.11	(0.82, 1.50)	0.94	(0.67, 1.32)	1.36	(1.04, 1.77)	1.27	(0.94, 1.71)	1.27	(0.94, 1.71)
early and late	715	20.7	1.61	(1.22, 2.14)	1.19	(0.83, 1.71)	1.24	(0.95, 1.61)	1.08	(0.78, 1.49)	1.08	(0.78, 1.49)
Issues of family structure												
neither early nor late	3782	78.7	1.00		1.00		1.00		1.00		1.00	
early only	580	12.1	1.22	(0.93, 1.60)	1.05	(0.79, 1.39)	1.19	(0.91, 1.55)	1.12	(0.85, 1.48)	1.12	(0.85, 1.48)
late only	316	6.6	1.08	(0.72, 1.63)	1.01	(0.67, 1.53)	1.39	(1.02, 1.89)	1.36	(1.00, 1.86)	1.36	(1.00, 1.86)
early and late	129	2.7	1.02	(0.58, 1.78)	0.82	(0.46, 1.47)	1.10	(0.64, 1.87)	0.99	(0.57, 1.72)	0.99	(0.57, 1.72)
Violence/mental health issues												
neither early nor late	2765	56.8	1.00		1.00		1.00		1.00		1.00	
early only	1388	28.5	1.36	(1.00, 1.68)	1.20	(0.97, 1.49)	1.17	(0.96, 1.43)	1.11	(0.90, 1.36)	1.11	(0.90, 1.36)
late only	283	5.8	1.78	(1.23, 2.58)	1.55	(1.06, 2.26)	1.52	(1.09, 2.14)	1.42	(1.00, 2.02)	1.42	(1.00, 2.02)
early and late	429	8.8	1.90	(1.41, 2.55)	1.47	(1.06, 2.04)	1.43	(1.08, 1.89)	1.27	(0.93, 1.73)	1.27	(0.93, 1.73)
Overall ^b												
Neither	1385	28.5	1.00		1.00		1.00		1.00		1.00	
early 1-2	897	18.4	1.39	(1.03, 1.86)	1.30	(0.96, 1.75)	1.18	(0.89, 1.57)	1.15	(0.86, 1.53)	1.15	(0.86, 1.53)
early >2	322	6.6	1.56	(1.05, 2.33)	1.29	(0.86, 1.94)	1.75	(1.22, 2.51)	1.66	(1.15, 2.40)	1.66	(1.15, 2.40)
late 1-2 only	513	10.5	1.49	(1.06, 2.07)	1.38	(0.98, 1.93)	1.63	(1.18, 2.23)	1.61	(1.17, 2.23)	1.61	(1.17, 2.23)
late >2 only	91	1.9	2.15	(1.18, 3.91)	1.88	(1.01, 3.49)	2.24	(1.30, 3.88)	2.22	(1.26, 3.91)	2.22	(1.26, 3.91)
early 1-2 and late 1-2	600	12.3	1.24	(0.88, 1.75)	1.10	(0.76, 1.58)	1.53	(1.14, 2.04)	1.50	(1.11, 2.04)	1.50	(1.11, 2.04)
early 1-2 and late >2	167	3.4	1.89	(1.14, 3.13)	1.50	(0.88, 2.55)	1.50	(0.88, 2.55)	1.33	(0.81, 2.18)	1.33	(0.81, 2.18)
early >2 and late 1-2	488	10.0	1.73	(1.25, 2.41)	1.36	(0.95, 1.95)	1.36	(0.95, 1.95)	1.35	(0.96, 1.91)	1.35	(0.96, 1.91)
both >2	402	8.3	1.89	(1.35, 2.67)	1.31	(0.88, 1.93)	1.31	(0.88, 1.93)	1.47	(1.01, 2.14)	1.47	(1.01, 2.14)

^a early=birth to 11 years; late=older than age 11; numbers may not add to total for all hardships due to missing data

^b sum of above three categories plus financial hardships