Health consequences associated with unplanned childbearing

Authors

Evelyn Fuentes-Rivera, PhD[a]

Cecilia Gayet, PhD[b]

Fatima Juaréz, PhD[a]

[a]The College of Mexico, Mexico City, Mexico

[b]Latin American Faculty of Social Sciences Mexico, Mexico City

Corresponding author

Evelyn Fuentes-Rivera, PhD

evfuentes@colmex.mx

Abstract (200 word limit)

Purpose

The purpose of this study is to identify the consequences and health behaviors of women and newborn associated with unplanned childbearing in Mexico

Methods

A quantitative analysis of secondary data was performed using the National Survey of Demographic Dynamics 2018. Our final sample included 14,007 women aged 15-49 who had a live-born child within the 36 months preceding the interview. For the study of the consequences of unplanned childbearing, 7 analyses were conducted using multivariate binary logistic regression models. Each model included the correspondent outcome variable, intention variable and control variables.

Results

Of the total analytical sample, 61.7% of the women reported that their last birth was planned. 19.5% wanted to wait longer, and 18.1% did not want to become pregnant either at that time or later. Multivariate results showed that women with unplanned births were less likely to have adequate prenatal care, more likely to have some physical complication during pregnancy. It was also found that women with unwanted births were more likely to experience postpartum depression.

Discussion

These results suggest that policies aimed at preventing unintended childbearing, would also help to mitigate complications during pregnancy and postpartum depression as well as increase access to prenatal care.

Introduction

Unintended pregnancy is a significant issue impacting many women worldwide. Between 2015 and 2019, the global rate of unintended pregnancies was 64 per 1,000 women aged 15-49. In Latin America in the same period, the rate of unplanned pregnancies was above the world rate with 69 per 1,000 women in the same age group (1). In Mexico, it was estimated that in 2009, more than half of the 3.5 million pregnancies were unplanned (2). Unplanned pregnancy and motherhood have been associated with economic, social and health consequences, positioning them as significant social and public health issues. Addressing this requires studies focused on identifying risk factors and understanding the associated health consequences.

Previous studies in different parts of the world have found many associations between unplanned pregnancies and several health consequences of the women and the newborns. This research can be organized into four dimensions: 1) behaviors of women before and after childbirth that are directly related to their health, 2) behaviors of women after childbirth that are directly related to the health of their child, 3) health consequences for women before, during and after childbirth, and 4) health consequences for the child during and after childbirth. Among the first dimension there is ample evidence supporting the association between unplanned pregnancies and births with lower use of prenatal care services. Meta-analyses, multinational and individual-country studies have found that women with unplanned pregnancies were more likely to initiate prenatal care late and receive less prenatal visits compared to those with planned pregnancies (3-10). Another behavior in the first dimension is consumption of harmful substances where previous studies have found that women with unplanned pregnancies consumed more tobacco, alcohol, or drugs during their pregnancy compared to women with planned pregnancies (11-15). Less healthy diets during pregnancy are another behavior in the dimension of behaviors of women that are directly related to their health. Systematic reviews and individual-country studies found that women with unplanned pregnancies or births have less healthy diets, consume more caffeine, and engage in less physical activity during pregnancy compared to women with planned pregnancies (9, 14, 16-18). Professional attention during birth and in the postpartum are also behaviors in the first dimension. In this regard, a study in Bangladesh found that women with unintended pregnancies were at

greater risk of not seeking professional birth attendants (19). It also has been found that women with unintended pregnancies were less likely to seek professional postpartum care (20, 21).

Among the dimension of behaviors of women that are directly related to the health of their child, research has found associations with breastfeeding initiation, mother's attachment to their children, immunization of children, sexual or physical abuse and parenting styles. Multinational and individual-country studies found that both duration and initiation of breastfeeding are affected by birth intention, showing that children from unplanned births were less breastfed or breastfed for less time (22-26). In Iran, it was found that attachment to their children was significantly less for women with unplanned pregnancies than for women with planned pregnancies (27). About immunization, it was also found that unplanned births had higher risk of having an incomplete immunization schedule in the first year of life compared to planned births (23, 28, 29). For the last behavior in this dimension, previous research found that sexual or physical abuse and authoritarian parenting styles are associated with unplanned births (16, 30, 31).

For the third dimension about health consequences for women, two kinds of consequences were found: a) physical complications during pregnancy, and b) mental health consequences. During pregnancy, studies suggest an association between unintended pregnancies and the presence of several complications such as: anemia, preeclampsia, gestational diabetes, hypertension, blood sugar, heart and kidney disease, overweight, vaginal bleeding, urinary tract infections, and premature rupture of membranes (9, 13, 27, 32). Besides, ample evidence supports a positive association between having unplanned pregnancies and anxiety, depression and stress during pregnancy and in the postpartum (33-37).

In the last dimension about health consequences for the children, previous literature found that preterm birth and low birth weight are associated with unplanned births (25, 33, 36, 38). Also, several studies have found that children born at unplanned births were malnourished, shorter for age or stunted from 6 months to 8 years of age (13, 28, 39). Other consequence is the presence of congenital heart malformations, an analysis in China found that the risk of the occurrence of these malformations is associated with unplanned pregnancies (40). Less educational and psycho-emotional development, and problematic

behaviors and harmful consumptions are also associated with unplanned births (30, 41, 42). Finally, literature also highlights neonatal and child mortality as a consequence of unintended pregnancies (16, 43, 44).

The purpose of this study is to identify the consequences and health behaviors of women and newborn associated with recent unplanned childbearing in Mexico.

Methods

A quantitative analysis of secondary data was performed using the National Survey of Demographic Dynamics (ENADID, English acronym) 2018. This probabilistic survey employed a two-stage, stratified cluster sampling method, ensuring national, state, and locality-level representativeness. The survey included 119,800 households and 108,439 women aged 15-54. Of these, our final sample included 14,007 women aged 15-49 who had a live-born child within the 36 months preceding the interview.

ENADID 2018 allows to explore 7 behaviors and consequences in health associated with unplanned motherhood. These 7 behaviors and consequences belong to the 4 dimensions found in the literature. For the first dimension of behaviors of women directly related to their health, we explored: 1) adequate prenatal care, and 2) adequate postpartum care; the second dimension of behaviors of women related to the health of their child, included: 3) breastfeeding initiation, and 4) medical care for children: for the third dimension of health consequences for women, we explored: 5) three physical complications during pregnancy - bleeding, preeclampsia and anemia, and 6) postpartum depression; for the last dimension about health consequences for the child, we explored: 7) preterm birth.

Outcome variables

1) Adequate prenatal care: defined as when the first prenatal appointment attended by the woman occurs within the first 8 weeks of pregnancy and she complies with a minimum of 5 or more prenatal appointments. Value of 0 when the woman does not comply with both conditions, and 1 when she initiated her prenatal care within the first 8 weeks of pregnancy and had at least 5 check-ups.
2) Adequate postpartum care: defined as when the woman’s first postpartum appointment occurs within the first 15 days after delivery and the woman had at least 2 medical check-ups during the postpartum period. For the binary variable:

value of 0 when woman does not meet both conditions, and 1 when she complies both.

3) Breastfeeding initiation: defined as when breastfeeding began during the first hour of newborn's life. The binary variable has the value of 0 when there was no breastfeeding, or it began after the first hour of life and 1 when breastfeeding began during the first hour of life.
4) Medical care for children: when the first newborn examination appointment occurred within the first 5 days after birth. The binary variable has the value of 0 when the newborn did not have a check-up after birth or the check-up occurred after the first 5 days and value of 1 when the newborn had his/her first check-up during the first 5 days of life.
5) Physical complications during pregnancy: defined as the presence of bleeding, preeclampsia or anemia. The binary variable had the value of 0 when the woman did not present any of these complications and 1 when she presented at least one of them.
6) Postpartum depression: defined as the presence of postpartum depression (sadness for more than a week or sadness that did not allow her to take care of the newborn). The binary variable has the value of 0 when the woman responded that she did not have postpartum depression during the quarantine and 1 when she reported having had depressive symptoms.
7) Preterm birth: defined as the presence of preterm labor during the last birth. The binary variable has the value of 0 when it was not reported preterm birth and 1 otherwise.

Independent variables

- Interest variable: intention of last birth

The survey instrument asks whether at the time of pregnancy the woman: a) wanted to become pregnant, b) wanted to wait longer, and c) did not want to become pregnant at that time or later. The variable was constructed as a categorical variable with a value of 1 if the birth was planned, that is, if the woman wanted to become pregnant at that moment, a value of 2 it the birth unplanned, that is, if the woman declared that she wanted to wait longer,

and a value of 3 if the birth was unwanted, that is, if the woman declared that she did not want to become pregnant either at the moment or later.

- Control variables

Age at birth. This variable was grouped in five-year age groups except for the two extreme groups. 1=women <15-19 years at birth, 2=20-24 years at birth, 3=25-29 years at birth, 4=30-34 years at birth, 5=35-39 years at birth, and 6=40-49 years at birth; the reference group is the first one.

Marital status at birth. Grouped into 3 categories: 1=single [reference], 2=previously united, and 3=in union.

Children born alive before last birth. Constructed from the pregnancy history and categorized into 1=no previous children, 2=one child, 3=two children, 4=three children and 5=four or more children [reference].

Schooling. This variable was categorized into 1=none/primary [reference], 2=secondary and 3=high school/college or more.

Place of residence. Residence is considered 0=rural [reference] -2,500 or less inhabitants- and 1=urban.

Socioeconomic index. Additive index constructed with information of possession of goods and services. Grouped into 3 categories 1=low [from 0 to 5 goods] -reference-, 2=medium [6 and 7 goods] and 3=high [8 and 9 goods].

Geographic region by poverty level. Region 1 includes Mexico City. Region 2 includes states with less than 40% of the population living in poverty, such as: Nuevo León, Baja California, Sonora, Coahuila, Baja California Sur, Querétaro, Colima, Chihuahua, Aguascalientes, Jalisco, Quintana Roo, Tamaulipas and Sinaloa. Region 3 includes states with percentages of population living in poverty between 40% and less than 65%, such as Campeche, Yucatan, Guanajuato, San Luis Potosi, Tabasco, State of Mexico, Morelos, Zacatecas, Hidalgo, Veracruz, Tlaxcala, Michoacan and Puebla. Finally, region 4 includes states with 65% or more of the population living in poverty, such as Guerrero, Oaxaca and Chiapas [reference].

Social security. When women declared having the right or access to medical services in any public or private institution. The categories of the final variable were grouped into: 1) no

social security [reference], 2) private / other, 3) “Seguro popular” or “IMSS/Prospera”, and 4) IMSS / ISSSTE / PEMEX.

Consumption of alcohol or tobacco before pregnancy. 3 categories: 1) No, when woman stated that she did not consume alcohol or tobacco before becoming pregnant [reference], 2) some, when the woman reported consuming either of the two substances before pregnancy, and 3) both, when woman expressed that she consumed both substances.

Place of delivery. Place of delivery care was considered as a categorical variable grouped into 1) Private and others [reference], 2) Seguro Popular and other public, and 3) IMSS/ISSSTE/PEMEX (Defense or Navy).

Personnel who attended the delivery. The birth attendant was considered a two-category variable with a value of 0 when the birth attendant was a physician [reference] and 1 when the birth attendant was not a physician.

Analyses

The proportion of each category of the variable of interest (birth intention) was estimated for the analytical sample. To determine possible bivariate relationships between each of the dependent variables of the models and intention of last birth, the proportion of each category of birth intention by dependent variables and their chi-square tests were estimated. For the study of the consequences of unplanned childbearing, 7 analyses were conducted using multivariate binary logistic regression models. Each model included the correspondent outcome variable, intention variable and control variables mentioned above. Some models also included other control variables according with the literature.

Results

Of the total analytical sample, 61.7% of the women reported that their last birth was planned, that is, that they wanted to become pregnant at the time they became pregnant. 19.5% wanted to wait longer, 18.1% did not want to become pregnant either at that time or later, and 0.7% had no information (data no shown).

Table 1 shows the distribution of the outcome variables in relation to the variable of intention of last birth in the 3 years prior to the survey and the corresponding statistical test of association. Chi-square test shows significant differences between the categories of the different outcome variables and the intention of the last child, rejecting independence in the distribution of each pair of variables.

Table 2 and 3 show results of multivariate analyses. Adequate prenatal care model showed that compared to women who wanted pregnancy at the time they became pregnant, women who wanted to wait longer are 36% less likely to have adequate prenatal care, and women who did not want pregnancy either at the time or later are 44% less likely to have adequate prenatal care once controlling for other variables (Table 2). Adequate postpartum care model found no significant association between intention at birth and adequate postnatal care (Table 3). Model for breastfeeding initiation also did not find significant association between intention at birth and breastfeeding initiation (Table 3). Similar to the breastfeeding initiation model, no significant association was found between intention at birth and timely medical care for the newborn (Table 3). Regarding the presence of physical complications, the results indicate that compared to women who wanted their pregnancy at the time it occurred, those who wanted to wait longer were more likely to experience any of the physical complications analyzed (bleeding, preeclampsia and anemia) during pregnancy (AOR 1.23, CI 1.088-1.379). Additionally, women who did not want pregnancy at the time or later were even more likely to present such complications (AOR 1.33, CI 1.179-1.511), after adjusting for other variables (Table 2). Postpartum depression model showed that women who did not want the pregnancy at the time it occurred nor afterwards were more likely to have postpartum depression (AOR 1.65, CI 1.292-2.119), once controlling for other variables (Table 2). Model for preterm birth did not find any significant association between intention of birth and preterm delivery when controlling for other variables (Table 3).

Discussion

Our study found that women with unplanned births that were either mistimed or unwanted were less likely to have adequate prenatal care. It was also found that women with unplanned births (mistimed and unwanted) were more likely to have some physical complication during pregnancy (vaginal bleeding, preeclampsia or anemia). Finally, it was also found that women with unwanted births (did not want to get pregnant at the moment or later) were more likely to experience depression in the postpartum period. These results suggest that perhaps if there were public policies aimed at preventing unintended childbearing, these same policies would help mitigate complications during pregnancy and postpartum depression as well as increase access to prenatal care. In addition, policies that

implement the identification of pregnancy intention during prenatal care would be useful in order to provide specialized care such as increased follow-up and psychological care to women who report an unintended pregnancy.

The present study has limitations that should be considered both in the interpretation of the results and in future studies that seek to delve deeper into the subject. The first limitation is related to the type of data used. Given that the survey is a cross-sectional measurement, it is not possible to establish causal relationships, and it is only possible to observe associations between unplanned childbearing and health outcomes such as prenatal care, physical complications during pregnancy and depression in the postpartum period. Another limitation of the data has to do with the time lag between the occurrence of births and the measurement of some socioeconomic characteristics such as education, socioeconomic level and type of residence. In the same temporal context is the limitation of recall bias since many of the variables included in the analyses were constructed from questions asked to women about events that happened up to three years before the survey.

Recognizing the limitations found in the present study, some suggestions can be made for future studies that seek to deepen some of the aspects analyzed here. In order to reduce the temporal problems of the data, we suggest the implementation of prospective studies that measure the intentionality of pregnancy even before it occurs and that also make it possible to measure both the sociodemographic, health factors and consequences at the appropriate times.

Table 1. Proportion of birth intention by dependent variables and their chi-square tests, ENADID 2018, Mexico

Birth intention	Model 1. Adequate prenatal care*						Chi-squared, p-value
	No		Yes		Not specified		
	n	%	n	%	n	%	
Wanted to become pregnant	2,087	25.06	6,303	73.34	137	1.60	
Wanted to wait longer	1,007	35.96	1,742	61.31	68	2.74	**0.000**
Did not want to become pregnant at that time or later	1,014	39.19	1,431	56.43	100	4.39	
Not specified	5	7.10	13	16.28	100	76.62	
Birth intention	**Model 2. Adequate postpartum care****						
	No		**Yes**		**Not specified**		
	n	**%**	**n**	**%**	**n**	**%**	
Wanted to become pregnant	4,286	50.08	4,146	48.94	95	0.98	
Wanted to wait longer	1,524	53.95	1,267	45.24	26	0.81	**0.000**
Did not want to become pregnant at that time or later	1,380	53.31	1,130	45.42	35	1.27	
Not specified	10	11.20	9	12.54	99	76.26	
Birth intention	**Model 3. Breastfeeding initiation^**						
	No		**Yes**		**Not specified**		
	n	**%**	**n**	**%**	**n**	**%**	
Wanted to become pregnant	6,400	76.65	2,007	21.76	120	1.59	
Wanted to wait longer	2,108	76.94	672	21.88	37	1.18	**0.000**
Did not want to become pregnant at that time or later	1,884	74.75	618	23.74	43	1.52	
Not specified	0	0.00	0	0.00	118	100.00	
Birth intention	**Model 4. Medical care for children+**						
	No		**Yes**		**Not specified**		

	n	%	n	%	n	%	
Wanted to become pregnant	6,709	78.37	1,736	20.86	82	0.78	
Wanted to wait longer	2,236	78.61	559	20.32	22	1.07	**0.000**
Did not want to become pregnant at that time or later	2,037	79.64	480	19.37	28	1.00	
Not specified	0	0.00	0	0.00	118	100.00	
Birth intention	**Model 5. Physical complications during pregnancy^^**						
	None		**Any**		**Not specified**		
	n	**%**	**n**	**%**	**n**	**%**	
Wanted to become pregnant	4,110	50.33	4,417	49.67	0	0.00	
Wanted to wait longer	1,193	44.21	1,624	55.79	0	0.00	**0.000**
Did not want to become pregnant at that time or later	1,030	42.56	1,515	57.44	0	0.00	
Not specified	104	83.87	14	16.13	0	0.00	
Birth intention	**Model 6. Postpartum depression**						
	No		**Yes**		**Not specified**		
	n	**%**	**n**	**%**	**n**	**%**	
Wanted to become pregnant	8,121	95.36	406	4.64	0	0.00	
Wanted to wait longer	2,674	95.09	143	4.91	0	0.00	**0.000**
Did not want to become pregnant at that time or later	2,349	92.31	196	7.69	0	0.00	
Not specified	111	90.24	7	9.76	0	0.00	
Birth intention	**Model 7. Preterm birth**						
	No		**Yes**		**Not specified**		
	n	**%**	**n**	**%**	**n**	**%**	
Wanted to become pregnant	7,749	91.19	778	8.81	0	0.00	**0.047**
Wanted to wait longer	2,513	89.53	304	10.47	0	0.00	

Did not want to become pregnant at that time or later	2,289	90.86	256	9.14	0	0.00
Not specified	109	91.35	9	8.65	0	0.00

*First prenatal check-up in the first 8 weeks of pregnancy and at least 5 check-ups during the entire pregnancy, **First postnatal check-up for the woman within 15 days after delivery and at least 2 check-ups, ^Initiation of breastfeeding within the first hour of life, +First check-up for the newborn within 5 days after delivery, ^^Presence of bleeding, pre-eclampsia or anemia during pregnancy

Table 2. Consequences of unplanned motherhood, ENADID 2018, Mexico.

Independent variables	Adequate prenatal care^		Physical complications^^		Postpartum depression	
	Adequate vs. No adequate (ref)		Some vs. None (ref)		Yes vs. No (ref)	
	Odds ratio	Confidence interval 95%	Odds ratio	Confidence interval 95%	Odds ratio	Confidence interval 95%
Intention						
Wanted to become pregnant	1.00		1.00		1.00	
Wanted to wait longer	0.64	** [0.569 - 0.730]	1.23	** [1.088 - 1.379]	1.08	[0.819 - 1.426]
Did not want to become pregnant at that time or later	0.56	** [0.487 - 0.644]	1.33	** [1.179 - 1.511]	1.65	** [1.292 - 2.119]
Age at birth						
<15-19	1.00		1.00		1.00	
20-24	1.40	** [1.203 - 1.632]	1.02	[0.883 - 1.171]	1.24	[0.880 - 1.737]
25-29	2.07	** [1.739 - 2.469]	0.93	[0.791 - 1.085]	1.74	** [1.214 - 2.485]
30-34	2.26	** [1.853 - 2.765]	0.90	[0.755 - 1.083]	1.68	** [1.133 - 2.495]
35-39	2.32	** [1.817 - 2.972]	0.77	* [0.620 - 0.959]	2.15	** [1.325 - 3.476]
40-49	1.98	** [1.340 - 2.937]	0.98	[0.698 - 1.366]	2.59	** [1.336 - 5.006]
Marital status at birth						
Single	1.00		1.00		1.00	
Previously united	1.18	[0.868 - 1.601]	1.60	** [1.212 - 2.099]	1.67	* [1.017 - 2.759]
In union	1.47	** [1.246 - 1.728]	1.19	* [1.032 - 1.380]	0.88	[0.641 - 1.206]
Children born alive before last birth						
No previous children	1.76	** [1.338 - 2.323]	0.91	[0.703 - 1.185]	1.66	[0.867 - 3.160]
One child	1.56	** [1.206 - 2.025]	0.90	[0.701 - 1.145]	1.12	[0.590 - 2.127]
Two children	1.25	[0.959 - 1.628]	0.90	[0.700 - 1.148]	1.17	[0.615 - 2.240]

Three children	1.13		[0.838 - 1.512]	0.80		[0.606 - 1.056]	0.76		[0.376 - 1.524]
Four or more children	1.00			1.00			1.00		
Schooling									
None/primary	1.00			1.00			1.00		
Secundary	1.35	**	[1.162 - 1.563]	1.22	**	[1.071 - 1.396]	1.14		[0.761 - 1.703]
High school/college or more	1.68	**	[1.416 - 1.982]	1.25	**	[1.081 - 1.436]	1.47		[0.978 - 2.205]
Socioeconomic index									
Low	1.00			1.00			1.00		
Medium	1.32	**	[1.171 - 1.491]	0.93		[0.832 - 1.041]	1.37	*	[1.044 - 1.790]
High	1.57	**	[1.325 - 1.860]	0.82	**	[0.716 - 0.950]	1.06		[0.792 - 1.415]
Place of residence									
Rural	1.00			1.00			1.00		
Urban	0.98		[0.867 - 1.106]	1.13	*	[1.012 - 1.259]	1.41	*	[1.058 - 1.886]
Geographic region by poverty level									
Mexico city	1.05		[0.753 - 1.456]	1.12		[0.856 - 1.468]	1.56		[0.879 - 2.781]
< 40% of the population living in poverty	1.30	**	[1.114 - 1.520]	1.33	**	[1.157 - 1.534]	1.34		[0.920 - 1.957]
>= 40% y < 65% of population living in poverty	1.07		[0.918 - 1.243]	1.18	*	[1.027 - 1.347]	1.48	*	[1.017 - 2.153]
>= 65% of population in poverty	1.00			1.00			1.00		
Consumption of alcohol or tobacco before pregnancy									
None	1.00			1.00			1.00		
Some	1.13		[0.954 - 1.336]	1.43	**	[1.224 - 1.675]	1.44	**	[1.100 - 1.880]
Both	1.19		[0.954 - 1.491]	1.88	**	[1.505 - 2.345]	1.56	**	[1.118 - 2.178]
Social security									

None	1.00		1.00		1.82		[0.730 - 4.519]
Private/other	2.06	*	[1.002 - 4.254]	1.05	[0.573 - 1.906]	1.13	[0.799 - 1.591]
Seguro Popular	0.88		[0.746 - 1.035]	1.12	[0.964 - 1.290]	1.27	[0.901 - 1.798]
IMSS/ISSSTE/PEMEX	1.02		[0.851 - 1.222]	1.03	[0.876 - 1.201]	1.00	
Preterm birth							
No						1.00	
Yes						1.95	** [1.499 - 2.537]
Physical complications							
No						1.00	
Yes						2.64	** [2.089 - 3.336]
Constant	0.46	**	[0.318 - 0.670]	0.58	** [0.412 - 0.826]	0.00	** [0.002 - 0.010]
Observations	13,584			13,889		13,889	

** p<0.01, * p<0.05

^First prenatal checkup in the first 8 weeks of pregnancy and at least 5 checkups during the entire pregnancy, ^^Presence of bleeding, preeclampsia or anemia during pregnancy

Table 3. Consequences of unplanned motherhood -part 2-, ENADID 2018, Mexico.

Independent variables	Adequate postpartum care^			Breastfeeding initiation^^			Medical care for children+			Preterm birth		
	Adequate vs. No (ref)			Yes vs. No (ref)			Adequate vs. No (ref)			Sí vs. No (ref)		
	Odds ratio		Confidence interval 95%	Odds ratio		Confidence interval 95%	Odds ratio		Confidence interval 95%	Odds ratio		Confidence interval 95%
Intention												
Wanted to become pregnant	1.00			1.00			1.00			1.00		
Wanted to wait longer	0.92		[0.820 - 1.038]	0.97		[0.843 - 1.112]	0.99		[0.855 - 1.150]	1.21		[0.996 - 1.462]
Did not want to become pregnant at that time or later	0.97		[0.852 - 1.096]	1.07		[0.924 - 1.230]	0.97		[0.825 - 1.131]	0.97		[0.779 - 1.215]
Age at birth												
<15-19	1.00			1.00			1.00			1.00		
20-24	1.20	*	[1.031 - 1.402]	0.86		[0.726 - 1.009]	1.19		[0.993 - 1.436]	0.94		[0.736 - 1.210]
25-29	1.27	**	[1.082 - 1.500]	0.74	**	[0.612 - 0.886]	1.19		[0.965 - 1.463]	0.82		[0.616 - 1.087]
30-34	1.34	**	[1.112 - 1.617]	0.85		[0.689 - 1.058]	1.20		[0.961 - 1.495]	1.00		[0.722 - 1.380]
35-39	1.39	**	[1.109 - 1.731]	0.70	**	[0.540 - 0.895]	1.28		[0.970 - 1.678]	1.19		[0.823 - 1.713]
40-49	1.85	**	[1.314 - 2.605]	0.65	*	[0.433 - 0.981]	0.95		[0.595 - 1.514]	0.78		[0.452 - 1.362]
Marital status at birth												

Single	1.00			1.00			1.00			1.00	
Previously united	1.06		[0.809 - 1.395]	0.92		[0.680 - 1.253]	1.33		[0.948 - 1.868]	1.05	[0.689 - 1.585]
In union	1.00		[0.859 - 1.154]	1.08		[0.903 - 1.292]	1.07		[0.891 - 1.276]	0.94	[0.729 - 1.201]
Children born alive before last birth											
No previous children	1.26		[0.962 - 1.637]	0.68	*	[0.501 - 0.917]	1.45	*	[1.039 - 2.020]	1.01	[0.645 - 1.593]
One child	1.16		[0.899 - 1.485]	0.78		[0.588 - 1.041]	1.26		[0.912 - 1.729]	0.86	[0.555 - 1.337]
Two children	1.17		[0.910 - 1.512]	0.79		[0.595 - 1.045]	1.23		[0.891 - 1.701]	0.97	[0.625 - 1.494]
Three children	1.15		[0.866 - 1.530]	1.02		[0.734 - 1.409]	1.11		[0.777 - 1.579]	0.80	[0.493 - 1.296]
Four or more children	1.00			1.00			1.00			1.00	
Schooling											
None/primary	1.00			1.00			1.00			1.00	
Secundary	1.18	*	[1.015 - 1.365]	1.04		[0.883 - 1.227]	0.97		[0.811 - 1.150]	1.11	[0.875 - 1.407]
High school/college or more	1.41	**	[1.213 - 1.651]	1.09		[0.917 - 1.295]	1.00		[0.829 - 1.204]	1.03	[0.800 - 1.321]
Socioeconomic index											
Low	1.00			1.00			1.00			1.00	
Medium	0.89	*	[0.796 - 0.997]	0.98		[0.856 - 1.114]	0.92		[0.805 - 1.062]	0.98	[0.809 - 1.190]
High	0.98		[0.844 - 1.136]	1.07		[0.899 - 1.274]	0.91		[0.758 - 1.081]	0.99	[0.776 - 1.263]
Place of residence											
Rural	1.00			1.00			1.00			1.00	
Urban	1.00		[0.897 - 1.125]	0.96		[0.838 - 1.094]	0.94		[0.818 - 1.094]	1.18	[0.976 - 1.415]
Geographic region by poverty level											

Mexico city	1.39	*	[1.056 - 1.840]	0.98		[0.682 - 1.403]	0.58	**	[0.396 - 0.838]	1.06		[0.638 - 1.759]
< 40% of the population living in poverty	0.90		[0.775 - 1.043]	0.87		[0.728 - 1.035]	0.72	**	[0.601 - 0.853]	1.24		[0.952 - 1.616]
>= 40% y < 65% of population living in poverty	1.23	**	[1.069 - 1.424]	0.75	**	[0.635 - 0.890]	0.87		[0.734 - 1.027]	1.50	**	[1.163 - 1.935]
>= 65% of population in poverty	1.00			1.00			1.00			1.00		
Consumption of alcohol or tobacco before pregnancy												
None	1.00			1.00			1.00			1.00		
Some	0.96		[0.813 - 1.122]	1.19	*	[1.003 - 1.420]	0.94		[0.766 - 1.148]	1.03		[0.817 - 1.294]
Both	1.10		[0.896 - 1.353]	0.86		[0.672 - 1.089]	0.83		[0.645 - 1.074]	1.63	**	[1.224 - 2.183]
Social security												
None	1.00			1.00			1.00			1.00		
Private/other	0.88		[0.478 - 1.623]	0.98		[0.401 - 2.378]	1.45		[0.643 - 3.273]	2.14		[0.780 - 5.887]
Seguro Popular	1.13		[0.962 - 1.320]	1.04		[0.870 - 1.241]	0.99		[0.811 - 1.199]	1.22		[0.938 - 1.587]
IMSS/ISSSTE/PEMEX	1.08		[0.917 - 1.265]	1.03		[0.857 - 1.246]	1.22		[1.000 - 1.497]	1.30		[0.992 - 1.693]
Place of delivery												
Private/others	1.00			1.00			1.00					
Seguro Popular/Other public	0.63	**	[0.550 - 0.718]	1.41	**	[1.211 - 1.652]	1.00		[0.853 - 1.182]			

IMSS/ISSSTE/-PEMEX	0.65	**	[0.564 - 0.746]	1.20	*	[1.015 - 1.411]	1.02		[0.851 - 1.216]			
Personnel who attended the delivery												
Physician	1.00			1.00			1.00					
Other	0.62	**	[0.483 - 0.792]	1.64	**	[1.288 - 2.087]	1.22		[0.932 - 1.600]			
Adequate prenatal care												
No	1.00			1.00			1.00			1.00		
Yes	1.17	**	[1.059 - 1.300]	1.02		[0.911 - 1.149]	1.10		[0.968 - 1.241]	0.95		[0.797 - 1.136]
Constant	0.59	**	[0.404 - 0.865]	0.37	**	[0.239 - 0.564]	0.19	**	[0.121 - 0.307]	0.06	**	[0.033 - 0.111]
Observations	13,435			13,386			13,460			13,584		

** p<0.01, * p<0.05

^First postnatal check-up to the woman within 15 days after delivery and have at least 2 check-ups, ^^Initiation of breastfeeding during the first hour of life, +First check-up to the newborn within 5 days after birth

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