

# Population study of depressive symptoms and risk factors in pregnant and parenting Mexican adolescents

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## ABSTRACT

**Objective.** To study the prevalence of, severity of, and risk factors for depressive symptoms in a probabilistic sample of Mexican adolescent mothers.

**Methods.** A sample of adolescents aged 13–19 years, drawn from a national survey, was interviewed in relation to severity of depressive symptoms [Center for Epidemiological Studies Depression Scale (CES-D) 16–23 and CES-D  $\geq$  24] and pregnancy or parenting status.

**Results.** Depressive symptoms (CES-D 16–23) ranged from 2.3% in the first postpartum semester to 32.5% in the second trimester of pregnancy; high depressive symptoms (CES-D  $\geq$  24) ranged from 3.0% in the second postpartum semester to 24.7% in mothers of an infant more than 1 year old. Significant differences between groups were in mothers in the second gestation trimester, who had significantly more symptoms than those who had never been pregnant and those in the first postpartum semester. In those with high symptomatology, no significant differences were observed between groups. A multinomial logistic regression model used to estimate the likelihood of depression found increased risk of depressive symptoms (CES-D 16–23) in those without a partner in the first, second, or third trimester of pregnancy; in the second postpartum semester; and with a child over the age of 1 year. Increased risk of high symptomatology (CES-D  $\geq$  24) was found in those not in school or with a child over the age of 1 year.

**Conclusions.** Depressive symptoms entail an enormous burden of disease for the mother and mental health risks to the infant; mothers should therefore be targeted in prevention and intervention actions.

## Key words

Depression, postpartum; depression; adolescent; pregnancy in adolescence; risk factors; Mexico.

Early pregnancy and depression are two target problems addressed in the strategy launched by the Pan American Health Organization (PAHO) for improving adolescent and youth health in

the Americas (1). Adolescent pregnancy is seen not only as a health risk factor for mother and child but also as a factor that has a negative impact on teenagers' life prospects, increasing the probability that they will drop out of school and work in informal jobs. Depressive disorders are the leading causes of disability-adjusted life years among adolescents

and young people worldwide (2). These are lifetime conditions in some adults (3). In mothers, perinatal depression affects their infants' development, their own health, and the quality of mother–infant relationships (4–8).

Fourteen million adolescents aged 15–19 years give birth every year, accounting for more than 10% of all births

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(9). Young maternal age means that women must deal simultaneously with their adolescent developmental process and parenting an infant, a task for which they are often poorly prepared. These demands may increase the risk of or exacerbate depression. Evidence from developed countries shows that depressive symptoms occur in 25%–47% of pregnant teens (10–13), and the smaller number of studies conducted in Latin America, including Mexico, show similar figures: 21%–39% present symptoms (14–16) and 12.9% have clinical depression (17) as defined by the *Diagnostic and Statistical Manual of Mental Disorders* criteria (18).

Postnatal depressive symptoms are also frequent among adolescents in Western societies, where prevalence rates range from 25% to 49% (10, 19, 20). Figures from developing countries include moderate postnatal depression in 13.6% and severe postnatal depression in 5.2% of Dominican Republic adolescent mothers (21) and nearly 3% of Colombians (22).

The toddler years are particularly stressful to parents, as infants from 1 to 2 years old are the most demanding, because of the constant vigilance needed to ensure their physical safety as they struggle for autonomy (23). Ramos-Marcuse et al. (20) reported that 36% of mothers had depressive symptoms 24 months after they gave birth. Deal and Holt (24) found high rates of depressive symptoms over a year after delivery, ranging from 37% to 48% among black American teenage first-time mothers and from 28% to 33% among their white counterparts.

A question not fully answered is whether depression is more frequent in perinatal teenagers than in their non-mother counterparts. In this respect, Troutman and Cutrona (25) found that, despite high rates of major (6%) and minor (20%) depression in postpartum adolescents, there were no significant differences in comparison with a non-parenting control group.

The relationship between sociodemographic variables and depression in adolescent mothers is not clear and seems to vary according to pregnancy and parenting status. Age less than 18 years (10) and financial difficulties (11) often predict depressive symptoms in pregnancy. Reid and Meadows (26), in a review of 12 studies of postpartum depression in

adolescents, found inconclusive results with regard to the association between depression and age, socioeconomic status, and school status. Ramos-Marcuse et al. (20) found an inverse link between maternal age and depressive symptoms in mothers 24 months after birth. Poverty and unmarried status were not associated with depressive symptoms in adolescent mothers with a child over 17 months old (24), and partnered adolescent Latina mothers of toddlers were less likely to be depressed, while partnered African-Americans were more often depressed (27). The association of demographic variables with perinatal depression in Latin America is less well studied. Most investigations of pregnant adolescents do not include these variables (14, 16, 17), and the one that does (15) uses too small a sample to find a significant influence. Among studies of the postpartum period, Tejada et al. (21) did not use tests of significance to assess the influence of such variables, and Latorre-Latorre et al. (22) found that a difficult partner relationship is associated with postpartum depression.

In sum, research on perinatal depression in Latin American adolescent mothers is scarce. It has concentrated mostly on obtaining prevalence rates in pregnancy (14–17) and the postpartum period (21, 22), leaving out mothers of young children, a population at high risk of depression (20, 24). Moreover, none of these studies used a comparison group of nonpregnant and nonparenting teens, making it impossible to determine whether adolescent mothers suffer depressive symptoms more frequently than their never-pregnant counterparts. There is also a lack of evidence as to which variables are associated with perinatal depression in Latin American adolescent mothers. As the negative effect of perinatal depression is well documented with respect to mothers' health, their infants' development, the quality of mother–infant relationships (4–6), children's behavioral problems (7, 8), and maternal adjustment in adolescent mothers (28), an initial step in establishing perinatal depression as a mental health priority is evaluating its prevalence and associated risk factors.

Thus, the first aim of this study is to determine the prevalence and severity of depressive symptoms in pregnant and parenting Mexican adolescents, assess the differences in severity, and compare

these factors with their never-pregnant peers. Symptom severity is defined by two cutoff scores: the Center for Epidemiological Studies Depression Scale (CES-D) 16–23 (depressive symptoms) and CES-D  $\geq$  24 (high depressive symptoms). For purposes of the analyses, pregnant and parenting status is defined as never pregnant; in the first, second, or third trimester of pregnancy; in the first or second postpartum semester; and mother of a child aged 1 year or older. The second aim is to determine whether pregnancy and parenting status, maternal age, income, partner status, being in or out of school, being on track or behind in school, and urban or rural location predict the severity of depressive symptoms.

## METHOD

### Sample design and selection

This descriptive study presents data from the National Addictions Survey (ENA) conducted in 2008 (29).<sup>2</sup> The study surveyed 50 688 residences throughout Mexico in rural and urban zones. Information was obtained through computer interviews in the home with an adult between the ages of 18 and 65 years. Additional interviews were conducted if an adolescent lived in the selected home. A probabilistic, multistage, stratified sample design by conglomerates was used. Data and maps from the 2000 population census were used to select the sample units. Field work was carried out from April to October. The response rate was 77.0%, and the size of the final sample was 51 227 complete interviews including adults and adolescents. The study was approved by the National Institute of Psychiatry and the National Institute of Public Health Research Ethics Committees. Information was obtained only from those who agreed to participate and signed the consent form. In the case of adolescents, parents and guardians signed, enabling the teenager to participate.

The study subsample consists of 3 072 complete interviews that represent 8 049 088 Mexican adolescents 13 to 19 years old (mean = 15.9  $\pm$  2). The data were weighted according to the indi-

<sup>2</sup> For a more detailed description of the methodological process used in ENA, see: [http://www.inprf.org.mx/epidemiologicas/ena\\_2008/nacional2008.pdf](http://www.inprf.org.mx/epidemiologicas/ena_2008/nacional2008.pdf) Accessed 15 February 2010.

vidual probability of selection. A total of 28.6% were behind in school,<sup>3</sup> 54.0% were not in school, 56.5% had a monthly family income of < two minimum wages (< 520 U.S. dollars), and 88.6% were unpartnered (97.5% of never-pregnant and 21.5% of pregnant or parenting adolescents). Those never pregnant constitute the largest group (88.4%); 3.9% were pregnant, 3.3% were in the postpartum period, and 4.4% were mothers of an infant over 1 year old. Three-quarters lived in urban areas. Depressive symptoms (CES-D 16–23) were observed in 8.3% [95% confidence interval (CI)<sub>95%</sub> = 6.673–10.33] and high symptomatology (CES-D ≥ 24) was observed in 7.9% (CI<sub>95%</sub> = 5.96–10.3).

## Instruments

Two questionnaires were used: one for the household and the other individual. The former registered general data on the residence and its inhabitants and was used as the basis for random selection of the person to be interviewed. The individual questionnaire obtained information on the characteristics of substance use as well as other aspects of mental health. The following sections are considered in this article:

1. Demographics: Age, marital status [partnered (married/cohabiting), unpartnered (single)], level of education (last year completed), school status (in school/not in school), and family income were considered.
2. Depression scale: CES-D (30), the most widely used depression instrument in community studies, was used to measure depressive symptoms. The CES-D is a 20-item questionnaire that asks respondents to indicate how many days during the past week they experienced a variety of depressive symptoms. A score of ≥ 16 is regularly used as an indicator for being at risk for clinical depression (31). Despite the wide use of this criterion, it results in a rate of false positives on the order of 15%–20%, leading others to suggest using higher cutoff points (32, 33). A score of ≥ 24 has been shown to be a more sensitive measure of depressive symptoms for statistical analyses in U.S. Latina and Mexican

perinatal women (26, 34). Higher cutoff points have been found among Mexican adolescents (35). Both cutoff scores were thus considered.

3. Questions related to pregnancy status: A series of questions were included to determine the number of women who were pregnant at the time of the interview, their month of gestation, whether they had given birth in the 12 months before the study (although there is a possibility that they could have had more than one child, this question was not explored), the number of 6-month periods that had elapsed since childbirth, and the existence of previous pregnancies.

## Analysis

For the analysis, pregnancy was divided into first, second, and third trimesters, while the postnatal period was divided into first and second semesters. Mothers of toddlers were defined as having given birth in the 12 months before the study. The data were analyzed as follows: (a) chi-square tests and an analysis of variance were used to assess sociodemographic differences among different pregnant and parenting conditions, (b) a chi-square test was used to compare the severity of depressive symptoms (CES-D 16–23 and CES-D ≥ 24) among pregnant and parenting groups, and (c) a multinomial logistic regression model was used to estimate the likelihood of severity of depression. All the analyses were carried out using the STATA package, version 11 (36). In all cases, the data were weighted, and the effect of the complex sampling design was considered in the estimation of confidence intervals in statistical analyses.

## RESULTS

Table 1 presents the demographic distribution of pregnant and parenting adolescents. Significant differences between the groups were found in age, marital status, whether they remained in school, and whether they were behind in grade level. Those in the third trimester of pregnancy, postpartum mothers, and mothers of infants tended to be older than those never pregnant or in their first and second trimesters. Those never pregnant were more often single than their childbearing peers. Those who

were pregnant, in the postpartum period, or mothers of a 1-year-old child were more frequently not in school and behind in their educational level than their never-pregnant peers; one exception was second-trimester adolescents, who were more similar to their never-pregnant counterparts.

Significant differences were observed in the severity of depressive symptoms (CES-D 16–23 and CES-D ≥ 24) between the various groups [ $F(5.37, 163, 125.87) = 2.93, P = 0.023$ ] (see Table 2). Depressive symptoms (CES-D 16–23) were more frequent in the second trimester of pregnancy. An analysis of CI<sub>95%</sub> showed that they had significantly more symptoms than those who had never been pregnant and those who were in their first postpartum semester. Among those with high symptomatology (CES-D ≥ 24), no significant differences were observed among the groups.

A multinomial logistic regression model was used to estimate the likelihood of depression (CES-D 16–23 and CES-D ≥ 24). Pregnant and parenting status and demographic status were used as predictors, while those who had never been pregnant were used as a reference. The model fit the data well [ $F(22, 3, 019) = 3.69, P = 0.000$ ] (see Table 3). The factors associated with the increased probability of depression symptoms were not having a partner [odds ratio (OR) = 20.2]; being in the first (OR = 41.7), second (OR = 29.3), or third (OR = 8.1) trimester of pregnancy; being 7–12 months postpartum (OR = 25.2); and having a child over the age of 1 year (OR = 5.0) (Table 3). Factors associated with the increased probability of high depressive symptomatology were not being in school (OR = 1.8) and having a child over the age of 1 year (OR = 4.1).

## DISCUSSION AND CONCLUSION

This is the first population study in Mexico and one of the few internationally on depression in pregnant and parenting adolescents that includes subgroups for mothers in the gestation and postpartum periods and mothers of infants as well as a never-pregnant comparison group.

Prevalence rates of depressive symptoms (CES-D 16–23) ranged from 2.3% in the first postpartum semester to 32.5% in the second gestation trimester; high depressive symptoms (CES-D ≥ 24) ranged

<sup>3</sup> Defined by the grade corresponding to their age (e.g., 15-year-olds should have passed at least to the eighth grade).

**TABLE 1. Demographics for adolescent population 13–19 years old by pregnant and parenting status (N = 8 049 088), Mexico, 2008**

	Never pregnant (n = 7 061 177)	First trimester of pregnancy (n = 41 261)	Second trimester of pregnancy (n = 162 080)	Third trimester of pregnancy (n = 110 589)	0–6 months postpartum (n = 145 514)	7–12 months postpartum (n = 116 730)	Mother of a child ≥ 1 year old (n = 354 036)
Years of age, <sup>a</sup> mean ± SD	15.7 ± 1.95	16.4 ± 1.29	15.6 ± 1.82	17.8 ± 1.22	17.6 ± 1.49	17.8 ± 1.12	18.3 ± 0.93
Monthly family income, %							
> 2 minimum wages <sup>b</sup>	44.9	28.0	22.5	29.5	27.6	58.7	32.6
< 2 minimum wages	55.1	72.0	77.5	70.5	72.4	41.3	67.4
Marital status, <sup>c</sup> %							
Partnered	2.5	84.9	56.0	86.4	83.3	88.6	80.0
Unpartnered	97.5	15.1	44.0	13.6	16.7	11.4	20.0
Type of population, %							
Rural	25.8	21.3	14.5	31.1	25.7	27.9	12.5
Urban	74.2	78.7	85.5	68.9	74.3	72.1	87.5
In school, <sup>c</sup> %							
In school	51.8	2.4	1.2	4.1	4.1	1.8	0.6
Not in school	48.2	97.6	98.8	95.9	95.9	98.2	99.4
Behind in school, <sup>c</sup> %							
Yes	76.5	38.3	75.6	45.3	28.4	18.3	11.7
No	23.54	61.74	24.41	54.8	71.6	81.75	88.27

**Note:** SD: standard deviation. Weighted data.

<sup>a</sup> Complex sample analysis-of-variance test,  $P < 0.05$ .

<sup>b</sup> > 520 US dollars (US\$1.00 = 12.50 pesos).

<sup>c</sup> Complex sample chi-square test,  $P < 0.05$ .

**TABLE 2. Proportion of adolescents 13–19 years old with depressive symptoms, Mexico, 2008**

Pregnancy/parenting status	CES-D 16–23		CES-D ≥ 24	
	%	95% confidence interval	%	95% confidence interval
Never pregnant	7.9	6.465–9.713	6.9	5.425–8.812
First trimester of pregnancy	17.3	4.048–50.76	11.4	1.889–46.22
Second trimester of pregnancy	32.5	10.48–66.39	15.4	2.982–51.68
Third trimester of pregnancy	8.2	1.746–30.79	10.8	1.852–43.87
0 to 6 months postpartum	2.3	0.610–8.305	4.4	1.302–13.59
7 to 12 months postpartum	13.6	3.84–38.23	3.0	0.629–13.33
Mother of a ≥ 1-year-old child	4.6	1.272–15.56	24.7	6.577–60.46

**Note:** CES-D: Center for Epidemiological Studies Depression Scale. Weighted data. Complex sample chi-square test:  $F(5.37, 163\ 125.87) = 2.93, P = 0.01$ . Significant post hoc found in groups: 3 > 1, 3 > 5.

**TABLE 3. Predictors of depressive symptoms in adolescents 13–19 years old, Mexico, 2008**

Predictor	CES-D 16–23			CES-D ≥ 24		
	Odds ratio	P	95% confidence interval	Odds ratio	P	95% confidence interval
Behind in school	0.688	0.140	0.418–1.131	1.377	0.243	0.805–2.356
Not in school	1.339	0.238	0.824–2.175	1.811	0.042	1.022–3.209
< 2 minimum wages	1.321	0.244	0.827–2.110	0.977	0.938	0.538–1.771
Unpartnered	20.152	0.000	4.246–95.644	1.321	0.592	0.476–3.664
Urban	1.119	0.678	0.659–1.899	1.624	0.099	0.912–2.892
Never pregnant	1.000	N/A	N/A	1.000	N/A	N/A
First trimester of pregnancy	41.722	0.004	3.300–527.426	0.429	0.468	0.043–4.232
Second trimester of pregnancy	29.258	0.000	7.201–118.879	1.543	0.619	0.280–8.511
Third trimester of pregnancy	8.127	0.021	1.370–48.197	0.189	0.157	0.019–1.896
0–6 months postpartum	1.551	0.596	0.307–7.841	0.537	0.427	0.116–2.491
7–12 months postpartum	25.200	0.005	2.697–235.463	0.444	0.435	0.058–3.417
Mother of a ≥ 1-year-old child	4.949	0.048	1.016–24.108	4.065	0.016	1.295–12.767

**Note:** CES-D: Center for Epidemiological Studies Depression Scale, N/A: not applicable. Weighted data. Multinomial logistic regression, reference group is CES-D 0–15 cutoff. Complex sample logistic regression model adjustment:  $F(22, 3019) = 3.69, P = 0.000$ .

from 3.0% in the second postpartum semester to 24.7% in mothers of infants more than 1 year old. As mentioned earlier, depression is the leading cause of disability among adolescents and young people (2) and early onset is associated with lifetime depression (37). These first manifestations of symptoms provide a unique opportunity for effective early intervention (1).

The following discussion is organized by pregnant and parenting status.

## Pregnancy

Second-trimester pregnant adolescents had the highest prevalence (32.5%) of depressive symptoms (CES-D 16–23), not significantly different than those in their first and third trimesters and significantly higher than those never pregnant and early postpartum mothers (0–6 months). The depression rate in pregnancy in this study is within the range (25%–47%) found by other researchers (10–15). Regression analyses confirmed that the three gestation trimesters were predictive of depressive symptoms (CES-D 16–23). As for the prevalence of high depressive symptoms (CES-D  $\geq$  24), there were no differences among the various gestation trimesters or with the other parenting and never-pregnant groups. In spite of this lack of differences, however, an important percentage of pregnant teenagers (10%–15%) had high depressive symptoms, similar to other findings (17), which need to be underscored. Depressive symptoms in pregnancy at this age have negative implications, as they constitute an independent risk factor for subsequent pregnancies in adolescence (12) and for postpartum depression after giving birth (10).

## Postpartum

Postnatal depressive symptoms (CES-D 16–23) in Mexican adolescents were less frequent (2.3%) than in the second trimester of pregnancy (32.5%) and were also less frequent when compared with other studies (20%–37%) (10, 16, 19, 20). Questions remain as to how cultural factors such as family networks might make it easier for adolescents to cope with their feelings about being mothers (37) or whether a powerful experience of motherhood that makes the mother feel stronger (38) might result in fewer postpartum depressive symptoms.

The prevalence of high depressive symptoms (CES-D  $\geq$  24) (3.0%–4.4%) also tended to be lower compared with similar studies that measured postpartum depression (21, 25) and showed no differences from the other pregnant and parenting groups. The regression model showed that the postpartum period was not predictive of depression. Despite its relatively low prevalence, postpartum depression should be acknowledged because of its detrimental consequences for the mother and the infant (4, 5, 7, 8).

## Mothers of toddlers

In adolescent mothers of infants aged 1 year or older, no significant differences were found in depressive symptoms (CES-D 16–23, CES-D  $\geq$  24) compared with other groups. While the prevalence of depressive symptoms was relatively low (4.6%), high depressive symptoms were substantial (22.13%), and, most important, having a child of this age was a strong predictor of both definitions of depression.

High levels of depression at this stage have been reported in other studies (17, 24, 25). The limited array of variables included in this study does not allow one to explain these findings, but it could be that changing care-giving demands, which Ramos-Marcuse et al. (20) describe as “the end of the honeymoon period of motherhood that occurs from infancy to toddlerhood,” where infants’ needs increase (23), make this a very challenging stage. In addition, being married or having children during adolescence is regarded as a considerable burden that increases the likelihood of having a serious mental disorder (39).

Consistent with previous findings (40, 41), pregnant and parenting Mexican adolescents were frequently not in school (9%–99%), at almost twice the rate for their non-childbearing peers. This high frequency remained even after the child was over 1 year old. Not being in school was also a predictor of high depressive symptoms (CES-D  $\geq$  24). Some studies suggest that being out of school has a social impact on young mothers, as they feel lonely, isolated, and cut off from their school friends (38).

Not having a partner, as in approximately 20.0% of the cases, was also a significant predictor of depressive symptoms. It could be that abandonment by the baby’s father causes depression,

stress, and feelings of betrayal, as shown in other studies (38).

Considering that most adolescent mothers are out of school and that almost one-fifth of them raise a child on their own, along with the detrimental effect these factors have on their lives and their mental health, one cannot avoid considering gender inequity. Is there a similar impact on the lives and mental health of adolescent fathers? Information in this respect is scarce, but because of cultural factors arising from unequal sexual roles for males and females (42), it is presumed that there is a higher burden for young mothers.

In sum, prevalence rates of depressive symptoms (CES-D 16–23) ranged from 2.3% in the first postpartum semester to 32.5% in the second gestation trimester, while high depressive symptoms (CES-D  $\geq$  24) ranged from 3.0% in the second postpartum semester to 24.7% in mothers of infants more than 1 year old; depressive symptoms (CES-D 16–23) in Mexican adolescents were particularly high during the second trimester only when compared with their nonpregnant and first-postpartum-semester counterparts—apart from them, no other differences were observed; the three gestation trimesters, second postpartum semester, and mothers of toddlers had an increased risk of depressive symptoms (CES-D 16–23); mothers of toddlers had an increased risk of high depressive symptomatology (CES-D  $\geq$  24); and not having a partner indicated a risk of CES-D 16–23, while not being in school was an indicator of high depressive symptoms (CES-D  $\geq$  24).

Because the data presented in this paper were part of a large survey about different mental and substance disorders, the scope of questions on risk factors in pregnant and parenting adolescents (e.g., the circumstances of pregnancy, sources of support, relationship with the partner, history of depression, associated social and economic problems) was extremely limited. Depression in adolescents is a complex phenomenon that needs to be addressed with longitudinal studies to examine the developmental trajectories of mothers and children.

The main findings of this study are that there is a relationship between depressive symptoms in adolescents in pregnancy and the second postpartum semester, and parenting a child 1 year

or older has an increased risk of both levels of depressive symptomatology. This critical problem has received little consideration from mental health providers and researchers in Mexico. The need for attention is especially important as fertility rates in this age group are falling at a much lower rate than in adult women (43).

These data call for the development of prevention programs and mental health interventions for young mothers. In keeping with PAHO's regional strategy for improving adolescent and youth health, policies, programs, and services to reduce the burden of teenage pregnancy, parenting, and depression

should be addressed through a comprehensive and integrated health model; they should also increase the participation of teenagers and capitalize on the pivotal role played by families, schools, and communities (1). Some suggested specific actions include targeting this population, screening it for depression, and assessing its need for economic and social support. Policies are needed to provide the conditions for pregnant and postpartum adolescents to remain in school and to develop specific school-based programs to reduce depression and possible future social disadvantages. As a final consideration, the authors second PAHO's advice that in order to

improve maternal health, it is necessary to ensure that teenagers have access to family-planning methods and reproductive health care, and specialized care should be provided for adolescent mothers during pregnancy, childbirth, and the postnatal period.

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## RESUMEN

### Estudio poblacional sobre los síntomas depresivos y los factores de riesgo en adolescentes mexicanas embarazadas o con hijos

**Objetivo.** Estudiar la prevalencia, la gravedad y los factores de riesgo de los síntomas depresivos en una muestra probabilística de madres adolescentes de México.

**Métodos.** En una muestra de adolescentes de 13 a 19 años de edad tomadas de una encuesta nacional se efectuaron entrevistas relacionadas con la gravedad de los síntomas depresivos (Center for Epidemiological Studies Depression Scale [CES-D] 16 a 23 y CES-D  $\geq$  24) y la situación de embarazo o de crianza.

**Resultados.** Los síntomas depresivos (CES-D de 16 a 23) variaron de 2,3% en el primer semestre después del parto a 32,5% en el segundo trimestre del embarazo; los síntomas depresivos graves (CES-D  $\geq$  24) fueron desde 3,0% en el segundo semestre posparto hasta 24,7% en las madres de un niño mayor de 1 año de edad. Se observaron diferencias significativas entre los grupos en las madres que se encontraban en el segundo trimestre de la gestación, que presentaron significativamente más síntomas que las mujeres que nunca habían estado embarazadas y que las que estaban en el primer semestre posparto. En las mujeres con síntomas graves, no se observaron diferencias significativas entre los grupos. Mediante un modelo de regresión logística polinómico usado para calcular la probabilidad de depresión se detectó un mayor riesgo de padecer síntomas depresivos (CES-D 16 a 23) en las mujeres sin una pareja que se encontraban en el primer, segundo o tercer trimestre del embarazo; en el segundo semestre después del parto; y en las mujeres con un niño mayor de 1 año. En las mujeres que no concurrían a la escuela y en aquellas con un niño mayor de 1 año se encontró un mayor riesgo de presentar síntomas graves (CES-D  $\geq$  24).

**Conclusiones.** Los síntomas depresivos implican una carga de morbilidad importante para la madre y riesgos para la salud mental del lactante; por lo tanto, las acciones de prevención y de intervención deben dirigirse a las madres.

### Palabras clave

Depresión posparto; depresión; adolescente; embarazo en adolescencia; factores de riesgo; México.