

Obstetric profile of pregnant adolescents in a public hospital: risk at beginning of labor, at delivery, postpartum, and in puerperium¹

Hugo Tapia Martínez²
Marta Angélica Iossi Silva³
Iñiga Pérez Cabrera²
Araceli Jiménez Mendoza⁴

Objective: describe the obstetric profile of adolescents at beginning of labor, at delivery, postpartum, and in puerperium. **Method:** Cross-sectional descriptive study with 85 pregnant adolescents, selected by convenience, referred by health centers to a public hospital in Mexico City. Risks were evaluated before, during and after delivery and in puerperium, and measured respectively with the "Previgenes" that compose the Reproductive and Perinatal Risk Assessment System. **Results:** socioeconomic status, occupation and education level had influence on the emotionality of adolescents in relation to labor, whose obstetric risk was low for 55%, medium for 35%, and high for 10%. Risk in labor was low for 55%, medium for 18%, and high for 27%. Risk postpartum was low for 50%, medium for 25%, and high for 25%. In puerperium, most adolescents (90%) had low risk. **Conclusion:** most adolescents had low risk in the stages evaluated. The study contributed to identify strategies to approach risk considering the vulnerability inherent in this type of population and favored the conduct of appropriate interventions for the respective needs.

Descriptors: Pregnancy in Adolescence; Risk Factors; Labor, Obstetric; Parturition; Postpartum Period.

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² MSc, Associate Professor, Escuela Nacional de Enfermería y Obstetricia, Universidad Nacional Autónoma de México, Ciudad de México, Mexico.

³ PhD, Associate Professor, Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo, PAHO/WHO Collaborating Centre for Nursing Research Development, Ribeirão Preto, SP, Brazil.

⁴ MSc, Full Professor, Escuela Nacional de Enfermería y Obstetricia, Universidad Nacional Autónoma de México, Ciudad de México, Mexico.

Corresponding Author:

Hugo Tapia Martínez
Universidad Nacional Autónoma de México. Escuela Nacional de Enfermería y Obstetricia
Camino Viejo a Xochimilco y Viaducto Tlalpan, s/n
Col. San Lorenzo Huipulco, Delegación Tlalpan
CP: 14370, Ciudad de México, DF, México
E-mail: htaapia99@yahoo.com

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Introduction

Adolescent pregnancy remains a public health problem worldwide. It is estimated that 14 million adolescents (woman aged 10–19 years) give birth around the world each year, which represents slightly more than 10% of all births. A total of 80% of births occur in developing countries⁽¹⁾. In 2010, according to the General Census of Population and Housing, there were 112,336,538 million inhabitants in Mexico, of which 21,966,049 (19.5%) were adolescents aged 10–19 years⁽²⁾.

The rate of pregnancy for adolescents aged 12–19 years was 79 per thousand women⁽³⁾. One in six women who become pregnant in Mexico is an adolescent. Mortality due to adolescent pregnancy is related to higher maternal mortality, especially among adolescents aged 10–14 years⁽⁴⁾; the risk of maternal death for adolescents is twice as high as that in the rest of women in childbearing age, and four times as high for those aged under 15⁽⁵⁾.

As for morbidity rate, pregnant adolescents are a risk group; the risks and damage that may occur to adolescents are not only threats during pregnancy, but also in stages subsequent to the obstetric act, i.e., at parturition and postpartum, even occurring to the newborn child. For example, the Urinary Tract Infection (UTI) factor indicates that pregnant adolescents with this factor are more likely to have a miscarriage, presence of uterine contractions before the term pregnancy or preterm parturition⁽⁶⁾.

Risk Factors (RFs) were classified as biological, psychological, and social; in biological RF there are, for example, those related to uterine contractions in labor: number of uterine contractions in 10 minutes, their intensity and their duration during the active phase of labor; while in the social RFs there are: socioeconomic status, occupation or education level; and, in the psychological RF, there is: the woman's emotionality in relation to labor.

Continuing with the impact that risk factors represent to health in the adolescents' parturition and postpartum stages, studies have described preterm birth and neonatal deaths as major problems considering children of adolescent mothers. In addition, they identified others as toxemia, prolonged parturition and increased incidence of cesarean in this risk group; additionally, increased frequency of anemia, toxemia, low-weight newborn rate, and puerperal complications in these patients^(7,8).

With regard to adolescence, it is considered a risk factor because it is the stage of life in which physical, psychological, social and cultural changes occur; adolescents pass from biopsychosocial immaturity to biological maturity first, then reaching psychosocial maturity as adults.

Identifying risk factors of Mexican adolescents belonging to the peripheral areas of Mexico City – at beginning, during and after delivery – may favor the conduct of interventions based on their specific needs. Thus, this study aimed to determine the obstetric profile at beginning of labor, at delivery, postpartum, and in puerperium of adolescents giving birth at a public hospital in Mexico City.

Hypotheses outlined were that the obstetric profile of adolescent at beginning of labor, at delivery, postpartum and in puerperium is of medium and high risk.

Method

This is an observational, descriptive, and cross-sectional study. Sample consisted of 85 pregnant adolescents, selected by convenience, referred by two health centers to a public hospital of the Health Department of the Federal District, Mexico City, from December 2011 to April 2012. Inclusion criteria were: pregnant adolescent in the second half of pregnancy; underwent prenatal care; entered the delivery room of the public hospital.

The instruments used were the perinatal risk cards called "Previgen" IV, V, VI, and VIII, which correspond to a part of the Reproductive and Perinatal Risk Assessment System (SERRP) [Vargas, 2003]⁹ of the Maternal-Infantile Research Center of the Birth Study Group (CIMIGEN). These instruments measure, respectively, the risk at beginning of labor, at delivery, postpartum, and in puerperium. Their application enables the effective assessment of risk factors in the perinatal stage – in order to have such risk factors eliminated, modified, or reduced in their ability to affect maternal health – and also enables the indication of high-risk cases for subsequent care. The instrument consists of 41 variables or risk factors and is filled in by an evaluator. Based on global marking, risks are considered as follows: green indicates Low Risk (LR); yellow indicates Medium Risk (MR); and red indicates High Risk (HR). Therefore, it is a qualitative measurement on an ordinal scale.

Six undergraduate scholarship students of the Teaching Degree Program in Nursing and Midwifery – previously trained on the background and objectives of

the project, as well as on the use and application of the instrument – carried out the data collection after patients had been discharged, at their houses and using forms, through permanent communication and prior informed consent.

All data collected were organized in databases built on Excel program and submitted to descriptive statistics using the Statistical Package for the Social Sciences (SPSS) version 15.

The study met the ethical principles of beneficence and non-maleficence, truthfulness, privacy and confidentiality, highlighted in the Nursing ethical code⁽¹⁰⁾. Data collection started after approval of the Ethics Committee of the Public Hospital, under registration number 27676-2286-26-X. Later, we obtained informed consents from the pregnant adolescents through the responsible persons (mother, father, guardian or partner) before conducting the

interviews, both for direct interviews and for filling the instruments developed.

Results

A total of 85 study subjects (100%) completed the instrument.

Variables at beginning of labor

Table 1 shows that obstetric risk at this stage was low for 55%, medium for 35%, and high for 10%.

As for emotionality, 75% of adolescents showed calmness and only 2% did not control their emotions. Regarding uterine contractions, the majority (76%) had 3–4 contractions in ten minutes; intensity was normal for 84% of the adolescents; 92% of the adolescents had 40–60 seconds of duration by contraction.

Table 1 – Distribution of adolescents according to variables at beginning of labor. Mexico City, Mexico, 2012

Variable	Low Risk			Medium Risk			High Risk		
	Criterion	N	(%)	Criterion	N	(%)	Criterion	N	(%)
Emotionality / Psychological state	Calm	64	75%	Uneasy	19	22%	No control	2	2%
Uterine Contractions									
Frequency	3–4 in 10 min	65	76%	< 3	21	24%	No contraction	0	0%
				≥ 5	4	5%			
Duration	40–60 sec	78	92%	61–90 sec	7	8%	No contraction	0	0%
Intensity	Normal	71	84%	Low intensity	7	8%	No contraction	0	0%
				High intensity	7	8%			
Cervical dilation	1–2 cm	62	73%	≥3	14	17%	No dilation	0	0%
				Stationary	9	10%			
Fetal Heart Rate (bpm)	100–150	80	94%	151–160	4	5%	Less than 119	1	1%
Pelvis	Useful	79	93%	Limit	5	6%	Cephalopelvic disproportion	1	1%
State of membranes	Intact	71	83%	Ruptured up to 8 h	13	15%	Ruptured ≥9 h	1	1%
Fetal presentation	Cephalic	81	95%	Breech	4	5%	Other	0	0%
Amniotic Fluid Quantity	Normal	78	92%	Regular	3	2%	Oligohydramnios	4	5%
Color	Light	79	94%	Green	2	2%	Dark green	2	2%
				Yellow	1	1%	Red	1	1%
Obstetric risk	Low	46	55%	Medium	30	35%	High	9	10%

However, considering the other variables analyzed – dilation of the cervix, fetal heart rate, pelvis and state of membranes –, most had patterns within normal limits. Importantly, 10% of the adolescents remained stationary in relation to cervix dilation in centimeters (cm), and, as for the state of membranes, 15% ruptured in an interval of 8 hours. With regard to the fetus, 90% of the adolescents or more were within normal limits and in favorable conditions at this stage of the assessment.

Variables during labor

Regarding the risk during parturition, Table 2 shows that it was low for 55% of the study subjects, medium for 18%, and high for 27%.

Regarding the variables during labor, we found that those related to the descent of the fetal presentation, labor duration, and type of placental detachment had high risk. Of all adolescents assessed, 16% had difficult descent, 15% experienced more than 9 hours of labor, and 17% had manual release.

Table 2 - Distribution of adolescents according to variables during labor. Mexico City, Mexico, 2012

Variable	Low Risk			Medium Risk			High Risk		
	Criterion	N	%	Criterion	N	%	Criterion	N	%
Fetal Heart Rate (bpm)	120–150	78	93%	111–119	2	2%	≤110	2	2%
Uterine Contractions				151–159	2	2%	≥160	1	1%
Frequency (in 10 minutes)	3–4	81	96%	<3	2	2%	Absent	0	0%
				≥5	2	2%	Polysystole	0	0%
Duration (seconds)	40–60	83	97%	<40 sec	2	3%	Hypersystole	0	0%
Cervical Dilatation (cm)	1–2	61	71%	≥3	14	16%	No dilatation	0	0%
				Stationary	10	13%			
Presentation descent	Normal	61	71%	Very fast	10	13%	Difficult	14	16%
Blood pressure (mmHg)	Syst. 100–139	79	93%	140–160	5	6%	161 or more	1	1%
	Diast. 60–80	79	93%	91–109	6	7%			
State of membranes	Intact	54	64%	Ruptured ≤8 h	30	35%	Ruptured ≥9 h	1	1%
Birth Place	Expulsion	63	74%	Surgery room	20	24%	Other	2	2%
Duration of labor	6–8 h	17	20%	Less than 6 h	55	65%	More than 9 h	13	15%
Placental detachment type	Spontaneous	44	52%	Directed	27	31%	Manual	14	17%
Hemorrhage	Normal	83	96%	Moderate	1	2%	Excessive	1	2%
Obstetric risk	Low	47	55%	Medium	15	18%	High	23	27%

Postpartum variables

The postpartum risk was low for 50%, medium for 25%, and high for 25% (Table 3). Of 85 parturitions attended in the delivery room, 98% had cephalic presentation and only 2% had breech presentation. Considering the indicators of the variable birth, we observe that 74% were born by vaginal delivery and 26% by cesarean section, of which 23% were emergency and

2% were scheduled. Regarding obstetric trauma, it was absent in 97% and present in 3%. It is worth noting that the average risk postpartum, the variables weight of child, gestational age, and fetal distress were essential to this result. Concerning the weight at birth, 10% weighed from 1000 to 2499 g. According to the Capurro scale, used to calculate gestational age in weeks, 13% were between 33 and 42 weeks or more. Considering the signs of fetal distress, 8% were moderate or severe.

Table 3 - Distribution of adolescents according to postpartum variables. Mexico City, Mexico, 2012

Variable	Low Risk			Medium Risk			High Risk		
	Criterion	N	(%)	Criterion	N	(%)	Criterion	N	(%)
Fetal Presentation	Cephalic	84	98%	Breech	1	2%	Other	0	0%
Birth / Delivery	Vaginal	63	74%	Scheduled cesarean	2	3%	Urgent cesarean	20	23%
Obstetric trauma	No	83	97%	Moderate	2	3%	Severe	0	0%
Fetal weight (grams)	2500–3499	70	82%	2000–2499	9	10%	<2000	1	2%
				3500–3999	5	6%			
Gestational age by Capurro method (weeks)	37–41	74	87%	33–36	4	6%	<32	0	0%
				≥42	7	7%			
Apgar score	7–10	77	90%	No answer	8	10%	<7	0	0%
Resuscitation maneuvers	Normal	83	97%	Moderate / Oxygen	2	3%	Resuscitation	0	0%
Fetal distress	No	78	92%	Moderate	6	7%	Severe	1	1%
Obstetric Risk	Low	43	50%	Medium	21	25%	High	21	25%

Puerperium variables

Concerning the obstetric profile of the adolescents in puerperium, risk was low for 90%, medium for 8%, and high for 2% (Table 4).

For all variables assessed, risk was mostly low, but it was demonstrated that maternal lactation, vital signs, temperature,

and evaluation of edema must be factors of attention.

Adolescent mothers had maternal lactation in 87% of the cases; however, 13% fed their babies with formula milk. Results indicate that 2% had moderate hypertension and hyperthermia. Considering the adolescents, 92% had no edema, 7% had regional edema, and 1% had generalized edema.

Table 4 - Distribution of adolescents according to puerperium variables. Mexico City, Mexico, 2012

Variable	Low Risk			Medium Risk			High Risk		
	Criterion	N	(%)	Criterion	N	(%)	Criterion	N	(%)
Hemorrhage	Normal	83	98%	Moderate	1	1%	Excessive	1	1%
Blood pressure	Normal	81	96%	Moderate hypertension	2	2%	Excessive hypertension	1	1%
				Moderate hypotension	1	1%			
Heart rate	Normal	84	99%	Moderate tachycardia	1	1%	Severe tachycardia	0	0%
Temperature	Normal	82	97%	Hyperthermia	2	2%	Severe Hyperthermia	1	1%
Uterine involution	Normal	84	99%	Subinvolution	1	1%	Atony	0	0%
Edema	No	78	92%	Regional	6	7%	Generalized	1	1%
Infection	No	84	99%	Local	1	1%	Generalized	0	0%
Urinary and intestinal elimination	Yes	81	95%	Difficulty	1	1%	No	3	4%
Maternal lactation	Yes	74	87%	Formula	11	13%	Other	0	0%
Obstetric risk	Low	77	90%	Medium	7	8%	High	2	2%

Discussion

Risk factors indicate the probability that health damage occurs to a person. In this study, we obtained different risk factors for adolescents during the early stages of labor, delivery, and in the postpartum period, including the newborn.

Importantly, throughout the prenatal period, delivery, postpartum period and puerperium, prenatal control should be conducted. However, studies indicate that pregnant adolescents attend fewer prenatal consultations, often taking a long time to seek prenatal care, especially in first pregnancy⁽¹¹⁾. A study in Brazil, in which data from 2,557 births were analyzed, showed that adolescent mothers were, systematically, at a disadvantage compared to other mothers, both in relation to socioeconomic characteristics and to the care received during gestation and delivery⁽¹²⁾.

It was identified that the majority of adolescents in the different stages of the study – i.e., beginning of labor, delivery, postpartum period and puerperium – had parameters within normality, which may indicate the possibility that prenatal care was adequate. However, some risk factors were identified, such as: medium or high risk at birth (50%); 21% of these births were emergencies; in 48%, placental detachment was directed or manual; and gestational age was between 33 and 36 weeks for 6%.

In this study, about three-quarters of the adolescents were calm during labor. However, about one quarter was anxious or did not control their emotions. It is known that positive experiences during delivery contribute to reduced fear and confer greater security to women in any subsequent deliveries. In this sense, a study conducted in Norway showed the

association between obstetric complications and fear of delivery⁽¹³⁾.

Negative experiences of women during the state of pregnancy and during delivery are associated with the occurrence of postpartum depression and low welfare⁽¹⁴⁾. To avoid this, monitoring the adolescent properly during pregnancy is essential, since prenatal control, and patient history should be investigated with respect to fear of delivery, complications and experiences in previous deliveries. During delivery, there must be good communication between the adolescent and the health team, and the issue of pain control should be addressed.

The study revealed that, during labor, many adolescents feel vulnerable with the issue of hospitalization, have neither monitoring nor attention in a patient manner, receive no information and support they need; therefore, they do not feel respected as individuals with rights and do not act as protagonists in the birth of their children. These situations can affect participation and interaction of adolescents during delivery and postpartum period, in addition to contributing to make the process of labor difficult⁽¹⁵⁾.

Moreover, it should be taken into account that this same adolescent has more potential to collaborate and take care of herself, and that many difficulties are based on the representations of professionals who still see adolescence as a time of extreme inexperience, immaturity and alienation, having no ability to decide what would be best for them.

Thus, adolescent delivery care requires that health services and institutions, including educational institutions, reinterpret the role of health professionals in the care during labor and delivery, and the form of organization of obstetric practices in maternity wards, ensuring humanized care, guided by the rights of clients

and based on evidence. In this study, the nurse plays a fundamental role in changing delivery care practices, and an important coordinating role in the implementation of Childbirth Humanization Policy, prioritizing the promotion of healthy labor and delivery, respecting the physiological process, the dynamics of every birth, and encouraging the adolescent to assume a protagonist role during delivery⁽¹⁶⁾.

Regarding obstetric trauma, it was absent in 97% and present in 3%. Studies on traumatic delivery have shown that women with dissociative symptoms or negative emotions during delivery, who had previous traumatic events, depression during pregnancy, and little social support and health staff support, are more likely to experience postpartum Post-Traumatic Stress Disorder/PTSD⁽¹⁷⁾. In this sense, and considering that most adolescents in this study showed no obstetric trauma, 3% had traumas that may also represent injuries to the unborn child. Most injuries are mild and self-limited, only requiring observation, yet some are initially subclinical and can progress rapidly.

Obstetric risk at beginning of labor was low for most adolescents. However, risk was medium or high for 45%. Considering indicators of the variable Delivery, we found that 74% of children were born by vaginal delivery, while 26% were born by cesarean section, of which 21% were urgent. With regard to type of delivery among adolescents, the percentage of cesarean surgery found was lower compared to the percentage of vaginal delivery, which is in line with findings in other studies, as dystocia of labor also tends to occur more often among older pregnant women, being partly responsible for a greater number of C-sections^(11,12,18).

With respect to gestational age, results showed that 87% were between 37–41 weeks and only 6% were between 33–36 weeks, thus not confirming the hypothesis of other studies, that the probability of premature births would be higher among adolescents. The higher incidence of preterm birth among adolescents was observed in several national and international studies, given the lack of physical maturity of adolescent pregnancy, complications during gestation, inadequate care during the prenatal period and delivery, the number of prenatal consultations, the type of pregnancy, and delivery by cesarean section^(11,12,19,20).

Regarding newborns from adolescent mothers, another information widely mentioned, in addition to prematurity, is the low birth weight. However, results of this study differ from other researches, since the percentages indicating the birth weight showed that

82% had 2500–3499 grams, 10% had 2000–2499 grams, 6% had 3500–3999, and 2% had less than 2000 grams. This finding confirms the data from a study that aimed to examine aspects of gestation and delivery in adolescents and adult women, to compare the effects on the newborn, concluding that the probability of low birth weight was 24% when the mother was aged 10–14 years, and 10% when the mother was aged 15–19 years, compared to mothers aged 20–34 years. Therefore, adolescent mothers are more likely to have a low-weight newborn compared to older mothers⁽²¹⁾.

We also point out that maternal age alone is not associated with low birth weight and that adolescence can become a risk factor for low birth weight among single mothers, smokers, drug users, and those who have eating disorders^(21,22).

Regarding the values for blood pressure (BP) of the population under study, 93% had 100–139 for systolic BP, 93% had 60–80 for diastolic BP, while 6% had 140–160 for systolic BP and 7% had 91–109 for diastolic BP. These data make clear the importance of controlling blood pressure and maintaining adequate levels, because the evidence shows that preeclampsia occurs more frequently at the extremes of reproductive life and that there is a significant association among pregnant adolescents⁽²³⁾.

Considering the Apgar score as an important risk factor for morbidity and neonatal mortality, we observe that 8% received a rating of 7–10; however, the others provided no information concerning the Apgar score, which prevents further discussion concerning this aspect. Still, it is worth pointing out that low rates are not always associated with adolescents. A recent study showed that children who were born with Apgar score lower than 7 represented 3.1% of newborns, and 4.1% among adolescents, 2.6% among adult women, and 5.7% among older women, i.e., aged 35 or more⁽¹¹⁾.

Another study showed that hypoxia within five minutes of life was associated with the number of prenatal consultations, and no statistically significant association was found between maternal age, 10–14 and 15–19 years, and hypoxia within five minutes of life⁽²⁰⁾.

Furthermore, considering that in Mexico the drama of “girls-mothers” (aged under 18) who give birth to a child is an increasing trend according to data from UNFPA⁽¹⁾, its impact on health is transcendent, since 70,000 young persons die every year in developing countries, due to issues related to early motherhood⁽¹⁾. Especially among adolescents, early motherhood involves a high degree of risk, particularly for those

who come from the poorest classes, lacking a stable partner and with lower education level, factors that are associated with a higher risk of maternal complications and advance unfavorably toward maternal death^(4,7). In order to reduce the risks, and, therefore, the situations of vulnerability, we must expand the attributes of Primary Health Care – first contact access, comprehensiveness, longitudinality, coordination, family and community counseling, and cultural competence – with the aim of providing comprehensive care^(21,24).

Conclusion

We found that most adolescents in the different stages of the study had low risk and parameters within normal limits. Monitoring of the pregnant adolescents' reproductive process also showed the impact of the prenatal care quality, evaluated the limitations in their self-care due to lack of concern with themselves and with their children, since they do not assess the inherent risks nor the required care concerning the maternal sphere. The study offered the opportunity to identify strategies to approach risks resulting from the vulnerability inherent to this type of population, in which care is aimed to the couple equally, and to identify priorities in health. A limitation of this research was the coverage of records, mostly due to lack of communication between evaluator and patients at time of delivery, although the data were representative for the context under study. Despite these limitations, we can conclude that the study favors the recognition of risk factors at parturition, postpartum and in puerperium; it may enable midwives to reinterpret their participation in the timely detection of risk factors in adolescents and to conduct interventions not only in relation to the biological aspect, but also to the psychosocial aspects: reducing fear, stress, anxiety, changing hospital routines to favor participation of the family, and empowering the adolescents by monitoring, answering questions, and promoting the exercise of their rights. The results enable the outline of a general framework, which should be considered in future studies on the obstetric profile of pregnant adolescents, into which other analytical and disciplinary aspects could and should be incorporated.

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