

# Prevalence and Patterns of Intimate Partner Violence Among Adolescent Mothers During the Postpartum Period

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**Objective:** To examine prevalence, frequency, severity, and patterns of intimate partner violence (IPV) during the first 24 months' post partum within a multi-ethnic cohort of adolescents.

**Design:** A prospective study of adolescent girls followed up for 24 months into the postpartum period. Follow-up surveys were completed at 3, 6, 12, 18, and 24 months' post partum. Overall, 74% completed at least 4 of the 5 follow-up surveys.

**Setting:** Postpartum unit at a university teaching hospital in Galveston, Tex.

**Participants:** A total of 570 adolescents (18 years or younger; 219 Mexican Americans, 182 African Americans, and 169 European Americans) completed face-to-face interviews within 48 hours of delivery and returned at least 4 of 5 follow-up surveys.

**Main Outcome Measures:** Prevalence of IPV and frequent and severe IPV.

**Results:** Prevalence of IPV was highest at 3 months' post partum (21%) and lowest at 24 months (13%). The percentage of assaulted mothers who experienced severe IPV increased from 40% to 62% across this period. Seventy-five percent of mothers reporting IPV during pregnancy also reported IPV within 24 months following delivery. Of importance, 78% who experienced IPV during the first 3 postpartum months had not reported IPV before delivery. Ethnic differences in IPV were observed at 3, 6, and 18 months' post partum.

**Conclusions:** Adolescents are at high risk for experiencing IPV during the postpartum period. Frequent screening for IPV by health care practitioners is critical to maximize detection.

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**P**HYSICAL VIOLENCE during pregnancy is now recognized as a serious public health concern, with females aged 16 to 24 years at highest risk.<sup>1-5</sup> Despite the observation that many battered women endure a pattern of progressively escalating intimate partner violence (IPV) over time<sup>6</sup> and a recent study<sup>7</sup> reporting increased risk of homicide among postpartum females aged 15 to 19 years, few studies<sup>8-10</sup> have systematically examined abuse of young mothers in the months following delivery. In one small study<sup>8</sup> of females aged 14 to 40 years who were physically abused during pregnancy, the mean number of incidents of physical assaults per abused woman was significantly higher 3 months' post partum than during the 3 months before conception or at any trimester of pregnancy. In another study<sup>9</sup> of women of mixed ages, physical violence was more common at 6 months' post partum than during the prenatal period, with younger mothers at greatest risk. Gessner

and Perham-Hester<sup>10</sup> compared the risk of experiencing violence following delivery among women older than 20 years to the risk among women aged 18 to 19 years and to those younger than 18 years. At 3.9 months' post partum, the youngest mothers were 2 to 3 times more likely to report IPV. Yet, how far into the postpartum period high rates of IPV are maintained and what proportion of young mothers experience repeated episodes of assault have not been systematically examined.

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The purpose of this investigation was to extend our prior study on IPV during pregnancy<sup>11</sup> among a large, multiethnic cohort of young mothers who began childbearing as adolescents. The objective was to examine IPV during specific intervals (3, 6, 12, 18, and 24 months) across the postpartum period. Although studies<sup>12-14</sup> have shown that experiencing IPV during

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## SUBJECTS AND METHODS

### SAMPLE SELECTION

All girls 18 years or younger who were delivered of neonates at The University of Texas Medical Branch–Galveston (UTMB) between March 16, 1994, and February 28, 1996, and who met the following criteria were eligible to participate in this study: self-reported African American, Mexican American, or European American ethnicity; plan to retain custody of their newborns; ability to read and write at a fifth grade level; absence of major psychiatric disorders; and delivery of a healthy infant with a birth weight of more than 1500 g. A total of 847 mothers between ages 12 and 18 years were eligible to participate, with 77 (9%) refusing, yielding an overall response rate of 91%.

### PROCEDURES

Data were collected as part of a larger study of substance use among pregnant and parenting adolescents. The larger project was presented to potential subjects as a study of the transition into adolescent motherhood. Written consent to participate was obtained from each subject. In addition, written consent from a parent or legal guardian was obtained for women younger than 18 years who were currently living with their parents or guardians and were not legally married. All protocols were approved by institutional review boards of UTMB, Baylor College of Medicine, and/or The University of Texas Health Science Center School of Public Health.

As previously described,<sup>15</sup> each subject was interviewed within 48 hours of delivery. To evaluate IPV during the postpartum period, surveys were mailed to participants 3, 6, 12, 18, and 24 months following delivery. When surveys were not returned within 2 weeks, subjects were contacted by telephone to encourage completion. Compensation of \$10 was given to each subject who returned a completed survey. Each returned survey was reviewed for incomplete or inconsistent responses, and subjects were contacted for clarification, as needed. Overall, 570 (74%) completed at least 4 of 5 follow-up surveys.

Baseline demographic characteristics and rates of IPV for the 570 subjects who completed 4 or 5 of 5 possible surveys were compared with the original sample of 770 young mothers. No significant differences were observed in age, education level, parity, gravidity, abortions, ethnicity, language, religion, school enrollment, employment during last 3 months of pregnancy, maternal education, whether the head of the household worked more than 35 hours per week, or whether IPV was experienced during the 12 months preceding delivery.

### MEASUREMENT OF STUDY VARIABLES

A modified version of the Abuse Assessment Screen, designed by the Nursing Research Consortium on Violence and used in previous studies with pregnant women of all ages,<sup>4,16,17</sup> was used to identify physical assault committed by an intimate partner. The modification included an inadvertent insertion of the clause “to cause bruising or bleeding.” The IPV was confirmed if the subject answered yes to a series of 3 questions. The first question was, “Have you been hit, slapped, kicked, or physically hurt enough to cause bruising or bleeding?” If the answer was yes, the subject was then asked about her relationship with the perpetrator and the frequency (1, 2–5, 6–10,  $\geq 10$  times) of IPV episodes experienced. To maximize detection of assault, 2 additional questions were used to assess the adolescents’ exposure to IPV. These questions also were pilot tested on adolescents who had recently given birth and reviewed by experts for content validity. Each subject was asked to indicate the number of times (0, 1–2, 3–5, 6–9, 10–19, and  $\geq 20$ ) “your boyfriend or husband hit you during an argument” or “your boyfriend or husband hit you while he was drunk or high.” Spearman correlations among the 3 questions evaluating IPV at each point of contact ranged from 0.44 to 0.84 ( $P < .001$ ).

For the purposes of this study, IPV was defined as having answered yes to having been hit by a boyfriend or husband during an argument or while he was drunk or high or having been hit, slapped, kicked, or physically hurt enough by a current or ex-boyfriend or ex-husband to cause bruising or bleeding. At each of the 3- and 6-month

pregnancy may differ by ethnicity, to date no studies have examined differences among African American, Mexican American, and European American young mothers during the postpartum period. A first step in eliminating ethnic disparity in the occurrence of IPV among pregnant or parenting adolescents is to evaluate whether it exists, independent of socioeconomic level. Therefore, ethnic differences in the prevalence of IPV during the first 24 months following delivery also were examined. Patterns of IPV were evaluated, with particular attention to cumulative IPV across the postpartum period and the relationship between IPV experienced post partum and IPV reported before delivery.

### RESULTS

The sample was fairly evenly divided among ethnic groups, with 219 Mexican Americans (38%), 182 African Americans (32%), and 169 European Americans (30%). Approximately 52 (9%) spoke Spanish only and 200 (35%) reported being in a legal or common law marriage. Participants averaged 16.8 (SD, 1.2) years of age, with 83

(15%) having graduated from high school or obtained a graduate equivalency diploma. Approximately 84 (15%) had experienced childbirth previously and 81 (14%) were employed during the last 3 months of pregnancy.

Denominator terms for prevalence of IPV varied across follow-up surveys because of missing data, with no more than 10% of surveys missing for the entire sample or any one ethnic group at any point of follow-up. The number and percentage of young mothers reporting IPV on the 3 separate screening questions at each point of follow-up are provided in **Table 1**. On each survey the highest percentage of IPV was determined by the question, “Have you been hit by a boyfriend or husband during an argument?” Most subjects who experienced IPV were identified with only 2 questions, “Have you been hit, slapped, kicked, or physically hurt by a current or ex husband or boyfriend enough to cause bruising or bleeding?” and “Have you been hit by a boyfriend or husband during an argument?”

The reported prevalence of IPV was highest at 3 months’ post partum (21%,  $n=116$ ) and lowest at 24 months’ post partum (13%,  $n=68$ ), despite the fact that IPV

follow-up surveys, the period of recall was 3 months, whereas at the 12-, 18-, and 24-month surveys, IPV was evaluated for each of the preceding 6-month spans. As reported previously,<sup>11</sup> IPV during the baseline interview included the 12 months before delivery. Frequent IPV was defined as IPV that occurred 6 or more times in a given interval. This cutoff was chosen because it captured the upper 20% of the sample. Severe IPV was calculated as the proportion of subjects experiencing IPV who reported violence severe enough to cause bruising or bleeding per sampling interval.<sup>18</sup>

Additional questions at the baseline interview assessed demographic variables, such as age of the mother, ethnicity (self-report as European American, African American, Mexican American), marital status, gravity, parity, school enrollment, highest education level completed, and socioeconomic status measured by having enough money to live on, education level of adolescent's mother, and whether the head of the household worked more than 35 hours per week. At each point of data collection, adolescent mothers were also asked about their relationship with the father of their newborn and whether they were romantically involved with someone else. This was used to assess change in the intimate partner status across the 24-month postpartum period. Social support from family members, relatives, or others important to the young mother was also assessed at each point of contact. Adolescent mothers were asked to indicate, on a 5-point scale, the amount of emotional, financial, informational, transportation, and child care support received from "anywhere." The resulting variable, termed *social support* (Cronbach coefficient  $\alpha$  ranged from .89 to .91 across data collection periods), was calculated by summing each item and dividing by 5 (the total number of items). Higher mean scores indicated greater amounts of support received. Face and content validity for this variable were established by experts in the fields of nursing and social work.

## STATISTICAL ANALYSIS

Prevalence of IPV and frequent and severe IPV was calculated at each point of follow-up. Prevalence of IPV was

computed as the proportion of subjects who affirmed that IPV had occurred. We used  $\chi^2$  tests and 95% confidence intervals (CIs) to compare differences among ethnic groups in prevalence of IPV and frequent and severe IPV at each follow-up point. Logistic regression was used to calculate the relative odds of experiencing IPV adjusted for the covariates of social support,<sup>19</sup> age, education, and socioeconomic level.<sup>2</sup> These covariates were related to violence and ethnicity empirically or through prior studies.

Next, the association between IPV experienced during pregnancy and IPV experienced during the postpartum period was explored. The total number of follow-up surveys on which IPV was reported was compared between those who had experienced IPV during the 12 months before delivery and those who had not. To provide a basis for comparison to prior studies on IPV in the early postpartum period and to provide important information on the prevalence of assault over time, the associations between IPV experienced during the 12 months before delivery and IPV reported at 3 or 6 months' post partum were explored. These analyses allowed us to determine whether young mothers who had experienced IPV during the first 6 months post partum were more likely to experience IPV during pregnancy. Logistic regression was used to determine risk of IPV in the postpartum period, and ethnic differences were examined using  $\chi^2$  tests.

Cumulative IPV was calculated by taking the percentage of young mothers who experienced IPV at 3 months' post partum and adding to it the proportion of subjects who experienced IPV for the first time at each subsequent follow-up. For purposes of these analyses, subjects with one missing survey were assumed not to have experienced IPV at this data collection point. The net effect of this strategy for handling missing data most likely resulted in a slight underestimation of the prevalence of IPV across the postpartum period. All analyses were performed using the Statistical Package for Social Sciences (version 10.0 for Windows; SPSS Inc, Chicago, Ill).

at 3 months represented the 3 months following delivery, whereas IPV at 24 months covered the preceding 6 months (**Table 2**). Among Mexican Americans and African Americans, the highest rates of IPV were reported at 3 months' post partum (23%,  $n=48$ , and 24%,  $n=42$ , respectively). In contrast, the highest rate for European Americans was observed at 18 months' post partum, with 34 (22%) reporting IPV. Comparisons among ethnic groups using  $\chi^2$  analysis and 95% CIs found no significant differences in reported prevalence of IPV among the 3 ethnic groups at any point during the 24-month postpartum period. Logistic regression was then used to control for covariates at each point of follow-up. At 3 months after delivery, African Americans were 1.8 (95% CI, 1.03-3.17;  $P=.04$ ) times as likely to report IPV compared with European Americans. Likewise, at 6 months' post partum, Mexican Americans were 1.9 (95% CI, 1.05-3.58;  $P=.04$ ) times as likely to have experienced IPV compared with European Americans. At 18 months, European Americans were 2.0 (95% CI, 1.11-3.79;  $P=.02$ ) times as likely to report IPV compared with African Americans. These findings indi-

cate that young minority mothers are at an increased risk, relative to European Americans, for reporting IPV during the first 6 months after delivery but that European Americans are at risk at 18 months following delivery. At 12 and 24 months' post partum, there were no statistically significant differences found among the ethnic groups when controlling for age, education, socioeconomic level, or social support.

The overall prevalence of frequent IPV was fairly constant across the postpartum period, with between 16% and 22% of those experiencing IPV reporting frequent assault at each survey point (**Table 3**). The percentage of those assaulted who experienced severe IPV increased during the postpartum period from 40% at 3 months to 62% at 24 months (Table 3). Of importance, the overall prevalence of IPV decreased during the postpartum period (Table 2), whereas the percentage of those assaulted experiencing severe abuse increased across this same time (Table 3). Significant differences of reported severe IPV were seen between 3 and 18 months after delivery. Because of the small number of women reporting assault within each ethnic

**Table 1. Young Mothers Reporting Intimate Partner Violence on 3 Separate Screening Questions at Each Point of Follow-up\***

Response	No. (%)				
	3 mo (n = 545)	6 mo (n = 541)	12 mo (n = 536)	18 mo (n = 531)	24 mo (n = 530)
Yes to each question listed					
Question 1	47 (8.6)	36 (6.7)	56 (10.4)	58 (10.9)	42 (7.9)
Question 2	102 (18.7)	81 (15.0)	82 (15.3)	79 (14.9)	65 (12.3)
Question 3	32 (5.9)	31 (5.7)	32 (6.0)	39 (7.3)	25 (4.7)
Yes to any question listed					
Question 1 or 2	112 (20.6)	85 (15.7)	95 (17.7)	92 (17.3)	66 (12.5)
Question 1 or 2 or 3	116 (21.3)	87 (16.1)	95 (17.7)	94 (17.7)	68 (12.8)

\*Question 1: "Have you been hit, slapped, kicked, or physically hurt by a current or ex husband or boyfriend enough to cause bruising or bleeding?" Question 2: "Have you been hit by a boyfriend or husband during an argument?" Question 3: "Have you been hit by a boyfriend or husband while he was drunk or high?"

**Table 2. Prevalence of Intimate Partner Violence Experienced by Adolescent Mothers During the First 24 Months Post Partum by Ethnicity and Month of Follow-up\***

Month of Follow-up†	Percentage (95% Confidence Interval)			
	Total (N = 570)	Mexican American (n = 219)	African American (n = 182)	European American (n = 169)
3 (n = 545)	21.3 (17.7-24.9)	22.9 (17.0-28.8)	24.0 (17.4-30.6)	16.3 (10.3-22.3)
6 (n = 541)	16.1 (12.9-19.3)	19.3 (13.7-24.9)	16.7 (10.9-22.5)	11.3 (6.2-16.4)
12 (n = 536)	17.7 (14.5-20.9)	15.1 (9.9-20.3)	19.4 (13.2-25.6)	19.1 (12.7-25.5)
18 (n = 531)	17.7 (14.3-21.1)	14.9 (9.8-20.0)	17.1 (11.3-22.9)	22.1 (15.3-28.9)
24 (n = 530)	12.8 (9.8-15.8)	11.8 (7.0-16.6)	11.2 (6.2-16.2)	15.9 (9.9-21.9)

\*Denominator terms varied across follow-up surveys because of missing data, with no more than 10% of the surveys missing for the overall sample or any ethnic group at any point of follow-up.

†Sample sizes (n) are adolescent mothers experiencing IPV at each follow-up survey.

**Table 3. Reported Prevalence of Frequent and Severe Intimate Partner Violence (IPV) Among Adolescent Mothers Who Experienced IPV at Each Follow-up Period**

Month of Follow-up*	Percentage (95% Confidence Interval)	
	Frequent IPV	Severe IPV
3 (n = 116)	21.5 (13.7-29.3)	40.5 (31.2-49.8)
6 (n = 87)	16.0 (7.8-24.2)	41.4 (30.5-52.3)
12 (n = 95)	20.0 (11.5-28.5)	58.9 (48.5-69.3)
18 (n = 94)	21.3 (12.6-30.0)	61.7 (51.4-72.0)
24 (n = 68)	17.7 (8.0-27.4)	61.8 (49.6-74.0)

\*Sample sizes (n) are adolescent mothers experiencing IPV at each follow-up survey.

group, ethnic differences in the prevalence of frequent or severe IPV could not be examined statistically.

A subsequent series of analyses was conducted to estimate cumulative IPV experienced by the sample of young mothers. Analysis of IPV in this manner revealed a steady increase in the cumulative experience of IPV during the postpartum period. Specifically, 3% to 7% of the sample reported IPV for the first time at each of the follow-up surveys conducted at 6, 12, 18, and 24 months after delivery. Thus, 26% of the sample had experienced IPV by 6 months, 33% by 12 months, 38% by 18 months, and 41% by 24 months following delivery. Similar patterns were observed for each ethnic group.

Analyses were conducted to determine whether young mothers who had experienced IPV during pregnancy were more likely to experience IPV during the first 6 months post partum. Two of 5 (26/60 [43%]) of those reporting

IPV during pregnancy also reported IPV took place during the first 3 months following delivery, whereas only 90 (19%) of the 485 not experiencing IPV during pregnancy reported IPV during this time (odds ratio, 3.4; 95% CI, 1.92-5.87;  $P < .001$ ). One in 2 (32/61 [52%]) young mothers who reported IPV during pregnancy also reported IPV at the 6-month survey. In comparison, 117 (23%) of 507 (odds ratio, 3.8; 95% CI, 2.12-6.87;  $P < .001$ ) young mothers not reporting IPV during pregnancy experienced IPV at 6 months. Comparable findings were observed across ethnic groups. Of interest, 3 of every 4 (46/61 [75%]) young mothers who had experienced IPV during pregnancy reported IPV on at least 1 follow-up survey, with 1 of every 4 (16/61 [26%]) reporting IPV on 3 or more surveys. In contrast, 190 (37%) of the 509 ( $P < .001$ ) young mothers not experiencing IPV during pregnancy reported IPV on 1 or more surveys, with less than 10% (45/509;  $P < .001$ ) reporting IPV on 3 or more surveys.

To determine whether young mothers who had experienced IPV during the first 3 months post partum were more likely to have experienced IPV during pregnancy, IPV at the baseline interview was compared between those who had reported IPV at 3 months and those who had not. Twenty-six (22%) of the 116 who reported IPV at 3 months' post partum also had experienced IPV in the 12 months before delivery. Of importance, 3 of every 4 young mothers (90/116 [78%]) who reported IPV at the 3-month survey had not experienced IPV during the 12 months before delivery.

To better understand the increased rates of severe IPV reported across the postpartum period, rates of severe abuse at 12 and 24 months were evaluated relative



to the number of surveys (1 vs 2 or 3 at 12 months and 1 vs 2, 3, 4, or 5 at 24 months) on which IPV had been reported. Those who experienced IPV on more than one survey were significantly more likely to report severe abuse at 12 and 24 months' post partum than those who reported IPV on only one follow-up survey (41% vs 24%,  $P < .009$  at 12 months; 26% vs 12%,  $P < .008$  at 24 months).

We did not query subjects as to the perpetrator of each act of IPV reported and were therefore unable to determine whether the perpetrator was the father of their newborn delivered at baseline or a new intimate partner. However, information on the romantic involvement with the father of their newborn and other persons was available from each follow-up survey. At 3 months' post partum, 73 (63%) of 116 young mothers experiencing IPV were romantically involved with the father of their newborn compared with 19 (16%) of 116 who were seeing someone other than the father. At 6 months, 59 (68%) of 87 assaulted women were romantically involved with the father of their newborn vs 12 (14%) of 87 who reported romantic involvement with another partner. At 12, 18, and 24 months, these numbers shifted to 60 (63%) of 95 vs 25 (26%) of 95, 42 (45%) of 94 vs 34 (36%) of 94, and 35 (51%) of 68 vs 29 (43%) of 68, respectively. Thus, these data suggest that perpetrators of IPV toward young mothers may shift from being the father of the newborn during the early postpartum period to a different intimate partner over time.

#### COMMENT

To our knowledge, this is the first prospective study to examine IPV within a cohort of adolescent girls followed up for 24 months into the postpartum period and the only published study to examine ethnic differences in the prevalence of IPV and patterns of frequent and severe IPV following delivery. Overall, 41% of our young mothers reported IPV at some point within these first 24 months of delivery, with the highest prevalence (21%) observed during the first 3 months' post partum. This 3-month prevalence was higher than the 6% to 10% prevalence among women 19 years and younger previously reported by Gessner and Perham-Hester<sup>10</sup> at an average of 3.9 months after delivery, despite the fact that their definition of perpetrator included anyone close to the subject who had inflicted physical harm. Only 66% of adolescents to whom surveys were sent in the Gessner and Perham-Hester<sup>10</sup> study returned surveys in contrast to the 74% who completed 4 of 5 follow-up surveys in our study. It is possible that sample attrition in the Gessner and Perham-Hester study favored those who experienced violence.

Similarly, at 6 months' post partum, 16% of the young women in our sample reported IPV, a smaller percentage than the 25% reported previously by Gielen et al.<sup>9</sup> This discrepancy may be explained by differences in study methods. For instance, Gielen and colleagues surveyed violence taking place within the first 6 months after delivery; in our study, violence surveyed at 6 months' post partum included assault during the prior 3 months only. Also, Gielen et al.<sup>9</sup> defined violent incidents as acts perpetrated by both intimate and nonintimate persons.

Previous studies<sup>12,13</sup> of adolescents and adult women indicated that European Americans are at greatest risk of

severe and frequent abuse during pregnancy, whereas another study<sup>14</sup> found African Americans are most at risk. We found statistically significant ethnic differences in the prevalence of IPV at 3, 6, and 18 months after delivery, with African Americans and Mexican Americans at elevated risk in the early postpartum period and European Americans at greatest risk by 18 months. In addition, there were small differences observed in the prevalence of IPV across the 24-month period. Both African Americans and Mexican Americans experienced the highest prevalence at 3 months' post partum, with the relative percentage of young mothers in both groups experiencing a decline in violence during the remaining 21 months. In contrast, European Americans reported the highest prevalence of IPV at 18 months following delivery. This study presents compelling evidence that all young women need to be screened for IPV across the postpartum period.

Although the prevalence of IPV generally declined during the 24-month postpartum period (21% at 3 months vs 13% at 24 months), the prevalence of severe IPV increased across this same period. About 41% of the young women reporting IPV at the 3-month survey experienced assault severe enough to cause bruising or bleeding. In contrast, nearly 60% of those reporting IPV at 12, 18, or 24 months reported experiencing severe violence. Severe IPV at 12 and 24 months was more common among young mothers who reported IPV on more than one follow-up survey. Thus, the increased prevalence of severe IPV in the later months observed in our study may be caused by an escalation in the severity of IPV among those young mothers who reported IPV on earlier surveys. Since we do not have detailed data on the perpetrator in each episode of violence and the nature of his relationship to the young mother at the time of each assault, it is not possible to evaluate whether IPV becomes more severe over time. Further research that systematically examines perpetrators in repeated episodes of IPV across the postpartum period is needed.

Young women in our study who experienced IPV during the 12 months before delivery were at increased risk of reporting IPV during the first 6 months following delivery. This trend is consistent with Gielen et al.,<sup>9</sup> who observed that 41% of women who experienced IPV during pregnancy reported IPV during the first 6 months post partum. Of importance, 3 of 4 subjects who experienced IPV by the 3-month follow-up had not reported IPV during the 12 months before delivery. Moreover, we observed a 3% to 7% increase in new cases of IPV at each follow-up beyond the 3-month survey. Thus, many adolescent mothers experience IPV for the first time in the months following delivery. These results suggest that screening for IPV should occur during each contact with medical professionals and should not be confined to any one particular point or to only those who report prior assault. This stance is concordant with the American College of Obstetricians and Gynecologists, which recommends screening for IPV at each gynecologic visit.<sup>20</sup>

We were unable to determine the perpetrator of each act of IPV. Although the father of the newborn was the most likely perpetrator in most assault episodes reported during the first 12 months following delivery, observed shifts toward romantic relationships with other males by 18 months' post partum suggest IPV may be perpetrated by

males other than or in addition to the infants' fathers. In one prior study of adult women, Hillard<sup>2</sup> reported that 14% of subjects had been in more than one relationship where physical violence was frequent. It is reasonable to assume that at least some young mothers in our study experienced violence at the hands of more than one intimate partner.

This study has several limitations. First, only 3 questions were used to evaluate IPV. Although this is accepted practice in many studies of IPV among pregnant women,<sup>13</sup> at least one prior study<sup>21</sup> on adolescents has demonstrated that comprehensive assessments with specific and direct questions yield higher rates of violence. Thus, additional questions on the occurrence of IPV under circumstances other than during an argument or while a partner was drunk or high may have revealed an even higher prevalence than observed herein. Moreover, we used a modified version of the Abuse Assessment Screen and therefore our results are not easily compared with prior studies that used this measure to assess IPV. Second, only one question was used to evaluate severe IPV; additional questions assessing severity might have led to a higher observed prevalence. Third, subjects in this study were primarily of low socioeconomic level and confined to those living in the Southeastern region of Texas; the prevalence of IPV may differ among young mothers from higher socioeconomic levels or those living in different regions of the United States. Fourth, information on whether perpetrators changed over time and the role subjects played in episodes of IPV was not available. Previous research among adolescents showed that victimization and perpetration are often concurrent<sup>22</sup>; thus, knowledge of the young mother's role in IPV and information about whether IPV was experienced from multiple perpetrators may have helped explain some of our findings. Finally, we did not have sufficient power to adequately examine ethnic differences in the prevalence of frequent or severe IPV.

Healthy People 2010<sup>23</sup> has set as one of its primary goals to eliminate health disparities by ethnicity and to reduce the rate of physical assault by current or former intimate partners (objective 15-34). This study demonstrates that IPV is not restricted to any specific ethnicity or to any particular period within the first 24 months following delivery. Therefore, systematic screening for IPV in multiple practice settings, such as obstetrics and gynecology, family and emergency medicine, and pediatrics, should be conducted at each point of contact with young mothers.<sup>20,24</sup> As health care practitioners become more familiar with the risk of IPV during the postpartum period, it is likely that screening for abuse will become an important aspect of each visit to a physician's office. Future research needs to identify strategies to implement and sustain routine screening at different segments of the postpartum period and to examine the long-term impact of screening on the health and quality of life of young mothers and their children.

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### What This Study Adds

Intimate partner violence is a significant public health concern, especially among young mothers. Although many studies have examined IPV during pregnancy, few have looked at the prevalence of experiencing IPV during the postpartum period. This study demonstrated that IPV is not restricted to any specific ethnicity or to any particular period within the first 24 months following delivery. Therefore, systemic screening in multiple practice settings should be conducted at each point of contact with young mothers.

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### REFERENCES

1. Parker B, McFarlane J, Soeken K. Abuse during pregnancy: effects on maternal complications and birth weight in adult and teenage women. *Obstet Gynecol*. 1994; 84:323-328.
2. Hillard PJA. Physical abuse in pregnancy. *Obstet Gynecol*. 1985;66:185-190.
3. Bullock L, McFarlane J. A program to prevent battering of pregnant students. *Response*. 1988;11:18-19.
4. Parker B, McFarlane J, Soeken K, Torress S, Cambell D. Physical and emotional abuse in pregnancy: a comparison of adult and teenage women. *Nurs Res*. 1993; 42:173-178.
5. Bachman R, Saltzman LE. *Violence Against Women: Estimates From the Redesigned Survey*. Washington, DC: US Dept of Justice; August 1995. NCJ-154348.
6. Cambell J. Women's response to sexual abuse in intimate relationship. *Womens Health Care Int*. 1989;10:335-346.
7. Dietz P, Rochat R, Thompson B, Berg C, Griffin G. Differences in the risk of homicide and other fatal injuries between postpartum women and other women of child-bearing age: implications for prevention. *Am J Public Health*. 1998;88:641-643.
8. Stewart DE. Incidence of postpartum abuse in women with a history of abuse during pregnancy. *Can Med Assoc J*. 1994;151:1601-1604.
9. Gielen A, O'Campo P, Faden R, Nancy K, Xue X. Interpersonal conflict and physical violence during the childbearing year. *Soc Sci Med*. 1994;39:781-787.
10. Gessner B, Perham-Hester K. Experience of violence among teenage mothers in Alaska. *J Adolesc Health*. 1998;22:383-388.
11. Wiemann C, Agurcia C, Berenson A, Volk R, Rickert V. Pregnant adolescents: experiences and behaviors associated with physical assault by an intimate partner. *Matern Child Health J*. 2000;4:93-101.
12. Berenson A, San Miguel V, Wilkinson G. Prevalence of physical and sexual assault in pregnant adolescents. *J Adolesc Health*. 1992;13:466-469.
13. McFarlane J, Parker B, Soeken K, Bullock L. Assessing for abuse during pregnancy. *JAMA*. 1992;267:3176-3178.
14. Taggart L, Mattson S. Delay in prenatal care as a result of battering in pregnancy: cross-cultural implications. *Health Care Women Int*. 1996;17:25-34.
15. Wiemann C, DuBois J, Berenson A. Racial/ethnic differences in the decision to breastfeed among adolescent mothers. *Pediatrics*. 1998;6:e11. Available at: <http://www.pediatrics.org/cgi/content/abstract/101/6/e11>. Accessed January 30, 2002.
16. Helton A, McFarlane J, Anderson E. Battered and pregnant: a prevalence study. *Am J Public Health*. 1987;77:1337-1339.
17. Parker B, McFarlane J. Nursing assessment of the battered pregnant woman. *MN Am J Matern Child Nurs*. 1991;16:161-164.
18. Pan H, Neidig P, O'Leary K. Predicting mild and severe husband-to-wife physical aggression. *J Consult Clin Psychol*. 1994;62:975-981.
19. Bullock L, McFarlane J. The birth-weight/battering connection. *Am J Nurs*. 1989; 89:1153-1155.
20. American College of Obstetricians and Gynecologists. *Domestic Violence*. Washington, DC: American College of Obstetricians and Gynecologists; 1999. Technical Bulletin 257.
21. Covington DL, Dalton VK, Diehl SJ, Wright BD, Piner MH. Improving detection of violence among pregnant adolescents. *J Adolesc Health*. 1997;21:18-24.
22. Malik S, Sorenson SB, Aneshensel CS. Community and dating violence among adolescents: perpetration and victimization. *J Adolesc Health*. 1997;21:291-302.
23. US Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. Washington, DC: US Dept of Health and Human Services; 2000.
24. Dearwater S, Coben J, Campbell J, et al. Prevalence of intimate partner abuse in women treated at community hospital emergency departments. *JAMA*. 1998; 280:433-438.