Mothers' Reports of Postpartum Pain Associated with Vaginal and Cesarean Deliveries: Results of a National Survey

Eugene Declercq, PhD, Deborah K. Cunningham, MN, MPH, Cynthia Johnson, MD, and Carol Sakala, PhD, MSPH

ABSTRACT: Background: *As cesarean rates increase worldwide, a debate has arisen over the relationship of method of delivery to maternal postpartum physical health. This study examines mothers' reports of their postpartum experiences with pain stratified by method of delivery.* **Methods:** Listening to Mothers II *was a survey of a total of 1,573 (200 telephone and 1,373 online) mothers aged 18 to 45 years, who had a singleton, hospital birth in 2005. They were interviewed by the survey research firm, Harris Interactive, in early 2006. Online respondents were drawn from an existing Harris panel. Telephone respondents were identified through a national telephone listing of new mothers. Results were weighted to reflect a United States national birthing population. Mothers were asked if they experienced any of eight postpartum conditions and the extent and the duration of the problem. Responses were compared by method of delivery.* **Results:** *The most frequently cited postpartum difficulty was among mothers with a cesarean section, 79 percent of whom reported experiencing pain at the incision in the first 2 months after birth, with 33 percent describing it as a major problem and 18 percent reporting persistence of the pain into the sixth month postpartum. Mothers with planned cesareans without labor were as likely as those with cesareans with labor to report problems with postpartum pain. Almost half (48%) of mothers with vaginal births (68% among those with instrumental delivery, 63% with episiotomy, 43% spontaneous vaginal birth with no episiotomy) reported experiencing a painful perineum, with 2 percent reporting the pain persisting for at least 6 months.* **Conclusions:** *Substantial proportions of mothers reported problems with postpartum pain. Women experiencing a cesarean section or an assisted vaginal delivery were most likely to report that the pain persisted for an extended period. (BIRTH 35:1 March 2008)*

Key words: *postpartum pain, cesarean, episiotomy, maternal survey, instrumental delivery*

As the cesarean section rate continues to climb worldwide (1,2), greater attention is being paid to the causes and consequences associated with different methods of delivery. Some professionals have suggested that the rising cesarean section rate is partly a function of maternal request (3). Maternal request, in turn, is linked to the desire of some mothers to avoid the pain of vaginal birth (4), despite existing evidence

Eugene Declercq is a Professor and Deborah K. Cunningham is a Doctoral Candidate in the Department of Maternal and Child Health, Boston University School of Public Health, Boston; Cynthia Johnson is a Masters Student in the Department of Maternal and Child Health, Boston University School of Public Health, Boston and an Assistant Professor in Harvard Medical School, Cambridge, Massachusetts; and Carol Sakala is a Director of Programs for Childbirth Connection, New York, New York, USA.

This research was supported by funding from the Robert Wood Johnson Foundation, Princeton, New Jersey, and Childbirth Connection, New York, New York, USA.

Address correspondence to Eugene Declercq, PhD, Department of Maternal and Child Health, Boston University School of Public Health, 715 Albany Street, Boston, MA 02118-2526, USA.

Accepted July 16, 2007

of postpartum pain associated with cesarean delivery (5). Past research in this area has generally been limited by small sample sizes and widely varying contexts associated with clinical studies of different populations (6). This paper examines the results of a United States national survey of recent mothers (7) that included a series of items about mothers' postpartum experiences with physical pain and examines specifically how these items relate to method of delivery.

Methods

This analysis is based on data from *Listening to Mothers II*, a 2006 national survey of 1,573 English-speaking U.S. mothers aged 18 to 45 years, who gave birth in 2005 in a hospital to a singleton infant still living at the time of the survey. The survey was administered by a research company, Harris Interactive, from January 20 to February 21, 2006. The survey covered mothers' prenatal, intrapartum, and postpartum experiences, with the latter being the focus of this study.

Study Participants

The study sample comprised 1,373 online respondents drawn from a multimillion member Internet panel maintained by Harris Interactive and 200 black non-Hispanic and Hispanic mothers from a telephone survey. Members of the Harris Interactive panel were sent an e-mail invitation that asked women who had given birth in 2005 to respond to a survey described as follows: "This survey, about women's experiences with pregnancy and childbirth, is a follow-up to a similar national study of mothers conducted in 2002. The purpose of the study is to help us gain a better understanding of this critical time in a woman's life through the voices of women themselves."

To ensure a more representative overall sample, respondents to the telephone sample were limited to nonwhite mothers. They were identified through the use of a proprietary list (8) that contained telephone numbers and ZIP codes of mothers who had given birth in 2005. Phone calls were made to ZIP codes with large minority populations, and then, respondents were screened at the outset of the call to limit the telephone survey to nonwhite respondents. Up to six calls were made over a 4-week period to complete an interview with each potential respondent.

The average respondent had given birth 7.3 months before completing the survey (online 7.4 mo and telephone 6.4 mo). Mothers who had given birth in the early part of 2005 were slightly more likely to respond (58% having given birth between January and June vs 42% between July and December). No significant differences in method of delivery by time since birth were observed when a comparison of cesarean section rate by 3-month periods was performed (low of 30.9% to a high of 32.3%; $p = 0.986$).

The complete survey results were weighted by Harris Interactive, using a proprietary weighting system based on both U.S. census data and the profile of U.S. birthing mothers to minimize the biases associated with using the Internet panel for part of the sample. (Terhanian G, Bremer J, Smith R, Thomas R, "Correcting data from online surveys for the effects of nonrandom selection and nonrandom assignment," Harris Interactive White Paper; available from authors on request.) The survey was limited to mothers aged 18 years and older who spoke English and gave birth in a hospital to a singleton infant, who was still living at the time of the survey. The survey was sponsored by Childbirth Connection (formerly Maternity Center Association), a national not-for-profit organization working for the improvement of maternity care since its establishment in 1918.

The demographic profile of respondents is generally comparable with national data in terms of birth attendant; mother's race or ethnicity, age, and education; and method of delivery (Table 1). The sample had slightly larger proportions of multiparous mothers, mothers older than 40 years, and mothers with "some college," when compared with U.S. national data. Since the analysis is stratified by parity, the effects of the larger number of multiparas on the results are minimized. In terms of method of delivery, survey respondents had a slightly higher cesarean section rate, partly the result of survey data coming from 2005, whereas comparable national data for singleton, hospital births are only available for 2004, when the cesarean section rate was lower. A U.S. overall cesarean section rate of 30.2 percent was announced for 2005 (9). In addition, the larger number of multiparous mothers resulted in a larger proportion of repeat cesarean deliveries than in the national data report.

Data Collection

The survey was 30 minutes long, and mothers responded to both closed- and open-ended questions. The entire questionnaire and a report describing the methodology in more detail are available at http://www.childbirthconnection.org/listeningtomothers/. The survey complied with the codes and standards of the Council of American Survey Research

Organizations and the code of the National Council of Public Polls. The principal investigator's involvement was reviewed by the Institutional Review Board of the Boston University School of Medicine and he was granted exempt status since the data were collected and housed securely by Harris Interactive and the authors had access to only a de-identified file provided by the company.

The questions on mother's postpartum experiences were adapted from a questionnaire used by MacArthur et al (10) to assess postpartum experiences of mothers in England, and a similar set of items has been used in other settings as well (11). Mothers were presented with a list of 11 items and asked "How much of a new problem, that is different from something you may have experienced during or before pregnancy, were the following in the first two months after birth?", with response choices of "not a problem," "a minor problem," or "a major problem." Eight of the items are presented in this study, with three that related to breastfeeding not included. A subsequent question asked mothers if they were still experiencing the problem at the time of the survey. We also asked mothers two questions adapted from the Medical Outcomes Study 36-item short form (12) concerning whether or not pain interfered with their routine activities in the first 2 months after birth and during the 2 weeks before the survey.

Data Analysis

Since an earlier analysis had discovered large differences in mothers' responses when stratified by parity, we report results for first-time mothers and multiparous mothers separately. Chi-square tests of significance were used for cross-tabulations, and in cases of expected cell sizes of less than 5, the Fisher's exact test was used. To be conservative, we used $p < 0.01$ as our cutoff for reporting significance when we present

Table 1. *Listening to Mothers II* Data (n = 1,573) Compared with United States National Birth Records*

Maternal Characteristic	Listening to Mothers II *(2005)* (n = *1,573)*	*Singleton Hospital Births to Mothers Aged 18–45 Years (2004)* (n = *3,780,803)*
Birth attendant		
Doctor	92	92
Midwife	8	8
Race/ethnicity		
White, non-Hispanic	63	57
Black, non-Hispanic	12	14
Hispanic	21	23
Asian and other	4	6
Age (yr)		
18–24	28	34
25–29	27	28
30–34	25	24
35–39	14	12
40+	6	3
Number of births		
1	33	39
2	38	33
3+	29	28
Education*		
High school or less	44	51
Some college	28	22
College and postgraduate	28	27
Method of birth		
Vaginal	68	73
Vaginal, vacuum extraction, or forceps	6	7
Vaginal birth after cesarean	2	1
Cesarean	32	27
Primary cesarean	16	16
Repeat cesarean	16	11

Note: In the final report for 2005 on the U.S. national birth data, the cesarean delivery rate was 30.2%.
**All figures are from annual reporting of birth certificate data in 2004, except for education data and overall "*n*" which are from 2003.*

an intergroup comparison. Data were analyzed using SPSS for Windows, version 13.0 (13).

Results

Reported Pain in the First 2 Months

Table 2 presents the responses to the question of eight new postpartum problems in the first 2 months after delivery, stratified by parity and whether or not the mother experienced a spontaneous vaginal, assisted vaginal, or cesarean birth. Overall, 79 percent of mothers who had a cesarean section reported experiencing pain from their surgery in the first 2 months after birth, with 33 percent describing the problem as major. This was the most frequently identified problem across all items, with 86 percent of first-time mothers reporting it as a problem and 45 percent indicating it as a major problem. Many multiparous mothers also reported experiencing pain at their cesarean scar, particularly those who had given birth vaginally in the past and experienced a primary cesarean section (overall 97%, with 44% describing it as major). Overall, approximately 1 (19%) in 5 mothers with a cesarean delivery indicated a problem with infection at the site of their scar; multiparas were more likely to report such a problem. Perineal pain was commonly cited by all mothers with an assisted vaginal delivery (77% among primiparas and 52% among multiparas) and by primiparas with a spontaneous vaginal delivery (overall 73%, with 28% describing it as major) delivery. Physical exhaustion was also widely cited by mothers regardless of parity or method of delivery, including 79 percent of first-time mothers with an assisted vaginal birth who reported the problem.

Among primiparas, painful intercourse was most likely to be indicated by mothers with an assisted vaginal delivery (56%). Among multiparas, painful intercourse was less likely to be reported. Likewise, urinary problems in the first 2 months postpartum were most likely among primiparas with an assisted vaginal delivery (47%) compared with those with a spontaneous vaginal (28%) or cesarean (15%) delivery. Differences in reported urinary problems among multiparas were primarily seen in the case of a lower rate (14%) among mothers with a repeat cesarean. Bowel problems

Table 2. Mothers' Report of New Postpartum Conditions in First 2 Months after Birth by Method of Delivery and Parity

*How Much of a New Problem Were the Following in the First 2 Months after Birth?**	*Parity = 1*			*Parity = 2+*			
	Spontaneous Vaginal (n = 269)† %	*Assisted Vaginal (n = 53)* %	*Cesarean (n = 171)†* %	*Spontaneous Vaginal (n = 648)†* %	*Assisted Vaginal (n = 48)* %	*Primary Cesarean (n = 73)†* %	*Repeat Cesarean (n = 239)†* %
Painful perineum	72.5‡	77.4	12.3	36.9‡	52.2	12.3	11.7
Major	27.5	47.2	4.1	7.6	17.4	2.7	2.5
Infection from cut or torn perineum	4.9	6.3	—	4.9	4.3	—	222
Major	2.3	4.2	—	0.8	0.0	—	—
Pain at site of cesarean incision	—	—	85.5	—	—	97.3‡	68.4
Major	—	—	44.5	—	—	43.8	21.9
Infection at site of cesarean incision	—	—	14.5	—	—	26.0	19.8
Major	—	—	8.1	—	—	9.6	8.1
Urinary problems	28.0‡	47.1	15.2	28.2‡	17.4	29.7	14.1
Major	10.0	21.6	6.7	5.3	2.2	16.2	5.0
Bowel problems	31.3‡	63.5	40.2	24.8	29.7	29.7	25.7
Major	10.8	30.8	12.1	5.8	13.5	13.5	7.5
Painful intercourse	47.7‡	55.8	31.1	26.5‡	36.2	29.7	28.6
Major	20.3	34.6	10.8	7.1	2.1	14.9	11.8
Physical exhaustion	77.8	78.8	68.8	59.7	46.8	63.0	55.0
Major	30.0	34.6	31.2	19.6	17.0	37.0	20.2

Note: An em dash (—) indicates the following: question of cesarean pain or infection was asked only of mothers who had a cesarean and question of infection of perineum was asked only of mothers with a vaginal birth.

**Full question wording: "Many women have physical concerns after giving birth. How much of a new problem—that is, different from something you may have experienced during or before pregnancy—were the following in the first two months after birth?"*

†Overall number for each category; individual categories will vary slightly by the degree to which nonresponses to the item were present.

‡p<0.01 for comparisons by method of delivery within parity groups.

Table 3. Episiotomy and Reported Postpartum Problems among Mothers with a Spontaneous Vaginal Birth

Did You Experience a New Problem with the Following in the First 2 Months after Birth?	*Parity = 1 (Episiotomy Rate 31.1%)*			*Parity = 2+ (Episiotomy Rate 19.2%)*		
Condition	*No Episiotomy (n = 188)* %	*Episiotomy (n = 85)* %	p	*No Episiotomy (n = 527)* %	*Episiotomy (n = 125)* %	p
Painful perineum						
Major problem	23.6	32.9	0.027	5.1	17.9	0.000
Minor problem	43.4	49.4		28.8	31.7	
Infection from cut or torn perineum (major or minor)	6.1	3.5	0.376	3.5	12.0	0.000
Urinary problem (major or minor)	26.1	33.3	0.222	29.1	23.9	0.257
Bowel problem (major or minor)	34.3	26.2	0.189	22.2	36.4	0.001
Physical exhaustion (major or minor)	76.9	81.4	0.407	58.1	66.4	0.092
Painful intercourse (major or minor)	44.7	54.8	0.128	24.3	35.3	0.014
Did pain interfere with routine activities? (% reporting "quite a bit" or "extremely")	10.6	15.3	0.275	5.7	16.0	0.000

Table 4. Mothers Reporting Postpartum Pain at the Site of the Cesarean Incision in the First 2 Months after Birth by Planning Status of Cesarean

Mothers Reporting Postpartum Pain at the Site of the Incision in the First 2 Months after Birth	*Labor No. (%)*	*No Labor No. (%)*
Parity = 1	*n* = 126	*n* = 47
Total	104 (82.5)	44 (93.6)
Major	57 (45.2)	19 (40.4)
p	0.076	
Parity = 2+ primary cesarean	*n* = 45	*n* = 29
Total	44 (97.8)	28 (96.6)
Major	20 (44.4)	13 (44.8)
p	0.948	
Parity = 2+ repeat cesarean*	*n* = 67	*n* = 179
Total	51 (76.1)	118 (65.9)
Major	16 (23.9)	38 (21.2)
p	0.306	

**In the case of repeat cesarean sections, figures reported only involve mothers who indicated that this was a "new" problem.*

were most commonly reported among primiparas with an assisted vaginal birth (64%) or a cesarean delivery (40%), whereas multiparas reported no significant differences by method of delivery.

Relationship of Episiotomy to Reported Postpartum Perineal Pain

Episiotomy was used routinely (61% of the time) for an assisted vaginal delivery with forceps presumably to compensate for the extra room needed for placement of I forceps. Episiotomy was widely (42%) used for a vacuum delivery as well.

Table 3 examines reports of postpartum difficulties among mothers with spontaneous vaginal births, comparing those with and without an episiotomy. Primiparous women with an unassisted vaginal delivery reported an episiotomy rate of 31 percent, with 82 percent of these women reporting perineal pain in the first 2 months after delivery compared with 67 percent of primiparas with no episiotomy. Multiparous women reported an episiotomy rate of 19 percent, and those with an episiotomy were three times more likely (18%) than those with no episiotomy (5%) to report major perineal pain in the first 2 months.

The significant differences between those with and without an episiotomy all occurred among multiparous mothers. Those experiencing an episiotomy were more likely to report problems with a painful perineum, perineal infection, bowel problems, and pain interfering with routine activities. In the case of primiparous mothers, none of the comparisons by episiotomy status was statistically significant ($p < 0.01$). Mothers who had a combination of episiotomy and assisted vaginal delivery were more likely to report postpartum perineal pain (overall 77%, with 43% describing it as major) compared with those who had only one of these interventions (overall 63%, with 25% describing it as major) or those with neither (overall 43%, with 10% describing it as major) (data not shown). After 6 months, episiotomy appeared unrelated to persistent perineal pain among mothers with an unassisted delivery (data not shown).

Comparing Planned and Unplanned Cesareans

A recent call has been made for comparisons of planned cesarean deliveries versus planned vaginal

births, with the suggestion that planned cesareans can avoid many difficulties associated with unplanned cesareans (14). Table 4 shows reported cesarean section pain by whether or not the surgery was completed before the mother went into labor. This analysis reduces cell sizes somewhat but allows examination of the impact of planning status on mothers' reported experience with postpartum pain. On the whole, minimal overall differences by cesarean planning status occurred, with none reaching statistical significance. Notably, the one case where small sample size (multiparas with a primary cesarean) might have been a problem found almost no actual difference between reported pain associated with cesarean sections with labor (98%) and those without (97%). Among first-time mothers, one comparison approached significance, but it is not in the expected direction: women who did not experience labor were more likely to report cesarean-related pain (94%–83%).

Demographic Differences in Reported Pain

We examined (data not shown) whether or not differences occurred in reported postpartum pain (perineal pain in vaginal birth and pain at the scar for cesarean births) by demographic characteristics (age, education, income, race/ethnicity, public or private insurance payer for birth) of mothers. In general, no significant differences occurred across demographic categories, with a few minor exceptions. White, non-Hispanic mothers were slightly more likely than black, non-Hispanic or Hispanic mothers to report problems with pain associated with either cesarean or vaginal births, but the differences were not pronounced. Aside from parity as shown in Table 2, the comparisons across demographic groups were marked more by consistency than by differences.

Pain at 6 Months or More

Figure 1 presents the results of an analysis of the subset of mothers who had responded to the survey at least 6 months after giving birth. The reported sample sizes represent the number of mothers with the respective method of delivery who had given birth at least 6 months earlier. In terms of reports of a painful perineum, only mothers with an assisted vaginal birth reported problems (17%) still existing after at least 6 months after birth, although the sample size in this case ($n = 36$) was relatively small. Only 1 percent of primiparous and multiparous mothers with a spontaneous vaginal birth reported any perineal pain at 6 months. In terms of pain associated with a cesarean section, 18 percent of all mothers reported pain at the site of the incision, which lasted at least into the sixth month, with findings varying slightly but not significantly by parity and primary or repeat cesarean.

Pain Interfering with Routine Activities

The survey included the question, "In the first two months after birth, how much did pain interfere with your routine activities?" Overall, 14 percent of mothers

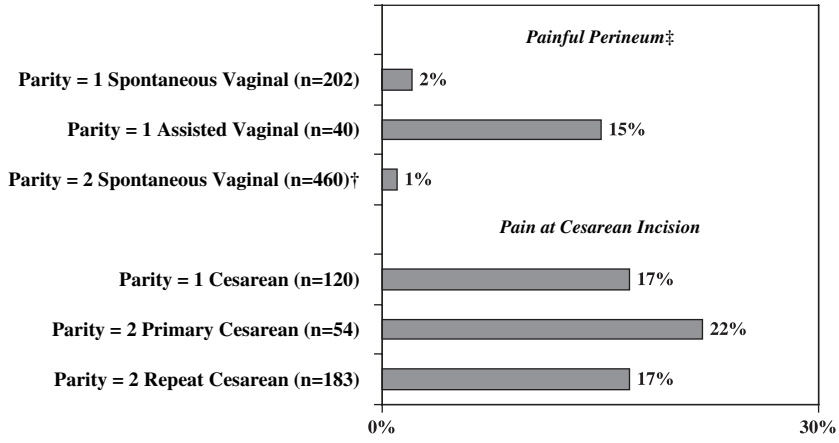

*Fig. 1. Proportion of mothers reporting pain persisting into the sixth month postpartum.**

**Respondents were asked if the problem they cited as a difficulty in the first 2 mo "was still a problem now." This figure represents responses of mothers who had given birth at least 6 mo earlier. The denominator is all women who experienced the intervention.*

*†None of the parity = 2+ mothers with an assisted vaginal delivery reported perineal pain lasting at least 6 mo (*n *= 31).*

‡$p < 0.01$ *for comparison across method of delivery and parity.*

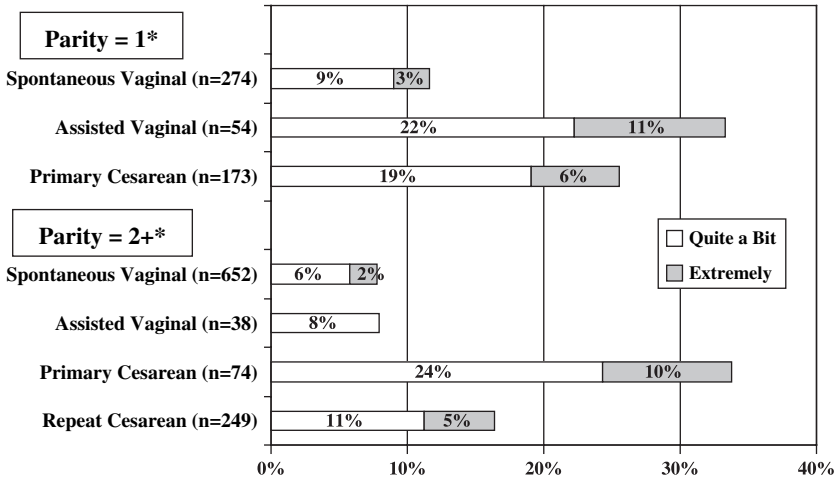

Fig. 2. Percentage of mothers reporting pain interfering with their routine activities "extremely" or "quite a bit" in the first 2 months after birth by method of delivery.
*$p < 0.01$ *for comparisons within each parity grouping.*

responded "extremely" or "quite a bit," but these totals varied widely by method of delivery. Mothers with vaginal births (10%) were much less likely to report pain interfering with routine activities compared with mothers with a cesarean birth (22%). When we further subdivide the responses to this question by specific method of delivery and parity (Fig. 2), three cases stand out: multiparous mothers with a primary cesarean (34%), first-time mothers with an assisted vaginal birth (33%), and first-time mothers with a cesarean section (25%). A follow-up question about whether the pain interfered with activities in the past 2 weeks indicated that these differences were negligible for those mothers who had given birth at least 6 months earlier.

Discussion

This nationally representative U.S. survey explored a data source too rarely examined in contemporary discussions about method of delivery—the reported experiences of recent mothers themselves. We describe their reports of new postpartum conditions, with particular attention to postpartum pain. Previous studies have examined associations among physical symptoms after childbirth and parity alone (15), method of delivery alone (16,17), or each individually (10,18,19) but not jointly. The large sample size in this study adds to the body of knowledge by controlling for both parity and method of delivery simultaneously, and the differences are notable. We also examined planning status of cesarean delivery, use of assisted delivery, and use of episiotomy in spontaneous vaginal births.

The most notable findings of the study concern mothers' reports of pain associated with instrumental birth. Having a planned cesarean without labor did not decrease the chance of a mother reporting postpartum pain at the incision site. Among mothers experiencing a vaginal birth, we also found high levels of perineal pain reported in the first 2 months after birth. Mothers with assisted vaginal birth were especially likely to report a painful perineum as were multiparous mothers with an episiotomy. A recent summary of past research found that women whose clinicians restricted the use of episiotomy to fetal well-being were more likely to deliver with intact perineums, and the authors concluded that no benefit from episiotomy exists (20). Nonetheless, in our study, we found continued high rates of episiotomy, and mothers experiencing an episiotomy were more likely to report a problem with perineal pain.

Fear of Pain in Vaginal Birth

Among the small subset of women with a profound fear of birth, concern about the pain associated with labor has been suggested as one of the most common reasons for a maternal request for a cesarean section (4). In a small study of 28 Swedish women demanding a cesarean for personal reasons, 36 percent of parous women cited fear of pain during vaginal delivery as the main reason for their request (6). In a study of 100 Finnish women who sought consultation before their second birth because of severe fear of childbirth, 15 percent reported having frightening pain, which they regarded as the main cause of fear (21). In another Swedish study of 100 women that examined their major

reasons for fear of delivery, 44 percent expressed fear of intolerable physical pain (22). A focus on the pain of labor has been longstanding, with a medical specialty, obstetrical anesthesia, developed to address it, and a wide range of pharmacological (e.g., epidural analgesia) and nonpharmacological (e.g., use of a doula) interventions available to mothers to help them deal with it. Far less attention has been paid to alerting mothers to problems associated with recovery from surgery in the postpartum period at a time when she is also caring for an infant. In the U.S. context, formal postpartum support is typically not available to mothers.

Chronic Pain

The overall proportion of mothers in this study with chronic pain associated with their cesarean for at least 6 months (18%) appears higher than that in a Danish study, which showed chronic pain in 5.9 percent of women (5). However, the Danish study had a mean observation time of 10.2 months, and when we limited our sample to mothers who gave birth at least 10 months earlier, we found 6 percent (9/142) of mothers who had a cesarean section reporting continued pain at the site of the incision.

Some cesarean incision pain may be related to infection. Previous studies report a wide variance in cases of wound infections after cesarean section ranging from 3 to 16 percent (23). A large prospective study of cesarean incision infections in 1995 showed 3 percent of women developing a confirmed wound infection and 2 percent having noninfected open surgical wounds (24). This finding is consistent with the National Nosocomial Infections Surveillance System rates of 3 percent infection rate with no risk factors and 8 percent after a high-risk cesarean delivery (25). The higher rate of self-reported cesarean wound infection in our study may result from some of the women interpreting noninfected wound problems, such as suture breakdown, formation of seromas, or tape burns, as infections since they did not have a specific option for describing these problems. In addition, studies that rely on reports in clinical data may somewhat underreport infections since a substantial proportion (42%) of mothers in an earlier survey (26) chose not to consult a physician concerning their self-reported infection.

Limitations

This study, although nationally based and drawing on mothers' own perceptions, has several limitations. The use of Internet-based responses can limit external validity, although the mothers in the sample were generally comparable with U.S. birth mothers nationally. We also excluded mothers who gave birth to multiple infants, and their pattern of postpartum experiences may differ significantly from what is reported here. Bias may possibly result from mothers self-selecting to participate in the survey, although the invitation to participate in the survey only indicated that it concerned their birth experience and did not specify questions that would be asked. Mothers' reports are not the same as clinical diagnoses (27), although validation studies have found mothers to be largely accurate reporters of their own experiences (28,29). This study relies on mother's recall, in some cases, about events from up to 12 months earlier, although previous studies have generally documented accurate responses from mothers in that time frame (30). Most importantly, the core analysis here is on a mother's pain perception, rather than a clinical diagnosis.

Clinical Implications

Current prenatal care tends to focus on monitoring the pregnancy and planning for delivery. Postpartum pain counseling is more likely to occur after delivery. To make an informed choice about delivery method, women need to have realistic expectations about the pain of both labor and postpartum recovery. Ideally, the same message is conveyed by their practitioners and in childbirth education classes. Prenatal care and education should include a realistic expectation for the birth experience and psychosocial support to help women overcome the fear of labor pain. Empowering women to have control over the management of their own labors may itself serve to ameliorate some fears of labor. Given that a significant portion of mothers experienced long-term chronic pain associated with their cesarean section, more careful follow-up in postpartum care is also suggested, particularly when, as this study showed, one-third of women rated postpartum surgical pain as major and 1 in 6 women experienced cesarean-related pain for at least 6 months.

Recently, more attention has been paid to perceived increases in the rate of cesarean sections by maternal request, although systematic evidence for such a phenomenon is limited (14). One assumption underlying these analyses is that women request operative delivery to avoid the labor experience. However, little research is available to date about how mothers manifest these concerns. Do mothers think of a cesarean section as pain-free delivery? Do they hope that postcesarean pain will be shorter in duration or less intense than that of labor? They may expect that postcesarean pain will be more manageable or that they

will have access to more reliable pain relief than they would with labor. Perhaps, with all the focus on labor pain, they simply do not consider the challenges associated with postpartum recovery from abdominal surgery. This disconnect between labor pain and postpartum pain was characterized by one mother who, in response to an open-ended question, stated the following, "I would much rather have the day of labor pain than the weeks of recovering from major surgery with a newborn to take care of. With my first daughter I labored for 21 hours of back labor and looking back that was a piece of cake compared to recovering from surgery."

As the cesarean rate continues to grow, further research is needed into mothers' perceptions of the pain of labor and postpartum pain associated with cesarean and vaginal birth. Until then, when doctors and midwives discuss alternative methods of delivery, they should listen carefully to mothers and develop an understanding of their expectations of postoperative pain and labor pain to address their specific concerns.

Conclusions

Mothers, regardless of their demographic characteristics, reported postpartum pain as a serious problem after giving birth. Mothers experiencing a cesarean section or an assisted vaginal delivery were most likely to report postpartum pain as a serious problem, with a notable proportion of them experiencing chronic pain for at least 6 months after giving birth.

References

1. Hamilton BE, Martin JA, Ventura SJ, et al. Births:Preliminary data for 2006. *Natl Vital Stat Rep* 2007;56(7):4, 24.
2. Organization for Economic Co-operation and Development. *OECD Health Data 2006: Statistics and Indicators for 30 Countries*. Paris, France: Author, 2006.
3. Harer WB. Patient Choice Cesarean. *ACOG Clin Rev* 2000; 5(1):13–16.
4. Saisto T, Halmesmäki E. Fear of childbirth: A neglected dilemma. *Acta Obstet Gynecol Scand* 2003;82:201–208.
5. Nikolajsen L, Sørensen HC, Jensen TS, Kehlet H. Chronic pain following cesarean section. *Acta Anaesthesiol Scand* 2004;48:111–116.
6. Ryding EL. Investigation of 33 women who demanded a cesarean section for personal reasons. *Acta Obstet Gynecol Scand* 1993;72:280–285.
7. Declercq ER, Sakala C, Corry MP, Applebaum S. *Listening to Mothers II: Report of the Second National U.S. Survey of Women's Childbearing Experiences*. New York: Childbirth Connection, 2006. Accessed November 16, 2007. Available at: http://www.childbirthconnection.org/listeningtomothers/.
8. Survey Sampling International—SSI-LITe. *Newborn Baby Samples*. Accessed November 16, 2007. Available at: http://www.surveysampling.com/index.php.
9. Hamilton BE, Martin JA, Ventura SJ. Births: Preliminary data for 2005. *Natl Vital Stat Rep* 2007;55(11):1–20.
10. MacArthur C, Lewis M, Knox EG. *Health after Childbirth*. London, UK: Her Majesty's Stationary Office, 1991.
11. Schytt E, Lindmark G, Waldenström U. Physical symptoms after childbirth: Prevalence and associations with self-rated health. *Br J Obstet Gynaecol* 2005;112:210–217.
12. Ware JE, Jr, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Med Care* 1992;30:473–483.
13. SPSS Inc. *SPSS 13 for Windows, Rel. 15.0.1*. Chicago, Illinois: Author, 2006.
14. Anonymous. National Institutes of Health state-of-the-science conference statement: Cesarean delivery on maternal request March 27-29, 2006. *Obstet Gynecol* 2006;107(6):1386–1397.
15. Schytt E, Lindmark G, Waldenstrom U. Physical symptoms after childbirth: prevalence and associations with self-rated health. *BJOG* 2005;112:210–217.
16. Hannah ME, Hannah WJ, Hodnett ED, et al. Outcomes at 3 months after planned cesarean vs planned vaginal delivery for breech presentation at term: the international randomized Term Breech Trial. *JAMA* 2002;287:1822–1831.
17. Koroukian SM. Relative risk of postpartum complications in the Ohio Medicaid population: Vaginal delivery versus cesarean delivery. *Med Care Res Rev* 2004;61:203–224.
18. Glazener CMA, Abdalla M, Stroud P, et al. Postnatal maternal morbidity: Extent, causes, prevention and treatment. *Br J Obstet Gynaecol* 1995;102:282–287.
19. Thompson JF, Roberts CL, Currie M, Ellwood DA. Prevalence and persistence of health problems after childbirth: Associations with parity and method of birth. *Birth* 2002;29:83–94.
20. Hartmann K, Viswanathan M, Palmieri R, et al. Outcomes of routine episiotomy: A systematic review. *JAMA* 2005;293:2141–2148.
21. Saisto T, Ylikorkala O, Halmesmäki E. Factors associated with fear of delivery in second pregnancies. *Obstet Gynecol* 1999;94:679–682.
22. Sjögren B. Reasons for anxiety about childbirth in 100 pregnant women. *J Psychosom Obstet Gynaecol* 1997;18:266–272.
23. Owen J, Andrews WW. Wound complications after cesarean sections. *Clin Obstet Gynecol* 1994;37:842–855.
24. Martens MG, Kolrud BL, Faro S, et al. Development of wound infection or separation after cesarean delivery. Prospective evaluation of 2,431 cases. *J Reprod Med* 1995;40:171–175.
25. National Nosocomial Infections Surveillance System. Data summary from January 1992 through June 2004. *Am J Infect Control* 2004;32:470–485.
26. Declercq ER, Sakala C, Corry MP, et al. *Listening to Mothers: Report of the First National U.S. Survey of Women's Childbearing Experiences*. New York: Childbirth Connection, 2002.
27. Elkadry E, Kenton K, White P, et al. Do mothers remember key events during labor? *Am J Obstet Gynecol* 2003;189:195–200.
28. Yawn BP, Suman VJ, Jacobsen SJ. Maternal recall of distant pregnancy events. *J Clin Epidemiol* 1998;51:399–405.
29. Oakley A, Rajan L, Robertson P. A comparison of different sources of information about pregnancy and childbirth. *J Biosoc Sci* 1990;22:477–487.
30. Simkin P. Just another day in a woman's life? Part II: Nature and consistency of woman's long-term memories of their first birth experiences. *Birth* 1992;19:64–81.