

Pain and women's satisfaction with the experience of childbirth: A systematic review

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OBJECTIVE: To summarize what is known about satisfaction with childbirth, with particular attention to the roles of pain and pain relief.

STUDY DESIGN: A systematic review of 137 reports of factors influencing women's evaluations of their childbirth experiences. The reports included descriptive studies, randomized controlled trials, and systematic reviews of intrapartum interventions. Results were summarized qualitatively.

RESULTS: Four factors—personal expectations, the amount of support from caregivers, the quality of the caregiver-patient relationship, and involvement in decision making—appear to be so important that they override the influences of age, socioeconomic status, ethnicity, childbirth preparation, the physical birth environment, pain, immobility, medical interventions, and continuity of care, when women evaluate their childbirth experiences.

CONCLUSION: The influences of pain, pain relief, and intrapartum medical interventions on subsequent satisfaction are neither as obvious, as direct, nor as powerful as the influences of the attitudes and behaviors of the caregivers. (Am J Obstet Gynecol 2002;186:S160-72.)

Key words: Childbirth satisfaction, systematic review

“What really matters is that mother and baby are healthy; satisfaction with the childbirth experience is of secondary importance.” “If we can control their pain, they will have a positive experience.” Comments such as these illustrate common views of obstetric care providers, but do they reflect an accurate interpretation of the research evidence about the factors that influence satisfaction with the childbirth experience?

In recent decades, the importance of measuring satisfaction with health care has been recognized. Patients' views are being used by health care managers in assessing the quality of care, and by policy makers in making decisions about the organization and provision of health services.¹⁻³ Since childbearing is the most common reason for accessing health services, assessments of women's satisfaction with their care during labor and birth are relevant to health care providers, administrators, and policy makers.

Satisfaction is a complex concept. It involves both a positive attitude or affective response to an experience, as well as a cognitive evaluation of the emotional response.⁴ Distancing oneself from the event is intrinsic to this process. Satisfaction is multidimensional; people can be satisfied

with some aspects of an experience and dissatisfied with others. Most studies of satisfaction with health care are based on fulfillment or discrepancy theories.⁵ In fulfillment theory, patient satisfaction is a function of the outcomes of the experience; prior expectations or wishes are not considered. Discrepancy theories predict satisfaction based on differences between what is expected or desired and what is received. Studies of general patient satisfaction have found that levels of satisfaction are very high if measured in relation to health care in general, but lower and more variable if one measures particular aspects of the health care experience.³ Reviews of patient satisfaction studies indicate that patient demographics are among the most important determinants of satisfaction.^{6, 7} However, it was unclear whether the findings of general patient satisfaction studies were applicable to satisfaction with the childbirth experience. Particularly controversial were questions about the influences of labor pain and pain relief methods on satisfaction with childbirth.

Through a systematic review of the childbirth satisfaction literature, I addressed the following questions: What has been measured, and how and when has it been measured? What roles do pain, pain relief, the use of specific pain relief methods, and other factors play in determining how satisfied a woman will be? How is satisfaction with childbirth related to other childbirth outcomes?

Methods

Studies were considered for inclusion if they involved women in labor or women who had experienced labor,

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and outcomes included one or more of the following: measures of satisfaction (with the childbirth experience, with care, or with pain relief); measures of pain; and women's views of and evaluations of their childbirth experiences. Studies of pharmacologic and nonpharmacologic measures to alleviate intrapartum pain were included only if they incorporated a measure of satisfaction.

The types of studies that were included depended on the nature of the question being asked. For questions of effects (eg, effects of intrapartum interventions on satisfaction), the inclusion criteria were either a Cochrane Review⁸ or other systematic review of comparable quality, or a controlled trial comparing two forms of pain relief. Controlled trials were included if they met the following criteria: not incorporated into a systematic review (to avoid double counting); random allocation to study groups; violations of allocated management insufficient to materially affect outcomes; and loss to follow-up insufficient to materially affect the comparison. For questions of the methods and measurement of satisfaction, and of relationships (eg, between pain and satisfaction), the inclusion criteria were broader. A report was considered if it was either a systematic review of the literature or a research study described in sufficient detail that the methodological quality of the study could be appraised.

Combinations of key words used in the literature search were childbirth, satisfaction, pain, analgesia, women's views, and evaluation. The Cochrane Controlled Trials Register,⁸ MEDLINE (1965-2000), Cumulative Index to Nursing and Allied Health Literature (CINAHL) (available from 1982-2000), and HEALTHSTAR (available from 1975-2000) were searched. Because of time constraints, the search was limited to English-only publications, no hand searches were performed, and the "gray literature" (eg, published conference proceedings) was not systematically searched, although HEALTHSTAR includes some conference proceedings, technical reports, and dissertations. In addition, the reference lists of all relevant reports were checked for relevant references not already found in the above searches. Because of marked changes in the routine hospital care of laboring women in the last 30 years, the search was limited to reports published since 1965.

Studies were grouped into 3 categories: descriptive studies of childbirth satisfaction; randomized trials or systematic reviews of randomized trials of intrapartum interventions (other than those for pain relief) that included assessment of childbirth satisfaction; and randomized trials or systematic reviews of pain relief methods that included satisfaction as an outcome. Regardless of the study design, reports under consideration were evaluated for methodological quality and appropriateness for inclusion, without consideration of their results. For systematic reviews, all relevant Cochrane Reviews⁸ were included. Other published systematic reviews were included if they met a set of quality criteria described in the Cochrane

Database of Abstracts of Reviews of Effectiveness.⁸ For randomized trials to alleviate pain, included trial data were processed as described in the Cochrane Handbook.⁸ Because of the heterogeneity of study objectives and the outcome measures, meta-analyses were inappropriate, and results were summarized qualitatively. Descriptive studies were categorized as either epidemiologic, simple descriptive, or qualitative. Sackett's criteria⁹ for evaluating sources of bias in epidemiologic studies were used, with particular emphasis on selection bias (the most serious threat to internal validity). Simple descriptive studies were included if methods were clearly described and appropriate for the research problem. Qualitative studies were evaluated according to criteria set out by Forchuk and Roberts.¹⁰

Results

One hundred thirty-seven reports were retrieved in the literature search. Sixty-eight reports were excluded for the following reasons. In 37, the purpose was not relevant. Nine reports provided no data on satisfaction with pain relief nor satisfaction with any aspect of the birth experience, 1 systematic review reported satisfaction with pain relief, but the experimental intervention was not a pain relief method, 18 had one or more serious methodological problems, and 3 were literature reviews that were not systematic. A more detailed description of the reasons for exclusion, with accompanying reference citations, is provided elsewhere.¹¹

Thirty-five reports of 29 studies of satisfaction with intrapartum care met the inclusion criteria for observational studies of childbirth satisfaction (Table I).^{1, 2, 12-44} Sample sizes ranged from 16 (in a qualitative study) to more than 2000 (in population-based surveys). More than 14,000 women were studied in 9 countries. The most rigorous studies were large, prospective, population-based postal surveys in England and Australia, in which questionnaire items were developed from prior qualitative studies as well as extensive literature reviews. The qualitative studies were also methodologically rigorous. The smaller descriptive studies usually involved convenience samples at single institutions.

Thirteen reports of 5 systematic reviews and 7 randomized controlled trials met the inclusion criteria for studies of intrapartum interventions (other than pain relief interventions) that included childbirth satisfaction as an outcome (Table 2).⁴⁵⁻⁵⁷ The topics of the systematic reviews were intrapartum support (n = 14 trials), amniotomy (n = 9 trials), homelike birth settings (n = 5 trials), position for second-stage labor (n = 18 trials), and continuity of caregivers (n = 2 trials). Sample sizes of the individual trials were generally large; more than 27,000 women participated. The methodological quality of the trials was generally very good. Methods of measurement varied widely, although most studies included questions about specific aspects of labor and delivery, followed by an overall rating of the experience.

Table I. Descriptive studies of childbirth satisfaction

| <i>Study</i> | <i>Methods</i> | <i>Outcome measures</i> |
|--|---|---|
| Climie ¹² 1973, Australia | In-hospital interviews at 1 site. N = 500. Every 2nd name from labor ward register was chosen. Excluded: not fluent in English, C/S. | Pain, reactions to medical procedures and nursing care, disappointments. |
| Shields ¹³ 1978, US | In-hospital interviews at 1 site. N = 80. Convenience sample, independent interviewers. Exclusions: complications, C/S. | Helpful and unhelpful nurses' actions, preferences for and actual amount of nurses' time, satisfaction with nursing care. |
| Cartwright ¹⁴ 1979, UK | Interviews with women who had given birth within previous 6 mo. N = 2378. Random selection. Response rate > 85%. | Details about intra- and postpartum care, attitudes toward future pregnancies. Categorical rating of experience: pleasurable, endurable, or nightmare. |
| Butani ¹⁵ 1980, Canada | In-hospital interviews at 1 site. N = 50. Convenience sample. One patient had had C/S. Independent interviewers. | Expectations, perceptions of aspects of labor, perceived control, feelings about self-control, overall evaluation. |
| Kirke ^{16, 17} 1980, UK | In-hospital interviews at 2 sites. N = 210. Convenience sample, independent interviewers. | Did staff explain procedures, overall satisfaction with care, feelings about being left alone in labor, feelings regarding procedures. |
| Morgan ¹⁸ 1982, UK | In-hospital interviews at 1 site. N = 1000. 1 y later, 626 surveyed again. Convenience sample, independent interviewer. 508 had epidural; 80 had no analgesia; remainder had opioids, Entonox, ± pudendal blocks. | In-hospital measures: (1) VAS for pain intensity, (2) satisfaction: "yes," "no," or "don't know." 1 y later: (1) VAS of experience of childbirth, (2) rating of experience: pleasurable, endurable, or nightmare. Subset (n = 60) asked to describe sources of dissatisfaction. |
| Sullivan ¹⁹ 1982, US | Statewide postal survey, of women who were ~3 mo postpartum. N = 1900. Response rate 52%. | Prenatal, intra- and postpartum care; communication with caregivers; evaluations of care (very dissatisfied to very satisfied) |
| Nelson ²⁰ 1983, US | Prospective study at 1 hospital. Pregnancy questionnaires, in-hospital postpartum interview, questionnaire at 6 wk. N = 322. Convenience sample. 30% withdrew. | Attitudes toward pregnancy, concerns regarding childbirth, experiences during childbirth, what to tell other women about what it is like to give birth. |
| Jacoby ²¹ 1987, UK | Postal survey in 10 areas. Random sample received questionnaire at ~4 mo postpartum. N = 1508. Validated questionnaire. | Prior preferences about common obstetric procedures, did they experience the procedure, global satisfaction with care. Prior preferences regarding ambulation, presence of baby's father, and opportunity to hold baby after delivery. |
| Brown ²² 1989, Australia | Postal survey of all women who had given birth during 1 wk and were 8-9 mo postpartum. N = 790. 71.4% response rate. Stringent methods. | Involvement in decision making, preferences regarding and evaluations of procedures, 1 item for overall satisfaction. |
| Drew ²³ 1989, UK | In-hospital survey. N = 183. Items derived from literature review, 15 patient interviews, and staff suggestions. | Likert scales, mainly regarding physical environment (food, TV/radio, room temperature). A few items regarding delivery, pain relief, staff. |
| Séguin ²⁴ 1989, Canada | Postal survey at 4-7 mo postpartum, in 1 city. N = 1790, of whom 938 (52%) completed questionnaires. | Childbirth experience, medical services, nursing care, were explanations given, participation in decision making, physical environment. |
| Green ^{25, 26} 1990, 1993, UK | Prospective survey in 4 districts. 2 postal questionnaires in pregnancy, 1 at ~6 wk postpartum. N = 1150. Response rates: 71% initially and >90% subsequently. | Demographics; attitudes, knowledge, and expectations regarding pain relief, birth plans, interventions. Postpartum questionnaire assessed experiences and fulfillment, childbirth satisfaction, and emotional well-being. |
| Salmon ²⁷ 1990, UK | Qualitative study (n = 20) to develop questionnaire items. 2 postal surveys (n = 106 prenatal; n = 82 postpartum). >90% response rates. | 14 semantic differential scales of affective responses to childbirth, such as disappointed/delighted, helpless/in control, hard/easy, painful/not painful. |
| Simkin ^{28, 29} 1991, US | Qualitative study. N = 20. Questionnaire plus narrative report of birth experience, soon after birth. Similar methods 15-20 years later plus interview. Researcher had been their childbirth educator. | Intrapartum interventions, feelings during and after labor. Global rating of satisfaction. Written personal account of the birth experience. |

Key results

Extensive use of inhalation and epidural analgesia. 56%: severe first-stage labor pain. 88% satisfied with pain relief. 20% disappointed, mainly regarding staff behavior/attitudes.

45/80: supportive care = most helpful nursing measure. Demographics, analgesia, type of delivery, labor length unrelated to satisfaction.

34%: experience pleasurable; 49%: unpleasant but endurable; 9%: nightmare. 22% of induced would like induction next time. 63% who had had epidural analgesia would like it again. >80%: preferred same birth setting in future.

64% of patients' expectations were not met. Pain, loss of control cited most often as most unpleasant aspects. Those most strongly positive stressed benefits of support.

>25% dissatisfied with communication with doctors or midwives. 25% very distressed about being left alone. 46% who had epidural were unhappy with pain relief. 49% who were induced were disappointed.

Short labors associated with high pain and high satisfaction scores. Those who had epidurals more likely to be dissatisfied than those who had other analgesia. 16% rated experience unsatisfactory immediately after birth, 13% rated it unsatisfactory 1 y later. Major sources of dissatisfaction: forceps delivery; no sense of achievement; long, painless labor.

Many who had highly negative comments indicated "satisfied" regarding overall care.

No statistical tests for differences. Large discrepancies between preferences and experiences regarding intrapartum interventions.

<50% of mothers who had emergency C/S, induction, or epidural analgesia reported labors were managed as they liked. Those whose labors were managed as they liked reported a significantly lower number of procedures. Among women who had wanted epidural or induction, there were NS differences in satisfaction between those who actually had the intervention and those who did not.

Predictors of dissatisfaction: lack of involvement in decision making, insufficient information, obstetric interventions, and caregivers perceived as unhelpful.

Women rated information and communication as most important.

Predictors of satisfaction: pain, complications, participation in decision making, labor length.

Demographics, prenatal desire for participation in decisions, prenatal education, intrapartum interventions, physical environment, and having a seriously ill newborn were not predictors of satisfaction.

82% stated fulfillment important. Education unrelated to wishes for drug-free labor or desire for control. Expectations strongly related to experiences. Low expectations consistently related to poor psychological outcomes. >17% dissatisfied. Medical interventions inversely related to control and satisfaction. Prenatal anxiety regarding pain related to low satisfaction, low emotional well-being. The most satisfied had used no pain-relieving drugs. Pain and pain relief related to satisfaction independent of parity. Strong themes of information and control. Low control associated with lowest satisfaction, fulfillment, and emotional well-being, independent of prenatal expectations.

Factor analysis yielded 2 factors: achievement and pleasantness. Only 1 item—"painful"—was unrelated to either factor.

Highest satisfaction associated with sense of accomplishment, control, positive memories of caregivers, and birth experience that contributed to self-confidence and self-esteem. Only 2 of 20 recalled less pain decades later. Some long-term memories more negative.

One systematic review and 20 randomized controlled trials met the inclusion criteria for studies of intrapartum pain relief methods that included some measure of satisfaction as an outcome (Table 3).⁵⁸⁻⁷⁸ The interventions that were evaluated included different types of opioids (systematic review of 16 trials), intracutaneous sterile water injections (1 trial), transcutaneous electrical nerve stimulation (2 trials), inhalation analgesics (1 trial), and different dosages, routes, methods of administration, and medications for epidural analgesia (17 trials). Study quality varied. Sample sizes of the individual trials were generally small; in total more than 4000 women were studied. The most popular method of assessment of satisfaction with pain relief was with a single visual analog scale, usually in the immediate postpartum period.

Methods and timing of measurement. Although there are tools with established reliability and validity in the measurement of personal control during childbirth⁷⁹ and affective responses to childbirth,^{23, 27} the only reports of summated scales of overall childbirth satisfaction were excluded because of uncertain psychometric properties.^{5, 80} More importantly, summated rating scales appear to have limited utility, particularly when the goal is to improve care or inform policy decisions, because a single score will mask women's views on specific aspects of intrapartum care.¹ Four trials of intrapartum interventions^{48, 51, 58, 75} and 3 descriptive studies^{12, 13, 35} supported Lumley's observation that future preferences provide indications of women's views about their recent treatment.⁸¹

The methods of assessment varied from qualitative interviews to self-administered questionnaires. Questionnaires have obvious advantages: a large sample can be obtained relatively inexpensively, data from forced-choice responses are easy to analyze, and reliability and validity of the questionnaire items can be assessed. However, fixed-scale questions elicit fewer negative responses than do open-ended questions, and postal surveys may not elicit sufficient responses from hard-to-reach groups, such as the socioeconomically disadvantaged and those who are not English literate.^{1, 2, 19}

In several rigorous epidemiologic studies,^{1, 2, 21, 22, 25, 26} questionnaire development involved extensive consultation with providers and consumers (Table I). The questionnaires consisted of a series of items asking about specific details of women's experiences, and concluded with a single global rating of satisfaction. Such an approach yields useful information about specific aspects of the experience and helps to enhance the validity of the final global rating of satisfaction. To elicit the views of the hard to reach, one study used interviews through an interpreter.⁴⁰

There is insufficient evidence on which to base conclusions about the impact of timing of assessment of childbirth satisfaction. There may be no optimum time; it may be dependent on the purpose of the study. Two studies that purported to determine the impact of timing of as-

Continued on next page

Table I.—cont'd

| <i>Study</i> | <i>Methods</i> | <i>Outcome measures</i> |
|---|--|--|
| Salmon ³⁰ 1992, UK | In-hospital questionnaire at 1 site. N = 110. Convenience sample. Non-Caucasians excluded. Data collected by independent researcher. | Demographics, method of delivery. 20 Likert scales, derived from prior qualitative study regarding feelings about childbirth experience. |
| Slade ³¹ 1993, UK | Prospective survey at 1 hospital. N = 81. Convenience sample. Measures developed from patient interviews. | VAS ratings: prior preferences, experiences of interventions, emotions, control during childbirth; overall satisfaction. |
| Ranta ³² 1995, Finland | Prospective survey at 3 hospitals. N = 1091. 80% response rate for postpartum questionnaire (n = 1024). Pain ratings (n = 833) done by midwife. | Antenatal: expectations for analgesia. Intrapartum: pain intensity. Postpartum: labor pain, adequacy of analgesia, cooperation with midwife, overall satisfaction. |
| Waldenstrom ³³ 1996, Sweden | In-hospital survey at 3 hospitals. N = 268. 91% completion rate (268/295). Data collected by independent researchers. | Likert scales for pain, anxiety, freedom to express feelings, involvement, self-satisfaction, coping, and support. Global satisfaction rating. |
| Knapp ³⁴ 1996, US | Convenience sample of primigravidas in childbirth education classes. Excluded: C/S. Validated scales. Data collected by independent researcher. | 3 scales to measure pregnancy attitudes, perceived control in labor, evaluation of labor/delivery experience. |
| Brown ^{1, 2} 1997, 1998, Australia | Statewide, cross-sectional postal survey of women who were 6-7 mo postpartum. N = 1336. 62.5% response rate (n = 1336/2224). Extensive questionnaire development. Separate qualitative study: semistructured interviews with small subgroup. | Involvement in decision making about their care, preferences regarding and evaluations of obstetric procedures, overall satisfaction rating. |
| Geary ³⁵ 1997, Ireland | In-hospital survey at 1 site. N = 520. Anonymous questionnaire. 63% response rate. | VAS ratings for satisfaction with pain relief and labor care. |
| Hung ³⁶ 1997, China | In-hospital survey at 1 site. N = 114. Convenience sample. | 17 Likert scales concerning ward environment, support, pain management, policies, feeling informed, support, and overall satisfaction. |
| McCrea ³⁷ 1999, UK | In-hospital survey at 1 site. N = 100. Convenience sample. Excluded: epidural analgesia, C/S. | Post hoc measures of expectations of labor pain; a validated personal control scale; VAS for personal control in pain relief; Likert scale of overall satisfaction. |
| Fowles ³⁸ 1998, US | Content analysis of 1 question, at 9 wk postpartum. N = 77. Convenience sample. Response rate = 46%. | 1 question: "Is there anything about your labor and delivery that is still bothering you?" |
| Campero ³⁹ 1998, Mexico | Qualitative study within RCT of labor support. In-hospital interviews (8 controls, 8 experimentals). | Treatment by staff; views about medical information, interventions; labor experiences, self-perceptions; views about having support. |
| Small ⁴⁰ 1999, Australia | Interviews with Vietnamese, Turkish, and Filipino women, 6-9 mo postpartum. N = 318, 3 sites. 73% response rate. Translators assisted. | Interview schedule adapted from Brown ¹ 1997 postal questionnaire; it included questions about cultural practices and preferences for female caregivers. |
| Waldenstrom ⁴¹ 1999, Sweden | Prospective survey of women who participated in RCT of birth center care. N = 1230. Questionnaire in pregnancy and 2 mo postpartum. 93% response rate. Validated measures of anxiety, locus of control. | Personality traits, labor interventions, labor length, pain, women's feelings of involvement in labor, assessments of midwife and partner support, overall satisfaction. |
| Lavender ⁴² 1999, UK | In-hospital survey of participants in RCT of timing of intervention for prolonged labor. N = 412. 67% response rate. Qualitative analysis. | 1 open-ended question regarding positive and negative aspects of experience, and most important aspects. |
| Windridge ⁴³ 1999, UK | Interviews ~ 4 mo postpartum. N = 99. Convenience sample. | Interview questions based on Green ²⁵ 1990. Single 0-10 scale for overall satisfaction. |
| Kabakian-Khasholian ⁴⁴ 2000, Lebanon | Interviews ~ 3 mo postpartum. N = 117. Convenience sample. Independent interviewers. | Expectations about and satisfaction with the experience. |

C/S, Cesarean delivery; VAS, visual analog scale; NS, not significant; RCT, randomized controlled trial.

assessment were excluded because of serious methodological flaws.^{82, 83} A qualitative study found that women's ratings in the immediate postpartum period were very similar to those 15 to 20 years later, but some long-term

memories were more negative.^{28, 29} In a UK trial of midwife-managed care, women's ratings of aspects of their intrapartum care were lower at 7 months than they had been at 7 weeks' postpartum.⁴⁷

Key results

3 components explained 44% of the variance in scores: fulfillment, distress, difficulty. C/S less difficult, less fulfilling, more distressing than vaginal delivery. Socioeconomic status unrelated to experience.

Women expected fewer interventions, more control than experienced. Control and satisfaction strongly related.

Women who had analgesia reported as much pain as those who did not. 95% satisfied with experience. Pain, analgesia unrelated to dissatisfaction. Most dissatisfied were those who had urgent C/S or instrumental delivery.

Median satisfaction rating = 6/7. 6 variables in final regression model of satisfaction: midwife support, expectations, involvement in the process, labor length, pain, and operative delivery. Control and satisfaction highly correlated. Control explained 46% of variance in childbirth satisfaction. No relationships between personality variables and childbirth satisfaction.

8% rated intrapartum care less than good, but 34% wrote negative comments in open-ended question. Dissatisfaction predicted by helpfulness of midwives and physicians, involvement in decision making, pain, satisfaction with pain relief, and model of care. Midwives less than “very helpful” raised the odds of dissatisfaction 11-fold. Doctors less than “very helpful” raised the odds ~7-fold. Not having an active say in decision making raised the odds 10-fold. Dissatisfaction with pain relief doubled the odds.

Epidural analgesia, vaginal delivery, feeling prepared for labor, and feeling that staff listened were positively correlated with overall satisfaction.

Results confirmed cross-cultural importance of intrapartum support to birth satisfaction.

Very modest correlations (-0.30) between personal control variables and satisfaction with pain relief.

Nursing support very important. Pain and lack of control identified as sources of dissatisfaction.

Control strongly linked to satisfaction. Experimental group: satisfaction included self-control, involvement, accomplishment. Control group: satisfaction mainly related to having healthy baby.

Women were less concerned about caregivers’ lack of knowledge of their cultural practices than they were about care that was unkind, rushed, or unsupportive. Other major concerns were communication barriers.

43% of variance in satisfaction explained by involvement in the process, anxiety, pain, parity, midwife support. When affective responses were excluded, predictive variables of satisfaction were oxytocics, operative delivery, nitrous oxide, parity.

Women cited positive or negative aspects of support, information, intervention, decision making, control, pain/p/pain relief, experience as trial participant.

Labor more painful than expected, independent of age or parity. 65% reported low or medium satisfaction.

Satisfaction highly dependent on quality of interactions with caregivers.

ored by either a halo effect, denial, or the “what is, must be best” phenomenon. The halo effect is a result of the woman’s relief at having come through the experience safely, with a healthy baby, whereas denial is the first stage of a grief reaction, when expectations have not been met. The “what is, must be best” phenomenon is a function of the woman’s awareness of her own role in what happened to her—for example, her choice of care providers and birth place.⁸⁴ Any or all of these factors may play a role in the consistently high percentage of women who rate their care as satisfactory. Most researchers recognized the measurement problem; the analyses paid particular attention to ratings that were less than “very satisfied.”

The relationship of the researcher to the participant may be a more important threat to validity than timing. Patients may be especially reluctant to be critical, for reasons of social desirability and fear of reprisal. Most of the descriptive studies and studies of nonpharmacologic pain relief measures involved data collection by independent researchers (Tables I and II). However, in many of the trials of intrapartum pain relief measures, a caregiver administered the instrument (Table III).

Influences of pain and pain relief. The relationships between childbirth satisfaction, labor pain, and analgesia are complex. Two large well-designed, population-based studies are illustrative (Table I). The UK survey²⁶ found that women who were very anxious about labor pain prenatally were less satisfied after the birth. The most satisfied women were those who used no pain-relieving medications during labor. All effects were independent of parity or demographics. In the Australian survey,² the odds of dissatisfaction were much greater when caregivers were rated as less than very helpful and when women felt they did not have an active say in decision making, than were the odds of dissatisfaction when women rated their pain relief as unsatisfactory.

However, one should not ignore the roles of pain and analgesia on subsequent childbirth satisfaction, based on observational studies, regardless of the quality of the studies, because of the problem of selection bias. Women with longer, more difficult, more complicated labors are more likely to have analgesia. The optimum study design would be a randomized controlled trial. Only 3 of the 21 trials of pain relief measures included an assessment of childbirth satisfaction; none found a significant effect (Table III). Similarly, pain relief and satisfaction with pain relief are not the same, although some researchers have equated them. Eleven of the 21 trials of pain relief measures reported discrepancies in the two ratings; for example, either pain ratings were different but satisfaction ratings were not, or pain ratings were not different but satisfaction with pain relief was (Table III). Women’s knowledge of their treatment group does not appear to be a factor. Participants were unblinded to their treatment group in 2 of 11 trials re-

The majority of studies involved in-hospital assessments. Such assessments may be convenient, they may save time and money, and they help to ensure a high response rate. However, immediate postpartum assessments may be col-

Table II. Systematic reviews and randomized controlled trials (RCTs) of intrapartum interventions (other than pain relief) that included childbirth satisfaction as an outcome

| <i>Study</i> | <i>Purpose</i> | <i>Methods</i> | <i>Outcome measures</i> |
|---|--|---|--|
| Killien ⁴⁵ 1989, US, Canada | Determine if views in auscultated group differed from those in EFM group, in women in preterm labor. | Randomization by numbered, sealed envelopes. N = 135 (55% of original sample). | Questionnaire: Likert scales for perceived control, views about monitoring, nursing and medical support, overall evaluation of labor. |
| Turnbull ⁴⁶ 1996, Shields ⁴⁷ 1998, UK | 1. Compare midwife-managed with usual care. 2. Assess whether women's views became more over negative time. | Randomization centrally controlled. Stringent psychometric evaluation of questionnaire. Response rates: 7 wk, 68%; 7 mo, 66%. | Relationships with staff, information transfer, choices, decisions, support. |
| Hodnett ⁴⁸ 1997, 6 countries | Compare effects of policy of induction and policy of expectant management on women's evaluations. | Randomization centrally controlled. Multicenter, international RCT of 5041 women, 82% response rate to questionnaire. | Validated measure of control. Other questionnaire items asked women about likes, dislikes, future preferences. |
| Blanch ⁴⁹ 1998, UK | Compare oxytocin with amniotomy, amniotomy alone, and expectant management for slow labor progress. | Randomization by sealed, opaque envelope. N = 61. No losses to follow-up. | Satisfaction defined as perceived control; reliable, valid measure used. |
| McNiven ⁵⁰ 1998, Canada | Evaluate a program of early labor assessment aimed at delaying delivery suite admission until active labor. | Randomization by sealed, opaque envelopes. In-hospital postpartum questionnaire, by independent researcher. | Validated perceived control scale; questions about expectations and experiences. |
| Lavendar ⁵¹ 1999, UK | Evaluate effects of partograms with different action lines. | Randomization by sealed, opaque envelopes. N = 615. In-hospital postpartum questionnaire distributed by research midwife. Response rate 86.5% (n = 519). | Validated categorical scales—were expectations met regarding control, pain, labor length, overall experience; should their treatment become normal practice. |
| Fraser ⁵² 2000, Canada, UK, US | Cochrane Review: effectiveness of amniotomy for shortening spontaneous labor. | 9 RCTs. Study quality moderate-excellent. N > 2000, but satisfaction and pain reported in only 3 trials (n = 1283). | Satisfaction: UK trial—categorical rating. Canadian trials: 6-point Likert scale. Pain: UK trial—retrospective categorical assessment (n = 200). Canadian trials: in labor, with present pain intensity part of McGill Pain Questionnaire. |
| Gupta ⁵³ 2000, several countries | Cochrane Review: effects of upright or lateral positions on second-stage labor. | 18 RCTs. Study quality varied. N > 5000, but women's views reported in only 2 trials (n = 1069). | Pain (1 RCT), satisfaction with second stage (1 RCT), perceived control (1 RCT), pleasant/unpleasant experience (1 RCT). |
| Hodnett ⁵⁴ 2000, several countries | Cochrane Review: effects of continuous labor support. | 14 RCTs. Study quality varied. N > 5000. 9 RCTs (N = 3055) included women's views. | Various measures of women's views: feeling in control, rating experience as positive/negative, overall satisfaction. |
| Hodnett ⁵⁵ 2000, UK, Sweden, Canada | Cochrane Review: effects of homelike birth settings. | 5 RCTs. Study quality varied. N = almost 8000. Excellent response rates to postpartum questionnaires. | RCTs: questionnaire at 6-8 wk postpartum— involvement in decision making, overall satisfaction. 1 RCT: in-hospital questionnaire regarding preferred birth setting in future. |
| Hodnett ⁵⁶ 2000, UK, Australia | Cochrane Review: effects of continuity of caregivers. | 2 RCTs. Study quality good-excellent. N = 1815. Both mailed questionnaires at 6 wk postpartum. Australian trial: response rate = 53%. UK trial: questionnaires to 56%, of whom 87% responded. | UK trial: whether women felt in control during labor. Australian trial: overall satisfaction, satisfaction with specific aspects of labor care. |
| Waldenstrom ⁵⁷ 2000, Australia | Evaluate team midwifery care in a tertiary hospital. | Randomization centrally controlled; N = 1000, analysis intent-to-treat. Postpartum questionnaire at 2 mo 73% response rate. | Postpartum questionnaire based on Brown ²² 1989. |

EFM, Electronic fetal monitoring; C/S, cesarean delivery.

porting discrepancies and in 2 of 7 trials reporting congruence between pain intensity and satisfaction with pain relief.

Influence of other factors

Demographics. In contrast to the studies of general satisfaction with health care, studies of childbirth satisfaction have found little or no relationships with demo-

graphic characteristics, such as age, education, socioeconomic status, marital status, and attendance of childbirth preparation classes (Table I). Culture and ethnicity appear to play a role only insofar as they affect caregivers' attitudes and behaviors toward women, in particular their ability to communicate with women and involve women in decisions about their care.⁴⁰ In general, multiparous

Key results

No significant differences between groups. 44% of the variance in overall evaluation was explained by 1 variable: nursing support.

Midwife-managed group more satisfied. Ratings of intrapartum care were lower over time. Groups did not differ in analgesia use.

Likes and dislikes about treatment method and study participation, and willingness to participate in the study again all favored induction. More difficult labors and C/S were associated with less positive views.

Perceived control significantly higher in oxytocin plus amniotomy group, compared with expectant management.

Early labor assessment group: more control, more likely that expectations were exceeded, less likely to have epidural analgesia.

Despite having the most interventions, women in the 2-h arm significantly more satisfied overall than women in the 3- or 4-h arms. Control, pain, and normal practice also favored 2-h arm.

Fewer women in the amniotomy group reported the most severe level of pain at some point in labor. No effect on overall satisfaction.

Fewer women in an upright or lateral position reported severe pain. No other significant differences.

Continuous support consistently associated with more positive views and less likelihood of intrapartum analgesia/anesthesia.

Allocation to homelike setting associated with greater satisfaction and lower likelihood of analgesia.

In 1 trial 41% refused to participate, apparently because of desire for epidural analgesia.

UK trial: more control in experimental group. Australian trial: higher overall satisfaction, higher scores for information giving, participation in decision making, relationships with caregivers, in experimental group. Both trials: analgesia less likely in experimental group.

Team group more satisfied on all measures, including feeling informed, having an active say in decisions, and caregiver support.

women report higher levels of childbirth satisfaction than primiparous women (Table I).

Expectations. The 8 studies that assessed relationships between expectations and childbirth satisfaction indicate that both direction and size of the discrepancy between expectations and experience are important (Table I). Women whose experiences were better than they expected had

high levels of satisfaction, and women with high expectations were more likely to be satisfied. In contrast, women with lower expectations that were subsequently realized had lower levels of satisfaction.^{25, 26} None of the studies appear to have distinguished between expectations and preferences. The distinction is not trivial, in that expectations are usually based on knowledge of what is available, whereas preferences concern an individual's wishes.

Caregivers' attitudes and behavior. Indices of the quality of women's relationships with and support from their caregivers during labor, in particular as regards nurses and midwives, are consistent, strong predictors of childbirth satisfaction (Tables I and II). Eighteen studies assessed one or more aspects of the quality of the caregiver-patient relationship, such as rapport, communication, information, feeling that caregivers involved them in decisions about their care, and feeling free to express feelings during labor. Sixteen studies reported on women's views of the amount of support they received from nurses or midwives. In every instance, caregiver support had a major influence on satisfaction. In one US-Canadian study, 44% of the variance in satisfaction was explained by women's ratings of the quality of intrapartum nursing support.⁴⁵

Participation in decision making. Having an active say in decisions about one's care (an aspect of personal control) was found to be an important dimension of childbirth satisfaction in 14 studies (Tables I and II), explaining 46% of the variance in satisfaction in a US study.³⁴ In addition, control was consistently related to caregiver support.

Intrapartum medical interventions. The trials of intrapartum medical interventions involved women who were experiencing a complication (preterm labor, prelabor rupture of the membranes, or dystocia) (Table II). They found either no effect of the intervention on satisfaction^{45, 52} or an effect favoring the intervention that was most likely to shorten labor.^{48, 49, 51} In contrast, the large surveys (Table I) found inverse relationships between medical interventions (in particular operative delivery, oxytocics, and the number of interventions) and childbirth satisfaction.^{1, 2, 21, 22, 24-26, 41} However, even in the latter studies, the influence of medical interventions appeared to be weaker than the influence of caregivers' attitudes and behaviors.

Model of care and birth environment. Women prefer to be cared for by familiar caregivers during labor (Table I), and they prefer comfortable, homelike birth settings (Tables I and II). The overall effects of models of care and birth environments on birth satisfaction are weaker than the effect of the caregivers' attitudes and behaviors.

Other factors. Satisfaction with intrapartum care is distinct from a woman's satisfaction with her own behavior during labor. A woman can be very dissatisfied with the care she received but very pleased with her own behavior.²⁵ However, the two are linked, since there is good ev-

Table III. Systematic reviews and randomized controlled trials (RCTs) of pain relief methods that included childbirth satisfaction or satisfaction with pain relief as an outcome

| <i>Study</i> | <i>Purpose</i> | <i>Methods</i> |
|--|--|--|
| Harrison ⁵⁸ 1986, Ireland | Evaluate analgesic effects of TENS. | No description of method of randomization. Patients, midwives blinded to intervention. N = 150. Poor method of pain assessments, which were apparently done by caregivers. |
| Frank ⁵⁹ 1987, UK | Compare 2 epidural analgesics. | Randomization method not specified. Double-blind. N = 60, no withdrawals. Unclear if outcome assessments were blinded. |
| Gambling ⁶⁰ 1988, Canada | Compare PCEA with continuous infusion. | No description of method of randomization. N = 27; 2 withdrawals. Patients blinded. Unclear if outcome assessments were blinded. |
| Smedstad ⁶¹ 1988, Canada | Compare continuous and intermittent epidural analgesia. Primary aim to determine satisfaction with pain relief. | No description of method of randomization. N = 60. No mention of blinding. |
| Gambling ⁶² 1990, Canada | Compare PCEA with conventional top-ups. | Unclear whether randomization was centrally controlled. N = 60, 2 withdrawals from 1 group. Unblinded. |
| Sinatra ⁶³ 1991, US | Compare different combinations of epidural analgesics. | No description of method of randomization. N = 45. Double-blind, no withdrawals. VAS administered by caregivers. |
| Fontenot ⁶⁴ 1993, US | Compare PCEA with continuous infusion. | Double-blind; method of randomization not described. N = 39, no withdrawals. Unclear if outcome assessments were blinded. |
| Russell ⁶⁵ 1993, UK | Compare different epidural loading doses. | Randomization method not specified. N = 40, no withdrawals from primary analyses. Unclear if outcome assessments were blinded. |
| Russell ⁶⁶ 1993, UK | Compare 2 infusion regimens for epidural analgesia. | Randomization by sealed envelopes. N = 60, no withdrawals. Unclear if outcome assessments were blinded. |
| Bailey ⁶⁷ 1994, UK | Compare 2 combinations of epidural analgesics. | No description of method of randomization. N = 50, no withdrawals. Double-blind. |
| Curry ⁶⁸ 1994, UK | Compare PCEA with continuous infusion. | No description of method of randomization. N = 61; 1 withdrawal. Patients and midwives blinded to the intervention. Unclear if outcome assessors were blinded. |
| Abboud ⁶⁹ 1995, US | Compare 2 inhalation analgesics (desflurane, nitrous oxide) during second-stage labor. | Poor randomization method. N = 80, no withdrawals. Patients and obstetricians blinded. Outcome assessment not blinded. |
| Peach ⁷⁰ 1995, Australia | Compare PCEA with conventional top-ups. | No description of method of randomization. N = 198, 34 withdrawals. Postpartum pain ratings obtained by an anesthetist. |
| Cohen ⁷¹ 1996, US | Compare 2 epidural analgesics. | Poor randomization method. N = 100. Double-blind. Caregivers obtained ratings. |
| Russell ⁷² 1996, UK | Compare 2 infusion regimens (bupivacaine ± opioid) for epidural analgesia. | Unspecified method of randomization. Participants, care providers blinded. N = 416; 17 withdrawals. Outcome assessments by caregivers. |
| James ⁷³ 1998, UK | Compare 2 combinations of epidural analgesics (bupivacaine ± opioid). | Randomization centrally controlled. N = 80, 7 withdrawals. Double-blind. Outcome assessments by caregivers. |
| Price ⁷⁴ 1998, UK | Compare combined spinal-epidural with epidural analgesia. | Sealed, numbered envelopes used for randomization. N = 100, 7 withdrew. Blinded outcome assessors. |
| Labrecque ⁷⁵ 1999, Canada | Compare 3 methods to relieve intrapartum back pain: ISW injections, TENS, and standard care (massage, bath, and ambulation). | Randomization by numbered opaque envelopes, no loss to follow-up. N = 34. |
| Sia ⁷⁶ 1999, Singapore | Compare 2 dosing regimens of epidural analgesics. | Randomization by sealed envelopes. N = 42; 1 withdrawal. Double-blind. Unclear if outcome assessments were blinded. |
| Fischer ⁷⁷ 2000, France | Compare 2 combinations of epidural analgesics. | Randomization centrally controlled. N = 200; 11 or 17 withdrawals (unclear in text). Double-blind. Unclear if outcome assessments were blinded. |
| Elbourne ⁷⁸ 2000, several countries | Cochrane Review: compare different types, dosages of intramuscular for opioids labor. | 16 RCTs. Study quality varied. 11 trials (n = 2100) assessed satisfaction with pain relief. |

TENS, Transcutaneous electrical nerve stimulation; NS, not significant; PCEA, patient-controlled epidural analgesia; VAS, visual analog scale; ISW, intracutaneous sterile water.

| <i>Outcome measures</i> | <i>Key results</i> |
|---|--|
| Pain rated 0-4 by both participants and midwives, hourly during labor. Participants asked for comments about the method, and whether they would request TENS again. | No significant between-group differences in pain intensity ratings or in use of other analgesia. TENS group more likely to say they would request it again. |
| Several intrapartum measurements of pain, on a 5-point scale. One day after delivery: ratings of analgesic efficacy as poor, acceptable, or excellent, and would they have the procedure again. | Significant differences in pain intensity ratings. NS differences in willingness to have same procedure again. |
| Pain measured hourly with VAS. No mention of how satisfaction with pain relief was measured. | “Some...were quite satisfied with 30% residual pain whereas others...aimed for absolute pain relief....patient satisfaction does not necessarily equate with pain relief.” |
| VAS for pain several times during labor and 1 day postdelivery. VAS for perception of pain relief 1 day postdelivery. | NS differences in pain intensity. Pain and satisfaction with pain relief used interchangeably. |
| VAS for pain and satisfaction with pain relief several times during labor. Pain scores categorized as mild, moderate, severe. | NS differences in pain intensity, but satisfaction with pain relief was significantly different, in favor of PCEA. |
| Pain and satisfaction with pain relief were measured hourly during labor, with VAS. | NS differences on all measures. |
| Numerous intrapartum measurements of pain and satisfaction with analgesia, with scales of 0-10. | NS differences in pain intensity or satisfaction with analgesia. |
| 10-cm VAS numerous times during labor. “Global satisfaction with labour” assessed 24 h after delivery, with scale of 0-10. | NS differences in pain intensity or global satisfaction. |
| Pain rated 0-10 at intervals during labor. 1 day postpartum: satisfaction with pain relief and overall satisfaction rated 0-10. | NS differences in pain intensity, satisfaction with pain relief, or overall birth satisfaction. |
| Unclear how pain was measured. Satisfaction with pain relief measured as “very satisfied,” “satisfied,” “not satisfied.” | NS differences in pain intensity. Significant differences in satisfaction with pain relief, favoring group who had more side effects, perhaps because of less motor block. |
| 10-cm VAS for all ratings. Hourly intrapartum pain ratings. Global pain, satisfaction with epidural management at 1-2 days’ postpartum. | NS differences in pain intensity. Significant differences in satisfaction with epidural management, favoring PCEA |
| A single 0-4+ rating of pain, timing not specified. Shortly after delivery, patient asked if willing to have same analgesic in future. | Pain intensity ratings and willingness to have it again were similar. In desflurane group, 9 of 40 had amnesia for baby’s birth. |
| VAS for pain during labor. 24 h post delivery: ratings of pain and satisfaction with method of pain relief. | NS differences in pain intensity and satisfaction with pain relief scores. |
| VAS for pain, satisfaction with pain relief, apparently during labor. | Some significant differences in pain intensity, NS difference in satisfaction with pain relief. |
| VAS for pain hourly during labor. VAS for pain, side effects, and overall childbirth satisfaction 1 day after delivery. | NS differences in pain intensity. Significant differences in satisfaction with analgesia, favoring bupivacaine plus opioid, but not in overall satisfaction. |
| VAS for pain several times during labor. VAS for satisfaction with pain relief, 24 h after delivery. | NS differences in pain intensity but significant differences in satisfaction with pain relief, favoring bupivacaine plus opioid. |
| VAS for pain during labor. 24 h after delivery, VAS for satisfaction with pain relief. | NS differences in pain intensity and satisfaction with pain relief. |
| VAS for intensity and unpleasantness of back pain, measured 4 times in 3 h. Postdelivery: summated scales for perceived control and birth satisfaction. | ISW group rated intensity and unpleasantness of pain significantly lower but were less likely to want the same treatment in future. NS differences in perceived control, satisfaction. |
| VAS for pain during labor. VAS for satisfaction with pain relief immediately after delivery. | NS differences in pain intensity and satisfaction with pain relief. |
| Pain measured hourly with VAS. Satisfaction with analgesia measured 2 h after delivery, with VAS. | NS differences in pain intensity scores. Significant differences in satisfaction with pain relief, favoring group that had more motor block. |
| Varied assessment methods, usually included satisfaction with pain relief 1-2 h after administration. | NS differences in satisfaction with pain relief. |

idence that the quality of support from caregivers affects the woman's ability to cope with the stressors of labor, with consequent effects on self-esteem and postpartum depression.⁵⁴ Other potential influences on childbirth satisfaction that have been studied include labor length, perceived difficulty of labor, and intrapartum complications. The effects were generally weak (Table I).

Relationship of satisfaction to other outcomes. Although almost all women desire a healthy baby above all else, women who give birth to healthy babies can be very unhappy and dissatisfied with their birth experiences, whereas women who have serious complications and unhealthy babies can feel very satisfied with their experiences.²⁴ Assessment of psychological outcomes such as self-esteem, emotional well-being, or control were concurrent with assessment of satisfaction (Tables I and II). The studies show strong relationships between control and childbirth satisfaction. Using one outcome to predict another is problematic, since temporal relationships cannot be determined. Control, self-esteem, self-confidence, a sense of achievement, fulfillment, emotional well-being, and overall satisfaction appear to be separate but related concepts.

Comment

Descriptive studies of the impact of intrapartum medical interventions on satisfaction with care consistently show inverse relationships: the more interventions, the more likely it is that some dissatisfaction will be reported. However, interpretations of most of the observational studies are complicated by the problem of inferring causality from relationships. Ordinarily, the best method of ascertaining cause and effect would be the randomized controlled trial. The trials of medical interventions show either no effect on birth satisfaction or an effect that favors medical intervention over expectant care. One must be careful about generalizing their results to all women, however. The trials of medical interventions, such as oxytocin, amniotomy, and induction and augmentation of labor, are studies of women who had a problem (such as prelabor rupture of the membranes, or slow labor progress), and the participants were informed about the potential risks associated with the problem. Since being well informed and actively participating in decisions (such as the decision to enroll in a trial) are important to subsequent satisfaction, and since "what is, must be best" colors ratings of satisfaction, it should not be surprising that participants in a trial would report high levels of satisfaction. In addition, knowledge about the potential risk may create a desire for a speedy conclusion to labor and birth, and the subsequent birth of a healthy infant may override any negative impact of a medical intervention. Furthermore, such trials are usually conducted in tertiary care teaching hospitals. Women who choose tertiary set-

tings have different expectations from those who choose homelike or home settings. The former expect less control and attach more importance to being in an environment that can immediately treat emergent problems.⁸⁵

Caregivers frequently assume that optimum pain relief during labor and birth is very important to most laboring women, and that those who say they wish to avoid pharmacologic pain relief measures are either martyrs or misinformed. However, the results concerning the impact of pain and pain relief on childbirth satisfaction were consistent across a wide variety of circumstances—when epidural analgesia was common or rare, across a wide variety of study designs and methods, in a variety of countries, over almost 30 years. Pain and pain relief do not generally play major roles in satisfaction with the childbirth experience, unless expectations regarding either are unmet.

Although continuous labor support reduces the use of pharmacologic pain relief measures, some women, for a variety of reasons, will desire or need, and subsequently experience great benefits from epidural analgesia. In North America, epidural analgesia is a very common medical intervention for women experiencing normal labor, and yet none of the epidural analgesia trials have assessed its impact on childbirth satisfaction or any other psychological outcome. Assessments of overall satisfaction with analgesia and with the childbirth experience would yield important information about how women incorporate both the desired and unwanted effects of analgesia into their evaluations. Studies that determine the optimum timing and method of ascertaining preferences about pharmacologic pain relief would enable caregivers to tailor their efforts to helping women to achieve their desires. Simkin's Pain Medications Preference Scale links assessment of preferences with specific forms of caregiver support⁸⁶; it could be adapted for use in such studies. Studies that evaluate methods of pain relief should include overall measures of childbirth satisfaction, and they should assess the affective and evaluative aspects of pain, as well as pain intensity.⁸⁷ A comprehensive, well-validated pain assessment measure is available, which takes only a few minutes to complete.⁸⁷

Although fewer US studies include satisfaction as an outcome of maternity care, compared with studies in Europe and Australia, the results are very consistent regardless of the country (Tables I and II). There is no valid scientific reason to discount results of studies conducted outside the United States. However, there are at least two good reasons for conducting more studies in the United States: to inform public policy and to elicit information about women's views of specific aspects of their care. Brown's surveys in Australia provide an excellent model for similar statewide surveys.^{1, 2, 22}

Childbirth satisfaction is a complex, multidimensional construct that may change over time. Although studies have

used a variety of methods to measure it, results are remarkably consistent. Four factors—personal expectations, the amount of support from caregivers, the quality of the caregiver-patient relationship, and involvement in decision making—appear to be so important that they override the influences of age, socioeconomic status, ethnicity, childbirth preparation, the physical birth environment, pain, immobility, medical interventions, and continuity of care, when women evaluate their childbirth experiences. The influences of pain, pain relief, and intrapartum medical interventions on subsequent satisfaction are neither as obvious, as direct, nor as powerful as the influences of the attitudes and behaviors of caregivers.

REFERENCES

1. Brown S, Lumley J. The 1993 survey of recent mothers: issues in survey design, analysis and influencing policy. *Int J Qual Health Care* 1997;9:264-75.
2. Brown S, Lumley J. Changing childbirth: lessons from an Australian survey of 1336 women. *Br J Obstet Gynaecol* 1998;105:143-55.
3. Fitzpatrick R. Surveys of patient satisfaction: I. Important general considerations. *Br Med J* 1991;302:887-9.
4. Ross A. Maternal satisfaction with labour analgesia. *Baillieres Clin Obstet Gynaecol* 1998;12:498-513.
5. Bramadat IJ, Driedger M. Satisfaction with childbirth: theories and methods of measurement. *Birth* 1993;20:22-9.
6. Hall JA, Dornan MC. Meta-analysis of satisfaction with medical care: Description of research domain and analysis of overall satisfaction levels. *Soc Sci Med* 1988;27:637-44.
7. Wensing M, Grol R, Smits A. Quality judgements by patients on general practice care: a literature analysis. *Soc Sci Med* 1994;38:45-53.
8. Cochrane Library 2000 [computer program]. Oxford: Update Software. Issue 4.
9. Sackett D. "Bias in analytic research." *J Chronic Dis* 1979;32:51-63.
10. Forchuk C, Roberts J. "How to critique qualitative research articles." *Can J Nurs Res* 1993;25:47-56.
11. Hodnett E. Pain and women's satisfaction with the experience of childbirth: a systematic review. Available at <http://www.maternitywise.org/prof/pain/>
12. Climie CR, Cope TI, Stevens LH, Lancaster P, Parkinson RS, Sutherland R, et al. Consumer satisfaction in the labour ward. *Med J Aust* 1973;2:1081-4.
13. Shields D. Nursing care in labor and patient satisfaction: a descriptive study. *J Adv Nurs* 1978;3:535-50.
14. Cartright A. *The dignity of labour? A study of childbearing and induction.* London: Tavistock; 1979.
15. Butani P, Hodnett E. Mothers' perceptions of their labor experiences. *Matern Child Nurs J* 1980;9:73-82.
16. Kirke PN. Mothers' views of obstetric care. *Br J Obstet Gynaecol* 1980;87:1029-33.
17. Kirke PN. Mothers' views of care in labour. *Br J Obstet Gynaecol* 1980;87:1034-8.
18. Morgan BM, Bulpitt CJ, Lewis PJ. Analgesia and satisfaction in childbirth (The Queen Charlotte's 1000 Mother Survey). *Lancet* 1982;9:808-11.
19. Sullivan DA, Beeman R. Satisfaction with maternity care: a matter of communication and choice. *Med Care* 1982;20:321-30.
20. Nelson MK. Working-class women, middle-class women, and models of childbirth. *Social Problems* 1983;30:284-97.
21. Jacoby A. Women's preferences for and satisfaction with current procedures in childbirth-findings from a national study. *Midwifery* 1987;3:117-24.
22. Brown S, Lumley J. Satisfaction with care in labor and birth: a survey of 790 Australian women. *Birth* 1989;21:4-13.
23. Drew NC, Salmon P, Webb L. Mothers', midwives' and obstetricians' views on the features of obstetric care which influence satisfaction with childbirth. *Br J Obstet Gynaecol* 1989;96:1084-8.
24. Séguin L, Therrien R, Champagne, Larouch D. The components of women's satisfaction with maternity care. *Birth* 1989;16:109-13.
25. Green JM, Coupland VA, Kitzinger JV. Expectations, experiences, and psychological outcomes of childbirth: a prospective study of 825 women. *Birth* 1990;17:15-24.
26. Green JM. Expectations and experiences of pain in labor: findings from a large prospective study. *Birth* 1993;20:65-72.
27. Salmon R, Miller R. Women's anticipation and experience of childbirth: the independence of fulfilment, unpleasantness and pain. *Br J Med Psychol* 1990;63:255-9.
28. Simkin P. Just another day in a woman's life? Women's long-term perceptions of their first birth experience. Part I. *Birth* 1991;18:203-10.
29. Simkin P. Just another day in a woman's life? Part II: Nature and consistency of women's long-term memories of their first birth experiences. *Birth* 1992;19:64-81.
30. Salmon P, Drew NC. Multidimensional assessment of women's experience of childbirth: relationships to obstetric procedures, antenatal preparation and obstetric history. *J Psychosom Res* 1992;36:317-27.
31. Slade P, MacPherson SA, Hume A, Maresh M. Expectations, experiences and satisfaction with labour. *J Clin Psychol* 1993;32:469-83.
32. Ranta P, Spalding M, Kangas-Saarela T, Jokela R, Hollmen A, Jouppila P, et al. Maternal expectations and experiences of labour pain: opinions of 1091 Finnish parturients. *Acta Anaesthesiol Scand* 1995;39:60-6.
33. Waldenstrom U, Borg I, Ollson B, Skold M, Wall S. The childbirth experience: a study of 295 new mothers. *Birth* 1996;23:144-53.
34. Knapp L. Childbirth satisfaction: the effects of internality and perceived control. *J Perinat Educ* 1996;5:7-15.
35. Geary M, Fanagan M, Boylan P. Maternal satisfaction with management in labour and preferences for mode of delivery. *J Perinat Med* 1997;25:433-9.
36. Hung CH, Hsu YY, Lee SF. Couples' satisfaction with health care service during labor and delivery. *Kaohsiung J Med Sci* 1997;13:255-62.
37. McCrea BH. Satisfaction in childbirth and perceptions of personal control in pain relief during labour. *J Adv Nurs* 1999;29:877-84.
38. Fowles ER. Labor concerns of women two months after delivery. *Birth* 1998;25:235-40.
39. Campero L, Garcia C, Diaz C, Ortiz O, Reynoso S, Langer A. Alone, I wouldn't have known what to do: a qualitative study on social support during labour and delivery in Mexico. *Soc Sci Med* 1998;47:395-403.
40. Small R, Rice PL, Yelland J, Lumley J. Mothers in a new country: the role of culture and communication in Vietnamese, Turkish and Filipino women's experiences of giving birth in Australia. *Women Health* 1999;28:77-101.
41. Waldenstrom U. Experience of labor and birth in 1111 women. *J Psychosom Res* 1999;5:471-82.
42. Lavender T, Walkinshaw SA, Walton I. A prospective study of women's views of factors contributing to a positive birth experience. *Midwifery* 1999;15:40-6.
43. Windridge KC, Berryman JC. Women's experiences of giving birth after 35. *Birth* 1999;26:16-23.
44. Kabakian-Khasholian T, Campbell O, Shediak-Rizkallah M, Ghorayeb F. Women's experiences of maternity care: satisfaction or passivity? *Soc Sci Med* 2000;51:103-13.
45. Killien MG, Shy K. A randomized trial of electronic fetal monitoring in preterm labor: mother's views. *Birth* 1989;16:7-12.
46. Turnbull D, Holmes A, Shields N, Cheyne H, Twaddle S, Gilmour WH, et al. Randomised controlled trial of efficacy of midwife-managed care. *Lancet* 1996;348:213-8.
47. Shields N, Turnbull D, Reid M, Holmes A, McGinley M, Smith LN. Satisfaction with midwife-managed care in different time peri-

- ods: a randomised controlled trial of 1299 women. *Midwifery* 1998;14:85-91.
48. Hodnett ED, Hannah ME, Weston JA, Ohlsson A, Myhr TL, Wang EE, et al. Women's evaluations of induction of labor versus expectant management for prelabor rupture of the membranes at term. *Birth* 1997;24:214-20.
 49. Blanch G, Lavender T, Walkinshaw S, Alfirevic Z. Dysfunctional labour: a randomised trial. *Br J Obstet Gynaecol* 1998;105:117-20.
 50. McNiven PS, Williams JI, Hodnett ED, Kaufman K, Hannah ME. An early labor assessment program: a randomized controlled trial. *Birth* 1998;25:5-10.
 51. Lavender T, Wallymahmed A, Walkinshaw S. Managing labor using partograms with different action lines: a prospective study of women's views. *Birth* 1999;26:89-96.
 52. Fraser WD, Turcot L, Krauss I, Brisson-Carrol G. Amniotomy for shortening spontaneous labour. *The Cochrane Library* 2000 [software program]. Oxford: Update Software. Issue 4.
 53. Gupta JK, Nikodem VC. Woman's position during second stage of labour. *The Cochrane Library* 2000 [software program]. Oxford: Update Software. Issue 4.
 54. Hodnett ED. Caregiver support for women during childbirth. *The Cochrane Library* 2000 [software program]. Oxford: Update Software. Issue 4.
 55. Hodnett ED. Home-like versus conventional institutional settings for birth. *The Cochrane Library* 2000 [software program]. Oxford: Update Software. Issue 4.
 56. Hodnett ED. Continuity of caregivers for care during pregnancy and childbirth. *The Cochrane Library* 2000 [software program]. Oxford: Update Software. Issue 4.
 57. Waldenstrom U, Brown S, McLachlan H, Forster D, Brennecke S. Does team midwife care increase satisfaction with antenatal, intrapartum, and postpartum care? A randomized controlled trial. *Birth* 2000;27:156-67.
 58. Harrison RE, Woods T, Shore M, Mathews G, Unwin A. Pain relief in labour using transcutaneous electrical nerve stimulation (TENS). A TENS/TENS placebo controlled study in two parity groups. *Br J Obstet Gynaecol* 1986;93:739-46.
 59. Frank M, McAteer EJ, Cattermole R, Loughnan B, Stafford LB, Hitchcock AM. Nalbuphine for obstetric analgesia: a comparison of nalbuphine with pethidine for pain relief in labour when administered by patient-controlled analgesia (PCA). *Anaesthesia* 1987;42:697-703.
 60. Gambling DR, Yu P, McMorland GH, Palmer L. A comparative study of patient controlled epidural analgesia (PCEA) and continuous infusion epidural analgesia (CIEA) during labour. *Can J Anaesth* 1988;35:249-54.
 61. Smedstad KG, Morison DH. A comparative study of continuous and intermittent epidural analgesia for labour and delivery. *Can J Anaesth* 1988;35:234-41.
 62. Gambling DR, McMorland GH, Yu P, Laszlo C. Comparison of patient-controlled epidural analgesia and conventional intermittent "top-up" injections during labor. *Anesth Analg* 1990;70:256-61.
 63. Sinatra RS, Goldstein R, Sevarino FB. The clinical effectiveness of epidural bupivacaine, bupivacaine with lidocaine, and bupivacaine with fentanyl for labor analgesia. *J Clin Anesth* 1991;3:219-24.
 64. Fontenot RJ, Price RL, Henry A, Reinsner LS, Weinger MB. Double-blind evaluation of patient-controlled epidural analgesia during labor. *Int J Obstet Anesth* 1993;2:73-7.
 65. Russell R, Groves P, Reynolds F. Is opioid loading necessary before opioid/local anaesthetic epidural infusions? A randomized double-blind study in labour. *Int J Obstet Anesth* 1993;2:78-84.
 66. Russell R, Reynolds F. Epidural infusions for nulliparous women in labour: a randomised double-blind comparison of fentanyl/bupivacaine and sufentanil/bupivacaine. *Anaesthesia* 1993;48:856-61.
 67. Bailey CR, Ruggier R, Findley IL. Diamorphine-bupivacaine mixture compared with plain bupivacaine for analgesia. *Br J Anaesth* 1994;72:58-61.
 68. Curry PD, Pacsoo C, Heap DG. Patient-controlled epidural analgesia in obstetric anaesthetic practice. *Pain* 1994;57:125-8.
 69. Abboud TK, Swart F, Zhu J, Donovan MM, Da Silva EP, Yakal K. Desflurane analgesia for vaginal delivery. *Acta Anaesthesiol Scand* 1995;39:239-61.
 70. Peach MJ, Pavy TJ, Sims C, Westmore MD, Storey JM, White C. Clinical experience with patient-controlled and staff-administered intermittent bolus epidural analgesia in labour. *Anaesth Intensive Care* 1995;23:459-63.
 71. Cohen S, Amar D, Pantuck CB, Pantuck EJ, Goodman EJ, Leung DH. Epidural analgesia for labour and delivery: fentanyl or sufentanil? *Can J Anaesth* 1996;43:341-6.
 72. Russell R, Reynolds F. Epidural infusion of low-dose bupivacaine and opioid in labour: does reducing motor block increase the spontaneous delivery rate? *Anaesthesia* 1996;51:266-73.
 73. James KS, McGrady E, Quasim I, Patrick A. Comparison of epidural bolus administration of 0.25% bupivacaine and 0.1% bupivacaine with 0.0002% fentanyl for analgesia during labour. *Br J Anaesth* 1998;81:507-10.
 74. Price C, Lafreniere L, Brosnan C, Findley I. Regional analgesia in early active labour: combined spinal epidural vs epidural. *Anaesthesia* 1998;58:951-5.
 75. Labrecque M, Nouwen A, Bergeron M, Rancourt JF. A randomized controlled trial of nonpharmacologic approaches for relief of low back pain during labor. *J Fam Pract* 1999;48:4259-63.
 76. Sia AT, Chong JL, Chiu JW. Combination of intrathecal sufentanil 10 plus bupivacaine 2.5 mg for labor analgesia: is half the dose enough? *Anesth Analg* 1999;88:362-6.
 77. Fischer C, Blanie P, Jaouen E, Vayssieire C, Kaloul I, Coltat J-C. Ropivacaine, 0.1% plus sufentanil, 0.5% μ /ml, versus bupivacaine, 0.1%, plus sufentanil, 0.5 μ /ml, using patient-controlled epidural analgesia for labor: a double-blind comparison. *Anesthesiology* 2000;92:1588-93.
 78. Elbourne D, Wiseman RA. Types of intra-muscular opioids for maternal pain relief in labour. *The Cochrane Library* 2000 [software program]. Oxford: Update Software. Issue 4.
 79. Hodnett E, Simmons-Tropea D. The Labour Agency Scale: psychometric properties of an instrument measuring control during childbirth. *Res Nurs Health* 1987;10:301-10.
 80. Lomas J, Dore S, Enkin M, Mitchell A. The Labor and Delivery Satisfaction Index: the development and evaluation of a soft outcome measure. *Birth* 1987;14:125-9.
 81. Lumley J. Assessing satisfaction with childbirth. *Birth* 1985;12:141-5.
 82. Erb L, Hill G, Houston D. A survey of parents' attitudes toward the cesarean births in Manitoba hospitals. *Birth* 1983;10:85-92.
 83. Bennett A. The birth of a first child: do women's reports change over time? *Birth* 1985;12:153-8.
 84. Porter M, MacIntyre S. What is, must be best: a research note on conservative or deferential responses to antenatal care provision. *Soc Sci Med* 1984;19:1197-1200.
 85. Hodnett E. Personal control and the birth environment: comparisons between home and hospital settings. *J Environ Psychol* 1989;9:207-16.
 86. Simkin P. *The birth partner*. Boston: Harvard Common Press; 2000.
 87. Melzack R. The short-form McGill pain questionnaire. *Pain* 1987;30:191-7.

