Interventions in midwife led care in the Netherlands to achieve optimal birth outcomes: effects and women’s experiences
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Perinatal factors related to negative or positive recall of birth experience, in women three years postpartum in the Netherlands

Rijnders M, Baston H, Prins M, Schönbeck Y, vd Pal K, Green J, Buitendijk S.

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Abstract

Background
Little research has been conducted to date on women’s postnatal emotional well-being and satisfaction with the care received in the Netherlands. The aim of this study was to investigate Dutch women’s views of their birth experience 3 years after the event.

Methods
A questionnaire was mailed to all women who had given birth in 2001 and who had at least one prenatal, perinatal, or postnatal visit to the participating midwifery practice. Women who had a subsequent birth after the index birth in 2001 were not excluded. We specifically asked respondents to reflect on the birth that occurred in 2001. Women were asked to say how they felt now looking back on their labor and birth, with five response options from “very happy” to “very unhappy”.

Results
We received 1,309 postnatal questionnaires (response rate 44%). The sample was fairly representative with respect to the mode of delivery, place of birth, and obstetric interventions compared with the total Dutch population of pregnant women; however, the sample was not representative for ethnicity and initial caregiver. Three years after delivery, most women looked back positively on their birth experience, but more than 16 percent looked back negatively. More than 1 in 5 primiparas looked back negatively compared with 1 in 9 multiparas. Adjusted odds ratios (OR) for looking back negatively 3 years later included having had an assisted vaginal delivery or unplanned cesarean delivery (OR 2.6, 95% CI 1.59–4.14), no home birth (OR 1.4, 95% CI 1.04–1.93), referral during labor (OR 2.4, 95% CI 1.48–3.77), not having had a choice in pain relief (OR 2.9, 95% CI 1.91–4.45), not being satisfied in coping with pain (OR 4.9, 95% CI 2.55–9.40), a negative description of the caregivers (OR 2.9, 95% CI 1.85–4.40), or having had fear for the baby’s life or her own life (OR 2.3, 95% CI 1.47–3.48).

Conclusions
A substantial proportion of Dutch women looked back negatively on their birth experience 3 years postpartum. Further research needs to be undertaken to understand women’s expectations and experiences of birth within the Dutch maternity system and an examination of maternity care changes designed to reduce or modify controllable factors that are associated with negative recall.

Key word
Experience with birth, Dutch, long-term, recall
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Introduction

As patient satisfaction with health care delivery receives increasing attention, women’s experiences of childbirth have become of interest to researchers in Western countries. The experience of childbirth is an important life event that may affect women’s short (1) and long-term well-being (2,3). It may influence both the mother-child relationship (4,5) and the mother-partner relationship (6). Negative birth experiences can also influence reproductive choices (7–9) or preferred management during subsequent deliveries, such as a request for a cesarean section (10–12). Furthermore, they may increase the risk of depression either after birth or around the time of the next pregnancy (13,14).

Several factors have been associated with level of satisfaction, such as age at labor and level of education (15), pain level during labor (16), sense of being in control (16,17), support from a partner (15,16), caregiver support (18), and satisfaction with the birth environment (15). Women’s recollection of actual birth events does not change much over time (2), but women seem to rate their birth pain as more severe directly after birth than a year or more later (1). Conversely, they rate negative events more negatively a year or longer after birth than directly after birth (1,2).

The Dutch maternity care system is viewed by many as a model of care in which support, informed choice, continuity of care, and potential for the woman to be in control are essential elements (19–21). In this system, low-risk women have a free choice for the place of birth, that is, at home or in the hospital under the supervision of a midwife. Low-risk Dutch women receive care during pregnancy, birth, and the postnatal period from a limited number of caregivers collaborating in independent midwifery practices. It is often assumed that this model leads to more feelings of control by the woman and a higher level of satisfaction with pregnancy and birth compared with other models of care (19–22).

However, when complications arise or a woman is considered to be at risk for an adverse pregnancy outcome, she will be referred to a hospital for further obstetric care. The consequence of a referral is that the woman will no longer receive care from her primary caregiver or, at least for the duration of the referral period, will often not have further contact with this caregiver. Failure to receive continuous support during labor can lead to lower satisfaction with the childbirth experience (23).

Approximately 85 percent of all pregnant women in the Netherlands start prenatal care in a primary care setting, mostly an independent midwifery practice. Twenty-eight percent are referred to an obstetrician during pregnancy and 17 percent during birth (24). The result is that of all Dutch women, only 40 percent receive all perinatal care from an independent midwife, which implies that for most women, factors within the
Dutch maternity care system that supposedly maximize the chance of a good birth experience (i.e., continuous support and freedom of place of birth) will be minimized in situations of potential labor complications and possible maternal distress. These situations increase the likelihood that a woman will perceive her birth experiences negatively (16).

Only a few studies in the Netherlands have addressed the issue of satisfaction with childbirth and perinatal care. Referral during labor has been shown to lead to more negative perceptions of birth experiences compared with not being referred (25,26). No difference was found among referrals during a planned home or a planned hospital delivery on the woman’s experience of birth, her satisfaction with the midwife, well-being in the direct postpartum period (25,26), or well-being 6 months postpartum (25). Of women who were not referred during birth, both multiparas and nulliparas with a planned home birth were more satisfied with the care provided by a midwife and nulliparas who delivered at home were also more satisfied with the postpartum care than those with a hospital birth (26).

In the present study, we investigated how Dutch women look back at birth 3 years postpartum. We studied “looking back at birth” in relation to maternal demographic factors and perinatal factors, such as mode of delivery, use of pain relief, and referral during pregnancy, birth, or the postpartum period, in addition to subjective factors, such as satisfaction with the caregiver and recall of pain during labor.

This study was originally conducted to investigate women’s long-term perception of birth in relation to mode of delivery in the Netherlands compared with the United Kingdom. It was hypothesized that women’s appraisals of their birth experience would be different in cultures with different birth norms. Specifically, it was hypothesized that women in the Netherlands who had a surgical birth would be less happy looking back on their experience than similar women in the U.K., where the incidence of cesarean section is much higher and such births may therefore be more widely anticipated. The Dutch study that is reported in the present paper built on a U.K. study by Baston (27), which was a 3-year follow-up of women who had taken part in a large prospective study Greater Expectations? in 2000 (28). Other publications comparing the English and Dutch data are in preparation.

**Methods**

**Sample**

Eight primary care midwifery practices from across the Netherlands were invited to participate; they were randomly selected from the Dutch Midwifery Association Registration. A sampling frame was used to recruit practices with different levels of
urbanization based on the number of addresses per square kilometers. For this study, we used three categories: urban (at least 1,500 households/km²), semiurban (1,000–1,499 households/km²), and rural (<1,000 households/km²). Of all 8 practices agreeing to participate, 2 were urban, 3 semiurban, and 3 rural.

The sample comprised women who had given birth in 2001 and who had at least one prenatal, perinatal, or postnatal visit to the participating midwifery practice. By using this method, women were included if they received care from a midwife only or from both a midwife and an obstetrician. Women who had a subsequent birth after the index birth in 2001 were not excluded. We specifically asked respondents to reflect on the birth in 2001. Women were excluded if it was known to the midwife, either from the perinatal record or from any other source, that they had experienced a perinatal death or a deceased child in the past 3 years. Data about parity, mode of delivery, type of caregiver, and urbanization level were collected about all women before they were sent the questionnaire. Women received only one mailing. No second attempt was made to acquire data from nonresponders due to time and money constraint. Approval of a medical ethics board was not required in the Netherlands because no invasive procedures were involved.

Our aim was to recruit a sample that contained sufficient numbers of women with each mode of delivery to permit comparison with the U.K. sample (27). To achieve this goal, we had to be aware of different cesarean delivery rates: 15 percent in the Netherlands (30) compared with 26 percent in Baston’s study (27). We also anticipated different response rates due to the different methodologies employed (29). U.K. women had been recruited into the original study when pregnant and then approached again 3 years later. Reminders had been sent to nonresponders. In the Dutch study, the initial approach to women was 3 years postpartum and no reminders were sent. We had little basis for estimating the response rate under these circumstances and made the conservative assumption of 40 percent. On this basis, we calculated that we needed to approach 3,200 women.

**Questionnaire**

For the Dutch study, the questionnaire used in the 3-year follow-up of Greater Expectations? (27) was translated. Questions related to the maternity system were added or altered to adapt the questionnaire for the Dutch situation. The questionnaire contained 26 open and 140 closed questions that addressed demographics, the organization of perinatal care, mode of labor and delivery, experiences with cesarean section, medical interventions during labor, experiences with childbirth, experiences with the caregivers, pain relief during labor, postpartum period emotional well-being 3 years after the birth, the women’s relationship with her child and her partner,
experiences with breastfeeding, and decisions concerning reproduction.

One of the key questions that addressed positive or negative recall in the questionnaire was “How do you feel when you look back on your experience of birth in 2000?” Women were given five response options: “I’m very happy with the way things went,” “I’m quite happy with the way things went,” “I have no particular feelings,” “I am quite unhappy with the way things went,” and “I am very unhappy with the way things went.” For analyses, the outcome for recall of birth was dichotomized. As in Baston’s study (27), “I am quite unhappy with the way things went” and “I am very unhappy with the way things went” were labeled as looking back negatively or negative recall and other responses as looking back positively or positive recall.

The questionnaire presented women with a list of 15 adjectives, as used in the three original Greater Expectations? study (28), and asked them to circle all the words that described any of the staff seen during labor. The descriptive words could be used for any or all the caregivers involved. If 30 percent or more of the words chosen were negative, then that woman’s description of caregivers was defined as negative.

Only the translation of the adjective checklists was carried out by official native-speaking translators in a forward and backward way. The procedure was conducted by an officially licensed translation center. We considered the other questions very straightforward and not requiring specialized translation.

Data Analysis

Univariate analysis was carried out using the chi-square test for categorical variables and one-way analysis of variance for continuous variables. We selected variables based on theoretical or clinical perspectives and entered them into a logistic regression model using backward stepwise selection. This method started with all variables in the model. At each step, the variable that was the weakest predictor of the outcome variable was removed from the model. For each variable in the model, the significance level was then calculated for a change in -2 log likelihood of the model if the variable was taken out. If the significance level for a change in -2 log likelihood was above 0.1, the variable was removed.

As an independent variable to control for social adversity in the regression analyses, we constructed a composite variable “background” based on the variables of marital status, education, and ethnicity. A woman was considered to have a background “at risk” for obstetric or psychosocial outcomes if she had at least one of the risk factors: single, low education level, or non-Dutch origin (15,16,30,31).

All statistical tests were two tailed, and p values less than 0.05 were considered statistically significant. SPSS version 11.5 for Windows was used for data analysis (32).
Results

Of the 3,200 postal questionnaires that were sent, 228 were returned unopened because the respondent no longer lived at that address and 1,310 questionnaires were returned, resulting in a 44 percent valid response rate, with a 21 to 53 percent range per midwifery practice. Table 1 shows the basic characteristics of the respondents.

The basic characteristics of our sample were compared with data from the Dutch Perinatal Registry (24,30) to estimate whether our sample was representative for the Netherlands. Our sample was reasonably representative for mean age at birth, parity, mode of delivery, place of delivery, and moment of referral. However, it contained more Dutch respondents and women starting labor with their midwife. In our sample, levels of urbanization (urban, semiurban, and rural) were divided equally over the group. Reference data for marital status and education were not available. The nonresponders differed from the responders only in parity, with the latter group containing slightly fewer primiparas (42% vs 48%).
Table 1: Basic Characteristics of the Study Respondents at 3 Years Postpartum and of the Reference Group

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Respondents</th>
<th>Reference Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. (%) or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(SD)</td>
<td>%</td>
</tr>
<tr>
<td>Parity (n = 1,227)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primiparous</td>
<td>580 (44.3)</td>
<td>47.1*</td>
</tr>
<tr>
<td>Multiparous</td>
<td>728 (55.7)</td>
<td>52.9*</td>
</tr>
<tr>
<td>Age (yr) (n = 1,297)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>31.3 {4.01}</td>
<td>30.3*</td>
</tr>
<tr>
<td>Education (n = 1,294)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>257 (19.8)</td>
<td>NA</td>
</tr>
<tr>
<td>Middle</td>
<td>556 (42.8)</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>487 (37.5)</td>
<td></td>
</tr>
<tr>
<td>Marital status (n = 1,309)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/living together</td>
<td>1,230 (94)</td>
<td>NA</td>
</tr>
<tr>
<td>Single, divorced, widowed</td>
<td>79 (6.0)</td>
<td></td>
</tr>
<tr>
<td>Ethnicity (n = 1,309)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td>1,231 (94.6)</td>
<td>84.8*</td>
</tr>
<tr>
<td>Not Dutch</td>
<td>70 (5.4)</td>
<td>17.7*</td>
</tr>
<tr>
<td>Mode of delivery (n = 1,309)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaginal spontaneous</td>
<td>991 (75.7)</td>
<td>73.4†</td>
</tr>
<tr>
<td>Vaginal assisted</td>
<td>146 (11.2)</td>
<td>11.6†</td>
</tr>
<tr>
<td>Cesarean section</td>
<td>172 (13.1)</td>
<td>15.0†</td>
</tr>
<tr>
<td>Place of delivery (n = 1,309)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At home</td>
<td>439 (33.6)</td>
<td>30.3*</td>
</tr>
<tr>
<td>In hospital</td>
<td>870 (66.4)</td>
<td>69.7*</td>
</tr>
<tr>
<td>Referral (n = 1,293)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>634 (48.9)</td>
<td>45.7*</td>
</tr>
<tr>
<td>During labor</td>
<td>264 (20.4)</td>
<td>16.8*</td>
</tr>
<tr>
<td>During pregnancy</td>
<td>395 (30.6)</td>
<td>27.5*</td>
</tr>
</tbody>
</table>


† Data from the Dutch National Perinatal Data Registry of 182,729 pregnancies in 2001.

NA = not applicable.
Birth Experience Recall 3 Years after Delivery
Most women said that they could remember the birth in 2001 ‘‘very clearly’’ (35%) or remembered ‘‘most things’’ (59%). Only 7 percent stated that ‘‘only a few things were clear.’’ Most women (83%) looked back positively on their birth experience, saying they were very or quite happy with the way things went during birth. However, 16.5 percent answered that they were very or quite unhappy with the way things went during birth. More than 1 in 5 primiparas looked back negatively compared with 1 in 9 multiparas (Table 2). No statistically significant differences in outcome variables were seen among the eight midwifery practices.

Table 2: Women’s Recall of Birth at 3 Years Postpartum, by Parity

<table>
<thead>
<tr>
<th>Recall of Birth</th>
<th>Total Group</th>
<th>Primiparas</th>
<th>Multiparas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. (%)</td>
<td>No. (%)</td>
<td>No. (%)</td>
</tr>
<tr>
<td>Very happy</td>
<td>681 (56.1)</td>
<td>246 (47.3)</td>
<td>435 (62.8)</td>
</tr>
<tr>
<td>Quite happy</td>
<td>284 (23.4)</td>
<td>132 (25.4)</td>
<td>152 (21.9)</td>
</tr>
<tr>
<td>No particular feelings</td>
<td>51 (4.2)</td>
<td>25 (4.8)</td>
<td>26 (3.7)</td>
</tr>
<tr>
<td>Quite unhappy</td>
<td>133 (11)</td>
<td>75 (14.4)</td>
<td>58 (8.4)</td>
</tr>
<tr>
<td>Very unhappy</td>
<td>64 (5.3)</td>
<td>42 (8.1)</td>
<td>22 (3.2)</td>
</tr>
<tr>
<td>Total</td>
<td>1213 (100)</td>
<td>520 (100)</td>
<td>693 (100)</td>
</tr>
</tbody>
</table>

Only 4 percent of the women who gave birth at home looked back negatively compared with 23 percent who gave birth in hospital. Of the women who looked back negatively after a home birth, 50 percent wanted to have a home birth again in a future pregnancy compared with 90 percent of those who looked back positively at their home birth. Of the women who looked back negatively after a hospital birth (either by choice or after referral), 40 percent wanted to have a home birth if they were to have more children, as did 35 percent of the women who had positive recall of their hospital birth.

Women who had a planned cesarean delivery were not significantly more negative compared with women who had a spontaneous delivery: 16 percent (n = 14) versus 11 percent (n = 105), respectively. However, women who had an assisted vaginal delivery or unplanned cesarean delivery recalled birth more negatively: 42 percent (n = 59) and 47 percent (n = 36), respectively, compared with women who had a spontaneous vaginal delivery.

Description of Caregivers
Women chose mainly positive adjectives to describe staff. Overall, the most frequently chosen positive adjectives were ‘‘supportive’’ (72%) and ‘‘considerate’’ (66%). More
than 40 percent of all women did not use the positive adjectives “informative,” “warm,” and/or “polite.” Thirty percent of all women described staff as being sensitive. Staff being “rushed” was the most frequently chosen negative adjective (17%). An association appeared to exist between negative recall of the birth experience and describing the caregiver more negatively. Figure 1 shows the percentages of women with negative or positive recall and the chosen adjectives. Marked differences occurred between women with negative or positive recall and their choices for positive adjectives and negative adjectives.

Figure. 1: Percentage of women selecting each adjective to describe their caregivers by looking back positively or negatively (n=1,293)
Table 3: Perinatal Factors Associated with Negative Recall of Birth 3 Years Later among Women Who Experienced Labor, Using Univariate Analysis (n = 1,293)

<table>
<thead>
<tr>
<th>Perinatal Factors</th>
<th>Looking Back Positively (n= 1,079)</th>
<th>Looking Back Negatively (n= 214)</th>
<th>Crude OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. (%) or {SD}</td>
<td>No. (%) or {SD}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Background</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at risk</td>
<td>811 (83.9)</td>
<td>156 (16.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At risk</td>
<td>268 (82.2)</td>
<td>58 (17.8)</td>
<td>1.13</td>
<td>0.81–1.57</td>
</tr>
<tr>
<td>Parity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multipara</td>
<td>613 (88.5)</td>
<td>80 (11.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primipara</td>
<td>403 (72.1)</td>
<td>117 (27.9)</td>
<td>2.25</td>
<td>1.63–3.03</td>
</tr>
<tr>
<td>Age (yr)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean age</td>
<td>31.4 {4.0}</td>
<td>30.9 {4.1}</td>
<td>p = 0.109</td>
<td></td>
</tr>
<tr>
<td>Birth characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mode of delivery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spontaneous</td>
<td>879 (89.3)</td>
<td>105 (10.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assisted vaginal or unplanned</td>
<td>190 (65.3)</td>
<td>101 (34.7)</td>
<td>4.53</td>
<td>3.25–6.10</td>
</tr>
<tr>
<td>Cesarean delivery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place of birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>419 (91.5)</td>
<td>18 (8.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>660 (87.3)</td>
<td>96 (12.7)</td>
<td>6.94</td>
<td>4.20–11.37</td>
</tr>
<tr>
<td>Referral during labor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>904 (88.9)</td>
<td>113 (11.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>161 (61.9)</td>
<td>99 (38.1)</td>
<td>4.93</td>
<td>3.58–6.76</td>
</tr>
<tr>
<td>Received pain relief</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>956 (86.2)</td>
<td>153 (13.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>123(66.9)</td>
<td>61 (33.1)</td>
<td>3.1</td>
<td>2.18–4.40</td>
</tr>
<tr>
<td>Birth experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received a choice in pain relief</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>633 (91.3)</td>
<td>60 (8.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>256 (69.2)</td>
<td>114 (30.8)</td>
<td>4.7</td>
<td>3.33–6.63</td>
</tr>
<tr>
<td>Satisfied coping with pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>962 (86.8)</td>
<td>153 (13.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>26 (39.4)</td>
<td>40 (60.6)</td>
<td>10.1</td>
<td>5.93–17.06</td>
</tr>
</tbody>
</table>

Note: Different denominators due to missing data.
Factors Associated with Negative Recall

Table 3 shows the unadjusted odds ratios (ORs) that were associated with negative recall. Women with a planned cesarean delivery were excluded from this analysis since some important factors related to recall of the birth experience (such as the choice in or use of pain relief during labor) were missing for these women.

Of all demographic variables, neither “background of risk” nor age contributed to negative recall after univariate analysis. All variables selected for univariate analysis as shown in Table 3 were also entered into a logistic regression model using backward stepwise selection. After correction for all variables in the model, parity and having had pain relief no longer contributed significantly to recall of birth. Adjusted ORs are shown in Table 4. Having had an assisted vaginal or unplanned cesarean delivery and being referred during labor both increased the risk of negative recall, as did not having had a home birth. If a woman indicated that she was not satisfied with the way she had coped with pain, her risk of negative recall overall was almost five times higher. Feeling that she had not received a choice in pain relief and using more negative adjectives to describe her caregiver(s) was associated with an almost three-fold increase in the odds of negative recall. Reporting that during the birth she had feared for her own life or the life of the baby was associated with negative recall of the birth experience (Table 4). The Nagelkerke R2 for this model was 0.386, indicating that almost 39 percent of looking back negatively can be explained by this model.

Table 4: Perinatal Factors Associated with Negative Recall of Birth 3 Years Later among Women Who Experienced Labor (n = 946), after Logistic Regression Using Backward Stepwise Selection

<table>
<thead>
<tr>
<th>Perinatal Factors</th>
<th>Adjusted OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assisted vaginal or unplanned cesarean delivery</td>
<td>2.6</td>
<td>1.59–4.14</td>
</tr>
<tr>
<td>Hospital birth</td>
<td>1.4</td>
<td>1.04–1.93</td>
</tr>
<tr>
<td>Referral during labor</td>
<td>2.4</td>
<td>1.48–3.77</td>
</tr>
<tr>
<td>Receiving a choice in pain relief</td>
<td>2.9</td>
<td>1.91–4.45</td>
</tr>
<tr>
<td>Satisfied coping with pain</td>
<td>4.9</td>
<td>2.55–9.40</td>
</tr>
<tr>
<td>Negative description of caregiver</td>
<td>2.9</td>
<td>1.85–4.40</td>
</tr>
<tr>
<td>Fear for baby’s life or own life</td>
<td>2.3</td>
<td>1.47–3.48</td>
</tr>
</tbody>
</table>

**Discussion**

Three years after their birth, most women recalled it as a positive event. However, 16.5 percent were reportedly unhappy or very unhappy when asked how they looked back on their birth experience. Primiparas were unhappy in 23.2 percent of cases and multiparas in 11.4 percent. These substantive percentages are the reason for concern since long-
term negative birth experiences may influence reproductive choices of the woman herself (8,9,33) and other women’s choices around childbirth (10–12). Several factors were related to the risk of having negative recall of the birth event. After controlling for other factors, referral during labor, having feared for her own or the baby’s life, not having had a choice in pain relief, not being satisfied with the way she coped with pain relief, and describing caregivers negatively all contributed to the risk that a woman reported a negative birth experience 3 years later. The proportion of women with negative recall among those who had a planned cesarean section was comparable with women who had a spontaneous vaginal delivery. Pain relief as such and parity were no longer related to the likelihood of negative recall after controlling for the other factors in the model.

Limitations of the Study

External Validity
Data were collected once, and no reminders were sent because of time and money constraints. Reminder systems increase the response rate of mailed questionnaires by an average of 13 percent (33). Our resulting response rate was 44 percent. The length of the questionnaire probably also contributed to a low response rate (34,35). Two midwifery practices had more than 30 percent of non-Dutch clients. The fact that the questionnaire was issued only in Dutch also might have contributed to a low response rate from non-Dutch women. The resulting overall percentage of non-Dutch women in our sample was lower compared with national perinatal data (30). Except for the factor of ethnicity, our sample seemed fairly representative of Dutch women who received perinatal care from an independent midwife.

It is unlikely that the relatively low response rate inflated the observed percentage of women with a negative recall. Reminders do not seem necessary to estimate satisfaction of overall potential respondents (29,36). Moreover, people with negative experiences are, in general, not more likely to participate in surveys in which they are asked to report (34,36). Our sample contained fewer primiparas compared with the nonresponders’ group, but no differences were observed in the proportion of variables potentially strongly associated with negative recall such as “unplanned cesarean delivery” and “assisted vaginal delivery” between the responders’ and the nonresponders’ groups.

Internal Validity
In the questionnaire, we collected subjective data on experiences with the birth 3 years before birth and data about the course of the pregnancy, delivery, and postpartum
period. The latter were self-reported data by the responding women. Self-reported reproductive history and medical procedures have high to moderate reliability (37), but it varies depending on the nature of complications examined (38). The obstetric data we used in our analysis were very unlikely to be misreported or misinterpreted, namely mode and place of delivery and having had pain relief during delivery.

Recall Bias
The questionnaire was sent to all women 3 years after a delivery in 2001. Despite a self-reported good memory, recall bias might still be a problem in our study. It is likely that subjective independent variables, such as the adjectives used to describe the caregiver or the experienced fear during delivery, and the outcome variable “recall” interact. Therefore, describing the caregiver more positively or negatively 3 years postpartum does not necessarily reflect a positively or negatively perceived experience with the caregiver at the time of the delivery itself. It only implies that how a woman looks back at her delivery 3 years later is associated with her perception of the caregivers involved and her experienced fear 3 years before.

Interpreting Results
After controlling for other factors, not having had a choice in pain relief was associated with negative recall. Women who had not been given a choice in pain relief were three times more likely to recall their birth experience negatively. After logistic regression, having had pain relief per se did not increase the risk of negative recall. In the Netherlands, pain relief is not common; less than 10 percent of all laboring women receive epidural analgesia (39). In our study, 20 percent of the women without a planned cesarean delivery had received some form of pharmaceutical pain relief. A demand for pain relief is a reason for referral to a hospital. However, epidural analgesia is not always a 24-hour service, and it is not actively advocated by midwives or obstetricians (40,41). Some studies have reported that having received pain relief increases the risk of a negative birth experience (16,42), and this effect is stronger if the woman had a feeling of being pressured to use it or not (42) or if the pain relief reduced the woman’s feelings of control and fulfillment (16). The mode and content of counseling by Dutch midwives or obstetricians in preparation for birth have not been researched in the Netherlands. It is unknown how the issue of pain relief is discussed and whether women are given an informed choice in pain relief during labor. The high percentage of the women in our study (25%) who mentioned that they had not felt able to make a choice in pain relief indicates that this factor might not be the case. Referral during labor also remained a significant risk factor for negative recall of the birth experience. In a previous Dutch study, also, referral during labor was significantly
Perinatal factors related to negative or positive recall

associated with reporting of a negative birth experience 10 days postpartum (25). However, other Dutch studies do not find a difference in satisfaction with the experience of birth 3 weeks postpartum (26) or an increase in postpartum blues or depression (43) after referral during labor.

Referral practices within the Dutch maternity system are not in concordance with the concept of continuous support during labor. We hypothesize that this factor may be one of the underlying reasons for negative recall. Continuous support either by a clinical caregiver or by a nonclinical caregiver has been shown to reduce negative perceptions of women’s birth experiences and to provide other benefits as well (18,23). In the Netherlands, the need for continuous support during labor either at a home birth or at a birth after referral has only recently been addressed (44,45). Giving birth in the hospital remained a significant risk factor for negative recall after controlling for other variables. In addition, home remained a popular place for the next delivery, both for women who looked back positively or negatively.

In our study, we used the same adjectives to describe staff as were used in Green et al’s study Greater Expectations? (28). In their study, all adjectives, and especially the adjective “considerate,” were significantly related to feeling in control (17). Considerate was a term used by 66 percent of all women in our study compared with 72 percent in Green et al’s study. Of the women who had negative recall, only 47 percent used the adjective considerate. It seems likely that Green and Baston’s (17) conclusion that “the extent to which women feel that they are actually cared about, rather than care being something that is done to them, will contribute to satisfaction and emotional well-being” (p 247) applies to Dutch women as well. In our sample, major differences between women who had positive recall and those who had negative recall were found in the frequency with which the adjectives “warm,” “bossy,” “considerate,” and “rushed” were used. It is worth noting that fewer than one-third of all women described staff as being sensitive.

Due to the retrospective nature of our data collection, expectations during pregnancy toward the pregnancy, the delivery, the postpartum period, and parenthood could not be measured. Hence, we were unable to measure the extent to which differences between expectations and actual outcome influenced the chances of negative recall. It can be argued that the choice for place of delivery and type of caregiver can be related to underlying perceptions of childbirth (25,46). Since 85 percent of all women start care with an independent midwife and 70 percent opt for a home delivery, it can be assumed that most Dutch women have positive expectations toward childbirth. Positive expectations toward birth are related to positive experiences looking back (4,16,46). However, in our study, the percentage of women with negative recall is 16.3. This percentage is significantly higher (p<0.01) than the 11 percent negative recall in
Baston’s study, where the same questionnaire during the same time frame was used (27). Further analyses to explain these differences are currently being undertaken.

Conclusions
A substantive proportion of Dutch women have negative recall of their birth experience 3 years postpartum. Factors that are associated with this outcome are linked not to demographic variables but to obstetric interventions and referral during labor. In addition, a negative description of caregivers 3 years later, recalling having experienced fear during birth, and having received no choice in pain relief are all related to negative feelings toward the delivery 3 years before. These feelings cannot be trivialized since long-term negative birth experiences may influence reproductive choices of the woman herself and other women.

Further research needs to be undertaken to understand women’s expectations and experiences of birth within the Dutch maternity system and examination of maternity care changes designed to reduce or modify those controllable factors that are associated with negative recall.

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