The 1993 Survey of Recent Mothers: Issues in Survey Design, Analysis and Influencing Policy

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The 1993 Survey of Recent Mothers was a statewide postal survey of 2224 women who gave birth in Victoria in 2 weeks in 1993, excepting those who had a stillbirth or whose baby was known to have died. The survey questionnaire was mailed to women 6–7 months after the birth. The response rate, excluding duplicate responses, one woman who had a stillbirth and those whose questionnaires were returned unknown at the mailing address, was 62.5% (1336/2138). The questionnaire covered care in pregnancy, birth and the first 6 months. In each section, women were asked to give an overall rating of care, and to answer questions on specific aspects of care. Closed and open-ended questions were included. The paper discusses the advantages and disadvantages of the study design, the processes used for developing the questionnaire, methodological issues in analysis using both quantitative and qualitative methods, and relevance of the study to policy. © 1997 Elsevier Science Ltd.

Key words: Patient satisfaction, health services evaluation, maternity care.

INTRODUCTION

The 1993 Survey of Recent Mothers (SRM) was a statewide postal survey of women who gave birth in 2 weeks in 1993 regarding their experiences and satisfaction with maternity care. Several features of the study distinguish it from other research on patient satisfaction. First, it was based on a population-based sample. Second, it was possible to assess characteristics of non-respondents by using the state's perinatal data collection statistics for births in the study period. Third, a combination of closed and open-ended questions were incorporated in the questionnaire, with open-ended questions used wherever there was substantial uncertainty about the range of likely responses. Fourth, the study was designed with a view to contributing useful and otherwise unavailable information relevant to major policy changes, such as earlier hospital discharge and the introduction of new models of care. Fifth, the process for developing the questionnaire involved substantial input from providers and consumers via a reference group set up for the project. Finally, the study builds on an earlier survey conducted in conjunction with a ministerial review of birthing services [1]. The recommendations of the Review and findings of the 1989 Survey provided the framework for many of the research questions addressed in the current study [2]. This paper describes these and other important methodological features of the study. Papers reporting on the findings relating to women's evaluations of care in pregnancy, care in labour and outcomes of early discharge are in preparation.

METHOD

Sample

Questionnaires were sent to a representative sample of 2224 women who gave birth in Victoria, 6–7 months after they had given birth. All maternity hospitals and home birth practitioners were asked to facilitate the mailing of questionnaires to women who gave birth in a 2-week period in September 1993, excluding those who had had a stillbirth or whose baby was known to have died. This involved making written requests to over 130 hospitals, and separate applications to 26 hospital ethics committees. All except three hospitals agreed to participate. At one outer suburban hospital, the project was not passed by the hospital ethics committee. At a second Level II hospital, ethics approval was granted, but the administration of the hospital refused participation. One small metropolitan private hospital also declined to participate. A fourth hospital agreed to participate, but mailed out questionnaires to women who gave birth outside the study period. As a result, the final sample consisted of women who gave birth in Victoria in 2 weeks in September 1993, except those whose baby died or who gave birth at four non-participating hospitals. The total sample comprised 4% of women who gave birth in Victoria in 1993.

A 2-week study period was chosen for two reasons: to minimize confusion about the study dates for hospitals...
involved in distributing the questionnaires, and to ensure that subgroups of interest were large enough to produce a reasonable chance of detecting differences in overall ratings of care. Power calculations using Epi Info 5 showed that a sub-group size of 50 (with six controls per case) with a two-tailed alpha of 0.05 would have 80% power to detect a clinically important difference of 20% in the proportion of women satisfied with care during labour and birth (i.e. a change from a rate of 66% to one of 86% would be detected as statistically significant). Estimates were based on observed differences in satisfaction between sub-groups responding to the 1989 SRM [3]. Given the tendency for surveys of this kind to elicit extremely positive ratings of care [4-6], a difference between sub-groups of 20% is also demonstrably important in policy terms. Based on the assumption of a 70% or higher response rate for the current study, it was expected that sub-group sizes of 50 or higher would be achieved for: women attending birth centres, women attending shared antenatal care programs, women at a higher risk of complications, and women attending each of three Level III hospitals (specialist, tertiary referral centres) with five Level II hospitals (regional centres with special care nursery facilities, but not neonatal intensive care) on the borderline with expected responses of 40-50.

Procedure

Three mailings took place at 2-week intervals. Each one included a covering letter inviting women to participate in the study, a copy of the questionnaire, a brief explanation of the study in six community languages, and a freepost return envelope. The covering letter introduced the research team, explained the purpose of the study, and stressed that only aggregate responses would be published and that all information provided would be treated as confidential (see Appendix). Women were invited to contact a member of the research team by phone if they wanted further information about the study. The questionnaire included an invitation for participants to volunteer a follow-up phone number and their first name if they wished. Otherwise, no identifying information was requested in the survey.

Three mailings were undertaken to maximize the response. As the surveys were anonymous, it was not possible to determine which women had returned the questionnaire in response to the first mailout. Hence, all women received both the first and second reminder letters. A copy of the questionnaire and prepaid return envelope was also included with each reminder letter. Although each covering letter explained that as the survey was anonymous, we had no way of knowing which women had already returned the questionnaire, the two reminder letters were a cause of some confusion, and a small number of duplicate responses. These were readily identified by matching records in terms of the mothers' date of birth, birthweight of the infant and postcode. We followed this procedure, despite the extra costs entailed, because of the evidence from a series of methodological studies undertaken by the Institute for Social Studies in Medical Care showing that higher response rates are achieved when two rather than one reminder letter is sent, and when a copy of the survey is sent each time [7].

A postal survey was chosen in preference to other survey methods (e.g. telephone interview, in-depth interviews) for several reasons. Practical issues, such as relative ease of administration, and comparatively lower costs were important considerations. More importantly, we were aiming for a representative sample. The potential for selection bias is less with a questionnaire received in the mail, than for approaches that involve consent sought by caregivers, or even researchers if they are perceived to be associated with an institution or set of caregivers directly involved in providing care [8,9]. In order to conduct telephone or home based interviews, it would have been necessary for us first to seek women's written consent. This would have added substantially to the costs and time required to conduct the study if we had undertaken this ourselves, and it is unlikely in the current economic climate that hospital staff would have time to take on this added workload. Even the option of providing resources to hospitals to do this for us was not desirable, given the potential for (i) biasing responses as less critical feedback may be given if consumers believe that caregivers will have access to this information, and (ii) selection of people more likely to report positive experiences by caregivers who may overlook or bypass people they perceive to be 'troublesome' and/or those experiencing a bad outcome or uncertain prognosis [10]. By choosing a postal survey, we overcame the need to seek prior written consent, as return of the questionnaire was accepted by ethics committees as evidence of consent to participation. An added advantage was the possibility for women to remain completely anonymous. For some sensitive issues, this has been shown to increase the accuracy of reported data (e.g. smoking) [11].

A disadvantage of postal surveys is the likelihood of low response rates for particular population groups. People of non-English speaking background (NESB), for example, are consistently under-represented in surveys of this kind [12-14]. Although the covering letter explaining the nature of the survey was translated into six community languages (Arabic, Cambodian, Chinese, Spanish, Turkish and Vietnamese), we did not seek funding for translating copies of the questionnaire. This approach had not proven to be effective in 1989, suggesting that other methods of research are required in order to obtain the views of NESB women [11].

The timing of the survey (6 months after birth) was decided, taking into account both the literature suggesting a 'halo effect' colouring attitudes to care immediately after the birth, and the inclusion of questions assessing outcomes, such as duration of breastfeeding, and maternal physical and emotional well-being after the
birth. The literature on satisfaction with in-patient care has drawn attention to the possibility of a U-shaped curve, with ratings of care high while people are still in hospital, falling in the weeks after discharge as people reflect on their experiences with some distance from the actual events, and then rising again as the memory of the events fade [6]. The same effect has been observed in relation to women’s evaluations of care in childbirth; two studies suggest that a ‘halo effect’ may last well into the first 6 months after the birth [15, 16].

All Level III and Level II hospitals participating in the study were offered an opportunity to receive individualized feedback from the survey for a small fee covering the costs of printing, postage, data entry and analysis. In order to obtain sufficient numbers in individual Level II hospitals for comparison with the statewide sample, oversampling for an additional 2–3-week period was required. Only two Level II hospitals took up this offer: one private hospital and the other a public teaching hospital. Level III hospitals were also offered the option of additional sampling to enable comparisons between different models of care operating within the hospital; one hospital took up this option.

The questionnaire

The questionnaire was designed to obtain feedback from recent mothers about their experiences of maternity care, and also information about a range of maternal and infant health outcomes. Data on socio-demographic characteristics, past reproductive history, events in the current pregnancy, use of primary health care services, and the extent of practical and social support were also collected.

For ascertaining women’s views about their care, we deliberately chose not to use a standardized instrument. Some parts of the questionnaire repeated questions from our earlier survey, which was substantially based on a survey of maternity patients developed by the Institute for Social Studies in Medical Care in the United Kingdom [7, 12, 13]. This was done to enable comparisons between the 1989 and 1993 results. We also drew on the manual for conducting surveys of women’s experiences of maternity care produced by the Social Survey Division of the UK Office of Population, Census and Surveys [17].

Repeating the survey provided an opportunity to investigate in more depth issues that had come out of our analyses of the 1989 data. For example, one of the questions asked in the 1989 Survey was: “Do you feel you were given an active say in making decisions about what happened during your labour?” Five precoded responses were specified: “yes, in all cases”; “yes, in most cases”; “only sometimes”; “no, not at all”; “uncertain”. The original rationale for including this question had been that the phrase ‘given an active say’ was one that had come up frequently in public consultations and submissions made to the Ministerial Review of Birthing Services. By incorporating a question worded in this way, we aimed to test how salient this phrase was to a more representative sample of the population [3]. The results revealed a striking association between not having an active say and dissatisfaction with intrapartum care, even after taking into account other factors associated with dissatisfaction (OR = 7.35, 95% CI = 3.9–14.0) [3]. Whereas the magnitude of the odds of rating care negatively associated with this factor immediately drew our attention, we had no way of knowing from our data how women had interpreted this question, what exactly it had meant to women to be involved or not involved in making decisions, and how this contributed to their overall evaluations of their care. We have followed this up in the current study in several ways.

First, we included in the 1993 questionnaire a much more detailed series of questions designed to probe women’s views about procedures that they may have experienced in labour. One approach that we took was to incorporate many more open-ended questions asking women to describe how they felt about particular procedures. For example, women who had had an assisted vaginal birth (i.e. forceps or vacuum extraction) were asked “How did you find having the doctor help the baby out this way?” Responses have been coded using a coding schedule developed on the basis of themes emerging from women’s comments. We also asked more general open-ended questions about whether there were things that “might have been done differently or better?” and about things women may have “liked more information about?” A second approach, more commonly used in surveys, was to include a series of statements based on other sources of patient feedback, and to ask women to indicate whether they agreed or disagreed with each statement by filling in a five-point Likert scale marked: agree strongly, agree, uncertain, disagree, disagree strongly.

In a separate qualitative study, we conducted a series of in-depth interviews with a small sub-group of women who participated in the 1993 Survey focusing on their experiences of labour and attitudes to the way decisions were made about their care. The interviews took a semi-structured format designed to probe in detail the role that women played in decision-making, and what women who had had different experiences understood by the phrase ‘having an active say’. All interviews were tape-recorded with the women’s permission, and fully transcribed. Analysis will focus on drawing out of the interviews the range of ways that women conceptualize the processes whereby decisions are made about their care in labour, and what it means to women to be actively involved.

Within the main survey, open-ended questions were used whenever there was uncertainty about the likely range of responses. For example, questions about (1) preferences women may have had before labour began, regarding any aspect of their care, (2) if they had been connected to a foetal monitor in labour, and how they felt about it, (3) what reasons they had for leaving hospital when they did, and (4) reasons for breast or...
formula feeding, were all asked as open-ended questions with between two and four lines for written responses. A coding schedule was developed by the research team after checking for recurrent themes in the first 200 questionnaires received. Additional categories were added to the schedule as further coding was undertaken.

In addition, at the end of each main section of the questionnaire, two open-ended questions were included, asking women to describe any aspects of their care with which they were particularly happy, and any aspects with which they were particularly unhappy. Eight lines were given for written comments under each question. All comments were fully transcribed and are being analysed in conjunction with the quantitative analysis of the precoded questions in each section. This involves developing a coding schedule based on 200 responses, cross-coding of the same set of responses by another member of the research team, and revision of the coding schedule after discussion of any inconsistencies. This process is then repeated (often several times over) until all members of the research team are happy that the coding schedule adequately reflects the themes and the diversity of the women’s responses. All of the comments that the women wrote in response to a particular question are then coded independently by two members of the research team with any inconsistencies discussed until consensus is reached.

A number of features of the research design contributed to increasing the content validity of the questionnaire. The fact that the study grew out of the Victorian Ministerial Review of Birthing Services was a critical aspect of its design [2]. The extensive consultation with consumers and providers undertaken during the course of the Review provides a framework for asking women about issues that matter to them. In some cases, we deliberately worded questions in the language that the women used in submissions and consultations to describe things that were important to them about their care. For example, the statements included in questions that took a Likert scale format were worded on the basis of comments made by women in submissions and public meetings: “I felt my labour and birth were taken over by people and machines”, “The midwives and doctors always kept me informed about what was happening and made an effort to explain anything I didn’t understand” are two examples.

The discussion of policy issues and recommendations of the Review also provided important parameters for the study, and for the design of the questionnaire. A major term of reference of the Review focused on the availability of a range of models of care. The Final Report recommended increasing the availability of models of care, which provided for greater continuity of care, and greater midwifery and general practitioner involvement in the care of women at low risk of complications [2]. Specific recommendations were made about increasing the availability of team midwifery-based care in birth centres, and shared antenatal care programmes between local practitioners and public hospitals. An explicit aim of the 1993 Survey was to investigate the experiences and satisfaction of women using different models of care, including newer models, such as birth centre care and shared care programmes. Other policy issues discussed in the Review and taken up in the Survey include the use of birthplans, discharge planning during pregnancy, health outcomes associated with shorter hospital stays, and the experiences and satisfaction of women at higher risk of complications.

Another strategy for increasing the relevance of the Survey was the establishment of a project reference group to act in an advisory capacity to the research team. Twelve people, including a range of professionals and two consumers, were invited to advise and assist the research team throughout the course of the project. The reference group took an active role in discussions over the content, structure and wording of the questionnaire, meeting several times during the stage of piloting and revision. The rationale for including each question was carefully considered, and many suggestions about rephrasing ambiguous questions, ways of explaining technical terms, and avoiding potential sources of bias in the design of the questionnaire were taken up. Members of the reference group also helped to facilitate piloting of the survey with specific populations. For example, the two obstetricians on the reference group volunteered to distribute questionnaires for piloting to women who had recently been in their care and whom they knew would fit our criteria for being at higher risk of complications. Questionnaires returned by women approached in this way were then checked to see whether the questions intended to identify women at higher risk were in fact providing this information.

The questionnaire was piloted first with colleagues and consumer members of the reference group, and then with 60 women in a range of settings, including metropolitan and rural maternal and child health centres, and two new mothers’ groups, one in a country town and the other in an outer suburban health centre. Maternal and child health centres in a variety of localities were selected to facilitate piloting with women from diverse socio-economic and cultural backgrounds. Women attending centres for routine visits were approached by a member of the research team to fill in the questionnaire while they waited to see their maternal and child health nurse. They were encouraged to comment on or ask the researcher about anything in the questionnaire that was unclear, or that they found difficult to answer. A subgroup of 10 women were interviewed after they had completed the questionnaire. The interviews focused on areas of the questionnaire where there were concerns about possible misinterpretation of questions, in particular questions about use of procedures such as electronic foetal monitoring and induction and augmentation of labour. The verbal accounts women gave of their experiences were compared with their written responses to the survey. All women who took part in piloting were asked to comment on the acceptability of questions in the
In total, 1366 completed questionnaires were returned. Twenty-four of these were excluded because the baby's birthdate fell outside the study period. Most of these were from one hospital that mailed out questionnaires to women who gave birth in November rather than September. Five duplicate questionnaires were identified, and subsequently excluded, and one questionnaire completed by a woman who had had a stillbirth was also excluded. This left a total of 1336 eligible responses. A further 86 questionnaires were returned unable to be delivered at the mailing address. Excluding the latter from the denominator, the response rate to the survey was 62.5% (1336/2138).

Women who took part in the study were aged between 15 and 47 years, with a mean age of 29.4 years. Around two-fifths of the sample had no previous livebirths, just over a third had one other child, and the remainder had two or more other children. Sixty-one per cent lived within the boundaries of the Melbourne metropolitan area, and the remainder in rural or semi-rural parts of the state. Almost 20% of the sample were born outside Australia, over half of these in countries where English is not the main spoken language. Only 4% were not living with a partner.

Table 1 compares the characteristics of women in the study with the state's Perinatal Data Collection records for the two study weeks for women who gave birth at home and at participating hospitals. The table shows that respondents were largely representative in terms of important obstetric characteristics: the number of previous livebirths, birthweight of the infants in the current pregnancy, and method of birth. The following groups of women were under-represented: women born overseas of NESB, single women, and women under 25 years. The response rate for women of NESB was 39%, for single women 17%, for women under 20 years of age 31%, and for women aged between 20 and 24 years 49%. In contrast, women aged 30–34 were significantly over-represented.

Table 1 includes only those characteristics of the sample for which comparative data are available from the Victorian Perinatal Data Collection Unit. Table 2 provides details of other socio-demographic and obstetric characteristics. The response rate for a similar survey in 1989 [62.5% vs. 71.4% (790/1107), \( \chi^2 = 25.42, P < 0.0001 \)] [1]. Significantly fewer responses were received in 1993 from women of NESB (39.2% vs. 50.8%, \( \chi^2 = 6.63, P = 0.01 \)) and from single women (17.4% vs. 29.2%, \( \chi^2 = 5.38, P = 0.02 \)). Younger women, although again under-represented, were more likely to respond in 1993 than in 1989. In the age group 20–24, 47.9% of women returned completed questionnaires in 1993, compared with 38.8% in 1989 (\( \chi^2 = 4.28, P = 0.04 \)). Thirty-one per cent of women under 20 returned questionnaires in 1993 compared with 20.8% in 1989. This difference was not statistically significant.

The overall response rate to this survey was significantly lower than that received for a similar survey in 1989 [62.5% vs. 71.4% (790/1107), \( \chi^2 = 25.42, P < 0.0001 \)] [1]. Significantly fewer responses were received in 1993 from women of NESB (39.2% vs. 50.8%, \( \chi^2 = 6.63, P = 0.01 \)) and from single women (17.4% vs. 29.2%, \( \chi^2 = 5.38, P = 0.02 \)). Younger women, although again under-represented, were more likely to respond in 1993 than in 1989. In the age group 20–24, 47.9% of women returned completed questionnaires in 1993, compared with 38.8% in 1989 (\( \chi^2 = 4.28, P = 0.04 \)). Thirty-one per cent of women under 20 returned questionnaires in 1993 compared with 20.8% in 1989. This difference was not statistically significant.

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The proportion of missing or partially completed responses to individual questions did not differ markedly between the two surveys. For most precoded questions, the proportion of missing or partial responses was less...
TABLE 1. Characteristics of respondents and all women who gave birth at participating hospitals in the study period *

<table>
<thead>
<tr>
<th>Statistical test</th>
<th>1993 survey</th>
<th>Victorian women who gave birth in the study period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage</td>
</tr>
<tr>
<td><strong>Maternal age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 20</td>
<td>22</td>
<td>(1.7)</td>
</tr>
<tr>
<td>20-24</td>
<td>170</td>
<td>(12.9)</td>
</tr>
<tr>
<td>25-29</td>
<td>462</td>
<td>(34.9)</td>
</tr>
<tr>
<td>30-34</td>
<td>506</td>
<td>(38.3)</td>
</tr>
<tr>
<td>35+</td>
<td>162</td>
<td>(12.3)</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>1146</td>
<td>(86.2)</td>
</tr>
<tr>
<td>De facto</td>
<td>124</td>
<td>(9.3)</td>
</tr>
<tr>
<td>Divorced/separated</td>
<td>21</td>
<td>(1.6)</td>
</tr>
<tr>
<td>Single/widowed†</td>
<td>39</td>
<td>(2.9)</td>
</tr>
<tr>
<td><strong>Country of birth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>1059</td>
<td>(80.7)</td>
</tr>
<tr>
<td>Overseas—ESB</td>
<td>110</td>
<td>(8.4)</td>
</tr>
<tr>
<td>Overseas—NESB</td>
<td>144</td>
<td>(11.0)</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metropolitan area</td>
<td>813</td>
<td>(61.1)</td>
</tr>
<tr>
<td>Non-metropolitan</td>
<td>518</td>
<td>(38.9)</td>
</tr>
<tr>
<td><strong>Previous births</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>511</td>
<td>(38.4)</td>
</tr>
<tr>
<td>One</td>
<td>472</td>
<td>(35.4)</td>
</tr>
<tr>
<td>Two</td>
<td>232</td>
<td>(17.4)</td>
</tr>
<tr>
<td>Three</td>
<td>79</td>
<td>(5.9)</td>
</tr>
<tr>
<td>Four or more</td>
<td>38</td>
<td>(2.9)</td>
</tr>
<tr>
<td><strong>Birth-weight of infant‡</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 1499 g</td>
<td>7</td>
<td>(0.5)</td>
</tr>
<tr>
<td>1500-1999 g</td>
<td>12</td>
<td>(0.9)</td>
</tr>
<tr>
<td>2000-2499 g</td>
<td>47</td>
<td>(3.5)</td>
</tr>
<tr>
<td>2500-2999 g</td>
<td>170</td>
<td>(12.5)</td>
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<tr>
<td>3000-3499 g</td>
<td>479</td>
<td>(35.3)</td>
</tr>
<tr>
<td>3500-3999 g</td>
<td>409</td>
<td>(30.1)</td>
</tr>
<tr>
<td>4000-4449 g</td>
<td>159</td>
<td>(11.7)</td>
</tr>
<tr>
<td>4500 g +</td>
<td>37</td>
<td>(2.7)</td>
</tr>
<tr>
<td><strong>Method of birth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spontaneous vaginal</td>
<td>927</td>
<td>(69.4)</td>
</tr>
<tr>
<td>Forceps</td>
<td>155</td>
<td>(11.6)</td>
</tr>
<tr>
<td>Vacuum extraction</td>
<td>10</td>
<td>(0.7)</td>
</tr>
<tr>
<td>Emergency Caesarean</td>
<td>118</td>
<td>(8.2)</td>
</tr>
<tr>
<td>Elective Caesarean</td>
<td>125</td>
<td>(8.8)</td>
</tr>
</tbody>
</table>

* Totals may be less than 1336 because of missing values.
† Single women are grouped together with widows in the Victorian Perinatal Data Collection.
‡ Includes data for twins.

than 1%. Precoded questions with the highest proportion of missing and incomplete responses were those asking about total family income (5% missing), the effectiveness of pain relief (2.8% missing), and the extent to which women had an active say in making decisions about their care in labour (2.5%). Open-ended questions had higher proportions of missing values, although, in general, the proportion was not higher than 5%. Questions with an open-ended format that had the highest proportion of missing responses were those asking about the reasons women had for planning to breast or bottle feed (8.8%), and reasons for planning a short or longer stay in hospital after the birth (5.2%). These questions were only coded as missing when women did have definite plans regarding these two issues.

A large proportion of women took up the invitation to make general comments at the end of each section of the questionnaire; 69% wrote comments about antenatal care, 75% about intrapartum care, and 64% about postnatal care in hospital. Over two-thirds of the women who returned questionnaires indicated that they were happy to be involved in follow-up research, and
provided their first name and a contact phone number. This was significantly higher than the proportion in 1989 (68% vs. 51%, $\chi^2 = 60.32$, $P < 0.0001$).

**Early, intermediate and late respondents**

Given the anonymity of the survey, it was not possible to contact non-respondents directly. Table 3 compares the responses to a series of questions relating to satisfaction with care in early, intermediate and late respondents to the survey. The pattern apparent in this table is one of either no difference in ratings according to the time of response, or a trend for women returning the survey later in the survey period to be less satisfied. Comparing women who rated their antenatal care as very good with women giving less positive ratings, there is a significant linear trend for later responses to be less positive ($\chi^2$ for linear trend = 7.4, $P = 0.007$). A similar trend is present for ratings of intrapartum care compared in the same way ($\chi^2$ for linear trend = 8.04, $P = 0.005$). Women who responded later were also more likely to report only sometimes, rarely or not having an active say in making decisions about their intrapartum care ($\chi^2$ for linear trend = 9.72, $P = 0.002$). Women who responded more than 4 weeks into the survey period were significantly less likely to write positive comments in relation to an open-ended question asking about antenatal care compared with women returning the survey two to four weeks into the survey period ($\chi^2$ = 6.47, $P = 0.01$). Late responders were also less likely to write negative comments about antenatal care, and to write positive or negative comments about care in labour, but these differences were not statistically significant. For length of stay, a more complex pattern is apparent, with both early and late responders more likely to say that their stay was too short compared with women who responded in the second 2 weeks of the survey period. However, only the difference between intermediate and late responders is statistically significant ($\chi^2$ = 7.76, $P = 0.005$). There were no significant differences relating to the timing of response for questions asking whether there were any things that could have been done differently or better during labour, or for an overall assessment of postnatal care.

**DISCUSSION**

**Design of the questionnaire**

This study is premised on a belief that it is possible to develop a valid and effective survey instrument for finding out what recent mothers think about maternity services. In the 1980s and 1990s, substantial efforts were put into developing and evaluating standardized scales for measuring patient satisfaction [18-21]. Typically, instruments are assessed for content, construct and predictive validity, and for reliability in repeated measures over time. We deliberately elected not to adopt this approach for a number of reasons.

Carr-Hill argues that the statistical reduction of questionnaire responses to a single index of satisfaction assumes an underlying unity for which there is little evidence [5]. The variability in women’s responses to questions asking about the same aspect of care, but posed in different ways, supports this contention. Looking at the results presented in Table 3, only 10% of women rated their care as mixed, poor or very poor, but over 30% wrote comments in response to an open-ended question asking whether there were things about their antenatal care that they were particularly unhappy with. Similarly, around 8% rated their intrapartum care as anything less than good, but 34% wrote comments about things that they were unhappy with, and 25% said that there were things that could have been done differently or better. The view taken in this study is that uncovering this variability is one of the most useful leads in finding out what is wrong from the perspective of service users. In contrast, one of the dangers of using scales is that dissatisfaction on one item may be masked by high levels of satisfaction on other items [5,22].

Another disadvantage of standardized scales is that the time investment required to develop and test a new instrument makes it extremely difficult to tailor surveys.
to build on what is already known in a particular setting about patient views of care, or to take into account policy changes that may be affecting services [23]. Most patient satisfaction scales that have been developed to meet criteria for reliability and validity are generic tools for assessing the views of people who have recently been in hospital [18,20,21]. There are also some tools specifically designed for use in outpatient or primary care settings [24]. There are very few examples of instruments focusing on particular specialties or types of illness episodes. The use of generic instruments further weakens the capacity to pick up issues that may be important to individual patient groups, such as women who have recently given birth. This point has been made by Meredith and colleagues in their recent work developing a tool for auditing patient satisfaction with surgery [8]. There are now a number of questionnaires for obtaining the views of recent mothers about maternity care that have been subject to various kinds of methodological testing [7,17], including one standardized scale that has been assessed for validity and reliability [19]. The latter was developed by a group of Canadian researchers, and we did not consider it suitable for use in the Australian context where the organization of services, range of models of care, and, arguably, consumer understandings and expectations of services are, we believe, likely to be very different. Developing our own questionnaire enabled us to tailor the wording and focus of questions to the setting in which the survey was to be implemented, taking into account what we had learned both from the consultative processes of the Ministerial Review of Birthing Services, and from the earlier survey. It also enabled us to include

<table>
<thead>
<tr>
<th></th>
<th>Less than 2 weeks Number (percentage)</th>
<th>2-4 weeks Number (percentage)</th>
<th>Greater than 4 weeks Number (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antenatal care</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very good</td>
<td>374 (67.3)</td>
<td>193 (59.4)</td>
<td>263 (58.7)</td>
</tr>
<tr>
<td>Good</td>
<td>155 (24.3)</td>
<td>95 (29.2)</td>
<td>138 (30.8)</td>
</tr>
<tr>
<td>Mixed</td>
<td>36 (6.7)</td>
<td>33 (10.2)</td>
<td>40 (8.9)</td>
</tr>
<tr>
<td>Poor</td>
<td>8 (1.4)</td>
<td>3 (0.9)</td>
<td>2 (0.4)</td>
</tr>
<tr>
<td>Very poor</td>
<td>4 (0.7)</td>
<td>1 (0.3)</td>
<td>5 (1.1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Comments about antenatal care</strong></th>
<th>Positive comments</th>
<th>Negative comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>350 (62.3)</td>
<td>194 (34.6)</td>
</tr>
<tr>
<td><strong>Intrapartum care</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very good</td>
<td>424 (75.8)</td>
<td>221 (68.8)</td>
</tr>
<tr>
<td>Good</td>
<td>96 (17.2)</td>
<td>72 (22.4)</td>
</tr>
<tr>
<td>Mixed</td>
<td>35 (6.3)</td>
<td>21 (6.5)</td>
</tr>
<tr>
<td>Poor</td>
<td>3 (0.5)</td>
<td>4 (1.2)</td>
</tr>
<tr>
<td>Very poor</td>
<td>1 (0.2)</td>
<td>3 (0.9)</td>
</tr>
</tbody>
</table>

| **Active say in decision-making** |                   |                   |
| Always                            | 230 (41.6)        | 124 (39.1)        | 158 (36.6)                             |
| Mostly                            | 227 (41.0)        | 119 (37.5)        | 163 (37.7)                             |
| Sometimes                         | 64 (11.6)         | 40 (12.6)         | 72 (16.7)                              |
| Rarely                            | 7 (1.3)           | 8 (2.5)           | 13 (3.0)                               |
| Not at all                        | 19 (3.4)          | 22 (6.9)          | 16 (3.7)                               |
| Not sure                          | 6 (1.1)           | 4 (1.3)           | 10 (2.3)                               |

| **Things could have been done differently or better** |                   |                   |
| Definitely                         | 44 (7.9)          | 32 (10.0)         | 43 (9.6)                               |
| Perhaps                            | 84 (15.1)         | 54 (16.8)         | 72 (16.1)                              |
| Not really                         | 430 (77.3)        | 235 (73.2)        | 333 (74.3)                             |

<table>
<thead>
<tr>
<th><strong>Comments about intrapartum care</strong></th>
<th>Positive comments</th>
<th>Negative comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>390 (69.6)</td>
<td>116 (35.8)</td>
</tr>
<tr>
<td><strong>Postnatal care</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very happy with care</td>
<td>306 (55.2)</td>
<td>161 (49.7)</td>
</tr>
<tr>
<td>Happy with care</td>
<td>163 (29.4)</td>
<td>111 (34.3)</td>
</tr>
<tr>
<td>Mixed</td>
<td>69 (12.5)</td>
<td>39 (12.0)</td>
</tr>
<tr>
<td>Unhappy with care</td>
<td>11 (2.0)</td>
<td>8 (2.5)</td>
</tr>
<tr>
<td>Very unhappy</td>
<td>5 (0.9)</td>
<td>5 (1.5)</td>
</tr>
</tbody>
</table>

| **Length of stay**                 |                   |                   |
| Too short                          | 67 (12.1)         | 31 (9.6)          | 74 (16.6)                              |
| About right                        | 458 (82.7)        | 259 (80.2)        | 342 (76.7)                             |
| Too long                           | 29 (5.2)          | 33 (10.2)         | 30 (6.7)                               |

*Totals may be less than 1336 because of missing values.
incomes were all more likely to be dissatisfied with
without private health insurance and those on lower
younger women, single women, women of NESB, those
satisfaction. Our analysis of the 1989 data showed that
analysis; in particular, it may lead to over- or under-
sented in the sample. This has several implications for
women on lower incomes and women
Unit does not record information on other socio-
survey in 1989 [10,12]. The Perinatal Data Collection
women and single women were wholly expected based on the
significantly higher proportion than volunteered this
volunteered their first name and a contact phone number
overall. The fact that over two-thirds of participants
questionnaire, nor was there a high level of missing values
partially completed questions towards the end of the
questionnaire that we used in 1993 was longer and contained more open-
was not, however, a greater number of missing or
questions towards the end of the
respondents’ opinion, some aspect of care could be
questionnaire was of interest, and
acceptable, to at least those women who chose to
could contact them for follow-up research—a
significantly higher proportion than volunteered this
informing in response to a similar request in the 1989
and may
but there was not a high level of missing values
The questionnaire that we used in 1993 was longer and contained more open-
ed women may have moved address by the time we sent the second survey. As
response rates are generally lower from socially disad-
recession and higher unemployment rates in 1993 have acted in other
ways to reduce the response rate. The questionnaire that
we used in 1993 was longer and contained more open-
ed questions than the one used in 1989, and this may
also have discouraged some women from taking part. There
was not, however, a greater number of missing or
partial responses were allowed in the current study employed several strategies for doing this.
The questionnaire included both global questions asking
for overall ratings of care and more detailed questions
in response to a similar request in the 1989
survey—and that so many women were prepared to take
the time to respond to open-ended questions, is further evidence that the questionnaire was of interest, and
acceptable, to at least those women who chose to
complete the forms and return them to us.
Low response rates from women of NESB, younger
women and single women were wholly expected based on the
results of other postal surveys and our own earlier
survey in 1989 [10,12]. The Perinatal Data Collection
Unit does not record information on other socio-
demographic characteristics or health insurance status,
but it is likely that women on lower incomes and women
without private health insurance are also under-repre-
sented in the sample. This has several implications for
analysis; in particular, it may lead to over- or under-
estimation of prevalence rates and the extent of dis-
satisfaction. Our analysis of the 1989 data showed that
younger women, single women, women of NESB, those
without private health insurance and those on lower
incomes were all more likely to be dissatisfied with
antenatal care [1]. One approach, in view of the lower
response rates from these groups, would be to weight
responses from these sub-groups to account for their
under-representation in the data set. This assumes that
non-respondents from each of these groups would
evaluate their care in similar ways to women returning
the questionnaires. Our analysis, showing that a late
response is associated with more negative ratings of care,
suggests that it would be inadvisable to weight the data
based on this assumption. Whereas non-responders may
differ again from late responders, we would still caution
against weighting data based on an assumed similarity in
responses.

Assessing non-responders

One of the problems of many cross-sectional surveys is
the inability to assess characteristics of non-responders.
The capacity to compare women who returned the survey
forms in this study with women who gave birth at
participating hospitals during the survey period using
the state’s perinatal data collection is an important
feature of the study design. The overall response rate of
62.5% was somewhat lower than expected based on the
71.4% response rate to the earlier 1989 Survey [1]. It is
possible that, because of the worsening economic situation
in Victoria, a greater number of women may have
moved address by the time we sent the second survey. As
response rates are generally lower from socially disad-
vantaged groups, it is also possible that the recession and
higher unemployment rates in 1993 have acted in other
ways to reduce the response rate. The questionnaire that
we used in 1993 was longer and contained more open-
ed questions than the one used in 1989, and this may
also have discouraged some women from taking part. There
was not, however, a greater number of missing or
partially completed questions towards the end of the
questionnaire, nor was there a high level of missing values
overall. The fact that over two-thirds of participants
volunteered their first name and a contact phone number
where we could contact them for follow-up research—a
significantly higher proportion than volunteered this
information in response to a similar request in the 1989
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Issues in analysis

Numerous methodological studies and reviews of the
literature on patient satisfaction have drawn attention to
the tendency for surveys asking patients to evaluate
medical care to elicit high levels of satisfaction [4–6].
The consensus in recently published papers is that the
emphasis in analysis of patient surveys should be on
ways of uncovering variability in responses [5,22,24–26]. The
current study employed several strategies for doing this.
The questionnaire included both global questions asking
for overall ratings of care and more detailed questions
asking about specific aspects of care. All evaluations of
care that were less than 'excellent' were regarded as
qualified responses, and treated as evidence that, in the
respondents' opinion, some aspect of care could be
improved. In designing the study, we took care to
ensure that sub-groups were likely to be large enough to
undertake comparisons with a reasonable probability of
detecting differences in outcomes. Sub-group analyses
have been used to identify and 'control' for possible
confounders, and to make comparisons between different
models of care [26]. Sub-groups of interest included
women using different models of care, women at higher
and lower risk of complications, and women with
different social and obstetric characteristics. Finally,
open-ended questions were used to elicit information in
women's own words. Although this added to the time
involved in coding, the benefits of non-researcher-
directed information, especially regarding attitudes to
obstetric procedures, decision-making about infant-feeding
and length of postnatal stay, outweighed the
additional costs. The policy impact of a woman writing
"I was told to go" as a reason for a 48-hour stay is far
more than if these words had been given as a precoded
option. These combined strategies have yielded a rich
data source, with the potential to make a substantial
contribution to our knowledge and understanding of
women's experiences of maternity care.

Influencing policy

It is rare for studies investigating the views of service
users to be linked directly to policy processes. This survey

1993 Survey of Recent Mothers

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is unusual in that it grew out of a ministerial review of services for childbearing women, and addresses topics and questions that are currently being debated at a policy level. Because of the public controversy surrounding the impact of shorter hospital stays, this was selected to be the first area for analysis. We published the preliminary findings in a 72-page working paper, in a format that we hoped would be accessible to both professionals and consumers [27]. The project reference group has been helpful in providing advice and contacts that have enabled us to disseminate more widely the findings presented in the working paper. Other aspects of the study are directly relevant to current debates about the role of midwives and general practitioners in the care of women at low risk of complications, and the potential for alternatives to standard public hospital options to provide greater continuity of care [28]. In both of these areas—shortening length of stay and the introduction of new models of care—a number of specific policy initiatives involving large outlays of funds have been implemented by the Commonwealth Government [28,29]. To date, formal evaluations of their impact have been limited. Whereas the survey cannot be used directly to evaluate the impact of these policy initiatives, in addressing questions pertinent to current policy debates the survey is well placed to make an important and substantial contribution to the development of policies that promote favourable health outcomes. It may also alert us to policies and service models that promote less favourable outcomes; a possibility that policy-makers should not lose sight of in the rush to implement new initiatives.

Acknowledgements: We are grateful to the Victorian women who gave generously of their time to complete the survey; to the Victorian Health Promotion Foundation, which funded the study; to the hospitals and home birth practitioners who distributed the questionnaires; to Jane YeUand for assistance subsequent to hospital care: problems of sampling, non-response and other losses. Quality Assurance in Health Care 1993; 15: 19–32.


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APPENDIX

Having a baby is a very special event in the lives of women and their families. Three years ago a report on birthing services in Victoria was written by a ministerially appointed committee. This report, called Having a Baby in Victoria, prompted a lot of debate and some changes in how services are provided.

We are a team of researchers from La Trobe University who are interested in what different women feel and think about their experience of having a baby. We would like to invite you to take part in this research. This would involve filling in and returning the enclosed questionnaire.

The questionnaire asks you about your recent pregnancy, the birth and the time since your baby was born. Everything you tell us will be treated as confidential.

A survey form has been sent to all women in Victoria who had a baby between the 6th and 19th of September 1993. Hospitals are distributing the survey on our behalf. We do not have your name and address.

We very much hope you will agree to help us in our research because we would like as wide a range of views as possible. Of course, if you do not wish to fill in the questionnaire you do not have to, but we hope that you will find it interesting.

You will receive 2 reminders (and spare copies of the questionnaire) over the next month. This is because we know you will be busy and it is easy to mislay the original copy. You will receive these reminders even if you have already sent back the survey form. This is because we do not have a record of your name or address ourselves. We apologise if this seems confusing. It is necessary to ensure that everyone we have invited to participate remains completely anonymous.