Women’s experiences of childbirth and post-natal healthcare after assisted conception

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BACKGROUND: The proportion of women who give birth after assisted reproduction technology (ART) treatment is increasing. To date, little is known about their experience of childbirth. One of the aims of this study was to investigate the experience of childbirth and the post-natal healthcare after ART. METHODS: A prospective, longitudinal study of a systematically recruited consecutive cohort of women who had conceived with ART in Melbourne, Australia, in 2001 was investigated using telephone interviews and self-report questionnaires. The experience of birth was explored 3 months post-partum. RESULTS: One hundred and sixty-six women who had conceived through ART participated. Compared with other Australian women, participants were more likely to have a Caesarean birth (51% versus 25%, P < 0.0001). Women who had a Caesarean birth were less likely to report having had an active say about the management of the birth (P < 0.01) and to have held their baby at birth (P < 0.0001) and more likely to report disappointment with the birth event (P < 0.0001), severe post-natal pain (P = 0.02) and needing a lot of help or advice with infant feeding (P = 0.001) than those who had a vaginal birth. CONCLUSIONS: After ART, there are highly elevated rates of operative birth which appear to influence early post-natal adjustment.

Keywords: assisted reproduction; birth experience; Caesarean section; women

Introduction

Worldwide ~56% of couples who are unable to conceive seek medical treatment for their fertility difficulties (Boivin et al., 2007). In industrialized countries, most of these couples undergo some form of assisted reproduction technology (ART) procedure. The use of ART to achieve pregnancy is increasing in developed countries (Adamson et al., 2006). In Australia, the proportion of children born as a result of ART rose from 1.1% in 1995 to 3.1% in 2004 (Hurst et al., 1997; Laws et al., 2006; Wang et al., 2006). The chance of pregnancy and live birth per ART treatment cycle depends on a range of factors relating to the individual couple and the standard of the clinic. In Australia, on average, the chance is ~20% (Wang et al., 2006). Therefore, among couples who ultimately conceive with ART, most have had multiple attempts.

In addition to the distress caused by trying unsuccessfully to conceive (Greil, 1997), the physical, emotional and financial demands of ART impact on the psychological well being of women who undergo treatment (Eugster and Vingerhoets, 1999). Whether the psychological consequences of infertility and ART affect women’s experience of childbirth and whether mode of delivery influences the birth experience after ART are not known. A search of the literature revealed only two studies that included questions about the experience of childbirth among women who have conceived after infertility and infertility treatment. Van Balen et al. (1996) in Holland compared the experience of childbirth among 45 women who had conceived with ART, 35 who had conceived spontaneously after >4 years of infertility and 35 who had conceived without difficulty. All women were first time mothers with a single baby. The experience of the birth was evaluated on three dimensions: ‘enjoyment’, ‘exceptionality’ and ‘stress’ on three-point scales. The two previously infertile groups rated the birth as a more ‘exceptional’ event than did mothers who had conceived without difficulty, but there were no differences on reported ‘enjoyment’ or ‘stress’. The clinical implications of these dimensions were not discussed and as mode of delivery was not reported its impact on the experience of the birth cannot be ascertained. Repokari et al. (2006) in their prospective longitudinal study of pregnancy and post-partum adjustment after ART reported that compared with women who had conceived spontaneously (n = 379), women who had conceived with ART (n = 367) had more pregnancy and birth complications, a higher rate of Caesarean section and were less likely to report a ‘pleasant birth experience’.

Some of the adverse psychosocial effects of Caesarean birth include less immediate and long-term satisfaction with the birth experience, longer time to first encounter with the baby, less positive reaction to the baby after birth.
and lower likelihood of the mother ever breastfeeding (DiMatteo et al., 1996). While in the recovery ward after the Caesarean surgery, mothers are often separated from their baby, and it has been shown that babies born at term after a planned Caesarean delivery have double the rate of separation from the mother due to transfer to neonatal intensive care unit compared with those born after a planned vaginal delivery (Kolás et al., 2006). It is also known that initiation of breastfeeding is delayed after Caesarean birth (Rowe-Murray and Fisher, 2002).

Operative birth is more common after ART than spontaneous conception (Wang et al., 2006). Most longitudinal studies of adjustment to pregnancy and parenting after ART have not explored women’s experience of childbirth or the ways in which this may be influenced by mode of delivery (McMahon et al., 1997; Greenfeld and Klock, 2001; Hjelmstedt et al., 2004; Cox et al., 2006).

In Australia, some new mothers who are experiencing parenting difficulties can be admitted with their babies to residential early parenting centres (REPCs) for up to five nights. These services provide a structured psycho-educational intervention comprising individual support in infant caretaking and daily groups. Common presenting infant problems include unsettled behaviour, dysregulated sleep, frequent night-time waking, inconsolable crying, resistance to soothing and feeding difficulties. Mothers have poor physical health, clinically significant exhaustion, and mild to moderate depression or anxiety (Fisher et al., 2004). We have shown that Australian mothers who conceive with ART are three to four times more likely than those who conceive spontaneously to be admitted with their babies to REPCs (Fisher et al., 2002, 2005; Fisher and Rowe, 2005). This may seem perplexing if it is assumed that mothering a much wanted baby conceived after considerable effort will be unproblematic. The persistent lowered maternal self-efficacy after infertility and ART described by McMahon et al. (1997) may be a factor contributing to the higher admission rate to REPC after ART than spontaneous conception.

In order to improve understanding of the needs of the growing group of women who become mothers after infertility and assisted conception the overall aim of this prospective longitudinal study was to investigate whether there are antenatal or intrapartum predictors of early parenting difficulties after ART conception. Pregnancy psychological functioning of participants in this study has been described elsewhere (Fisher et al., 2007). In short, women reported exceptionally good pregnancy health and on standardized self-report measures had significantly lower rates of clinically significant mood disturbance, regarded their intimate partner as more sensitive, caring and supportive and had more intense and affectionate attachment to the fetus compared with other pregnant women. We interpret this as reflecting an almost elated state in which pregnancy and motherhood might be idealized after infertility and ART treatment and preparation for the realities of birth and infant care might be insufficient. The aim of this component of the study was to investigate the relationship between intrapartum experiences, post-antenatal healthcare and very early post-antenatal adjustment.

Materials and Methods
The study was approved by the Research and Ethics Committees of the Royal Women’s Hospital, the Freemasons Hospital Ethics Committee and the University of Melbourne’s Human Research Ethics Committee.

Study setting
In the two-tiered Australian health-care system, the universal tax-payer funded Medicare Scheme allows access to out-of-hospital medical care and treatment in public hospital at no or minimal cost to the individual. The Medicare Scheme also covers approximately half the cost of ART services. Private health insurance, purchased by 44% of the population in 2002 (Private Health Insurance Administration Council (PHIAC), 2002), offsets some of the remaining expenses associated with ART and allows pregnant women to receive antenatal and obstetric care by a medical specialist of their choice and access to a private hospital for the birth. On average, rates of obstetric interventions including Caesarean section and epidural analgesia during labour are higher and post-natal hospital stays are longer in the private than in the public health-care sector (Riley and King, 2003).

Melbourne IVF (MIVF) and the Royal Women’s Hospital Reproductive Services (RWHRS) in Melbourne, Australia, together provide half the infertility treatment services for the Australian state of Victoria, and the patients treated at these services are representative of the general population seeking fertility treatment in Australia (Bryant et al., 2004).

Sampling and recruitment
The sample for this study was a consecutive cohort of women treated with ART at MIVF or RWHRS with an ultrasound verified viable intrauterine pregnancy at 6 weeks gestation between 1 July and 20 December 2001. The only exclusion criterion was insufficient English language and literacy levels to complete questionnaires. Individually addressed letters, inviting women to take part in the study, were mailed to all eligible women at the two study sites. Those who did not respond within 2 weeks were contacted by telephone to ascertain their willingness or not to participate.

Procedures
Sociodemographic and infertility related information was gathered by brief telephone interview, and ART treatment details were retrieved from participants’ medical records. Postal questionnaires were mailed to participants in the first and last trimesters of pregnancy and 3, 8 and 18 months after the birth.

Materials
The first first-post-partum questionnaire was administered 3 months after the birth. It included questions about obstetric outcomes and the experience of childbirth, and intrapartum and post-natal healthcare, and the responses to these are reported here.

In order to establish the ways in which women who give birth after assisted conception are similar or different to other childbearing women, a variety of data sources were used for comparison; population data generated by the Australian Bureau of Statistics (ABS); the Australian Institute of Health and Welfare National Perinatal Statistics Unit (AIHW NPSU); the Victorian Perinatal Data Collection Unit (PDCU) and the Victorian Surveys of Recent Mothers (VSRM). The ABS is Australia’s official national statistical organization and publishes reports on demographic, economic and social aspects of Australian society based on Census and survey data. The AIHW NPSU is responsible for the compilation and reporting of
data in relation to ART treatment in Australia and New Zealand (Bryant et al., 2004), and PDCU is a mandatory population-based surveillance system which collects and publishes information on obstetric conditions, procedures and outcomes, neonatal morbidity and birth defects for all births in Victoria of 20 weeks gestation or more (Riley and King, 2003). Questions about the experience of childbirth and views about intrapartum and post-natal care with three, four or five Likert scale response alternatives were included in the questionnaire. Some of these were drawn from VSRM which were conducted in the years 1989, 1994 and 2000 (Brown et al., 2002). The VSRM are population-based surveys of systematically recruited cohorts of childbearing women in the Australian state of Victoria, of whom >95% can be presumed to have conceived spontaneously. The three VSRMs were not identical and their findings have been used and published by several different authors (Astbury et al., 1994; Brown and Lumley, 1997; Brown et al., 2001; Bruinsma et al., 2001). Where possible, these published data were used as comparison for this study.

Statistical analysis
Data were analysed in the Statistical Package for the Social Sciences v11.5. Univariate comparisons were made by Student’s t-test and chi-square statistics. Statistical significance was set at P < 0.05.

Results
Response rate and representative adequacy of the sample
Of the 239 women eligible to participate in this study, 183 (77%) agreed to take part. Four women miscarried between 8 and 18 weeks gestation and two experienced fetal deaths in utero at >20 weeks gestation. Six participants failed to return one or both of the questionnaires administered in pregnancy. Of the remaining 171 women, 166 (97%) completed the first post-natal questionnaire.

The representative adequacy of the sample was ascertained in two ways. First, medical record data revealed that there were no significant differences between women meeting the inclusion criteria who participated and did not participate in the study on the number of ART treatment cycles they had undergone, the proportions who had previously had a live birth or experienced pregnancy loss after ART, used donor gametes to conceive or had multiple gestations in the current pregnancy. Second, it was established that participants in this study were similar to the whole population of Australian women who gave birth after ART in 2002 in terms of their age, cause of infertility, parity and obstetric outcomes which indicate that the sample is representative of all Australian women who give birth following assisted conception (Bryant et al., 2004).

Characteristics of participants
The mean age of participants at recruitment was 34.3 years and of their partners 36.6 years. Most (n = 135, 81%) were born in Australia or New Zealand. Almost all participants were partnered; 148 (89%) were married and 13 (8%) were in de facto relationships, one of whom was in a same-sex relationship. Five (3%) participants were single. More participants were in a permanent relationship than all women who gave birth in Victoria in 2002 (97% versus 87%, P < 0.0001) (Riley and King, 2003). The partnered women had been in the relationship for an average of 9.9 years (range 3–23 years). Details about participants’ ART treatment are shown in Table I.

Compared with the general population of Australian women of this age, participants were socio-economically advantaged: more had tertiary education (56% versus 29%, P < 0.0001), were in professional employment (67% versus 52%, P < 0.0001), owned or were purchasing their home (88% versus 66%, P < 0.0001) (ABS, 2003) and had private health insurance (79% versus 44%, P < 0.0001) (PHIAC, 2002).

Obstetric outcomes
Most participants were first-time mothers (116/166, 70%). Of the 196 babies born, 136 (69%) were singletons and 60 (31%) twins. Five pregnancies where two fetal heartbeats had been detected at 6 weeks gestation resulted in the birth of a singleton baby as one fetus had spontaneously aborted. The obstetric outcomes of participants are shown in Table II. Compared with all women in Victoria who gave birth in 2002, participants were on average 5 years older, more likely to be first-time mothers, have a multiple birth and a Caesarean delivery, give birth to a baby at <37 weeks gestation and have a baby weighing <2500 g (Riley and King, 2003). The elevated rate of Caesarean section delivery was in part attributable to the higher proportion of participants giving birth in private care and having a multiple birth. However, the Caesarean section rate for privately insured participants with a singleton birth was higher than for all women who gave birth in private care in Victoria in 2002 (47% versus 33%, P = 0.003) (Riley and King, 2003).

Intrapartum care
Most participants (89%) described feeling ‘very well supported’ during the birth. More participants (88% in public and 86% in private care) than women in the year 2000 VSRM (50% in public and 68% in private care) rated the intrapartum care as ‘very kind and understanding’ (P < 0.001 for both) (Bruinsma et al., 2001). Participants in private care were less likely than privately insured women in the VSRM to agree that they had always had an active say in decisions about care during the birth (43% versus 58%, P = 0.01), whereas the reverse was seen among women who gave birth in public care (59% versus 39%, P < 0.01) (Bruinsma et al., 2001). When asked how they felt about the birth 69% of participants described feeling ‘very pleased’ or ‘pleased’, 11% ‘undecided’ and 20% ‘disappointed’ or ‘very disappointed’. Caesarean section was associated with lower likelihood of always having had an active say about what happened during

| Table I. ART treatment information for participants who agreed to take part (n = 183). |
| Mean number of initiated treatments cycles | 2.08 |
| Mean number of initiated thaw cycles | 1.97 |
| Mean number of embryo transfers | 3.53 |
| Used ICSI (%) | 54 |
| Used donor gametes (%) | 9 |
| Previous ART birth (%) | 16 |
| Multiple pregnancy (%) | 20 |
the birth and less satisfaction with the birth. The relationship between mode of delivery and the evaluation of aspects of the intrapartum and post-natal care are shown in Table III.

There were no differences between primiparous and multiparous women or between mothers of singletons and mothers of twins in their perception of intrapartum care except that multiparous women were more likely than first time mothers to report always having had an active say about what happened during the birth (60% versus 42%, respectively, \( P = 0.03 \)) suggesting that previous experience may enhance sense of self-efficacy during childbirth.

**First encounter with the baby**
Almost all participants were able to see (97%) and hold (84%) their baby immediately or within a few minutes of the birth. Those who had a Caesarean birth were less likely than those who had a vaginal birth to be able to hold their baby at birth (73% versus 96%, \( P < 0.0001 \)). In total, 45 (23%) babies were admitted to an intensive or special care nursery. Babies born by Caesarean section were more likely than babies born vaginally to be admitted to intensive or special care nursery (39% versus 15%, \( P < 0.0001 \)). The most common reasons for admission were prematurity (3/13, 23% of babies born vaginally and 14/32, 44% of babies born by Caesarean section) and respiratory distress (6/13, 46% of babies born vaginally and 6/32, 19% of babies born by Caesarean section).

**Post-partum hospital care**
One quarter (25%) of participants rated the pain they experienced in the early days after the birth as severe. The proportion reporting severe post-natal pain was higher after Caesarean than vaginal birth (32% versus 17%, \( P = 0.02 \)). Two-thirds of participants (65%) were very satisfied with the post-natal care they received, a similar proportion as in a VSRM (62%) (Bruinsma et al., 2001).

**Infant feeding advice**
Most participants (89%) initiated breastfeeding, a similar proportion to that of women in the VSRM conducted in the year 2000 (92%) (Brown et al., 2001). Over two-thirds of participants (67%) reported that they needed a lot of advice or help with infant feeding while they were in hospital. Those who had a Caesarean section were more likely than those who had a vaginal birth to report that they needed a lot of advice or help (79% versus 55%, \( P = 0.001 \)), and first-time mothers were more likely than those who already had children to state that they needed a lot of advice or help (82% versus 32%, \( P < 0.0001 \)). Mothers of twins were more likely than mothers of singletons to report needing advice with feeding the babies while in hospital (83% versus 63%, \( P = 0.03 \)). Only 43% of women regarded the advice they received as ‘very clear and working well’. Women who stated that they needed more advice were less likely than those who needed less advice to rate the advice they received as ‘very clear and working well’ (32% versus 66%, \( P < 0.001 \)).

**Length of hospital stay**
The length of hospital stay after birth was longer for participants than for all Victorian women who gave birth in 2002. Of participants who had a vaginal birth (\( n = 82 \)) fewer stayed 1–2 days (10% versus 38%, \( P < 0.001 \)) and a higher proportion stayed at least 5 days (39% versus 10%, \( P < 0.001 \)).

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**Table II.** Comparison of obstetric outcomes with those of the general population of childbearing women living in Victoria in 2002.

<table>
<thead>
<tr>
<th>Study sample (( n = 166 ))</th>
<th>Births to women living in Victoria in 2002 (( n = 63,069 ))</th>
<th>( P )-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age of mother (years)</td>
<td>35.0</td>
<td>30.0</td>
</tr>
<tr>
<td>Mean age of first time mothers (years) (( n = 116 ))</td>
<td>34.7</td>
<td>28.4</td>
</tr>
<tr>
<td>Nullipara (%)</td>
<td>69.8</td>
<td>42.0</td>
</tr>
<tr>
<td>Multiple birth (%)</td>
<td>18.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Gave birth in private care (%)</td>
<td>87.0</td>
<td>37.0</td>
</tr>
<tr>
<td>Spontaneous vaginal births (%)</td>
<td>32.5</td>
<td>61.3</td>
</tr>
<tr>
<td>Assisted vaginal births (%)</td>
<td>16.9</td>
<td>13.4</td>
</tr>
<tr>
<td>Caesarean births without labour (%)</td>
<td>25.9</td>
<td>13.0</td>
</tr>
<tr>
<td>Emergency Caesarean births (%)</td>
<td>24.7</td>
<td>12.3</td>
</tr>
<tr>
<td>Total Caesarean births (%)</td>
<td>50.6</td>
<td>25.3</td>
</tr>
<tr>
<td>Gestational age &lt;37 weeks at birth (% of total births)</td>
<td>13.8</td>
<td>7.8</td>
</tr>
<tr>
<td>Birthweight &lt;2500 g (% of babies)</td>
<td>15.4</td>
<td>6.9</td>
</tr>
</tbody>
</table>

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**Table III.** Association between mode of delivery and aspects of intrapartum care and post-natal hospital stay (\( n = 166 \)).

<table>
<thead>
<tr>
<th>Vaginal (( n = 82 ))</th>
<th>Caesarean section (( n = 84 ))</th>
<th>( P )-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind and understanding intrapartum care (%)</td>
<td>83</td>
<td>91</td>
</tr>
<tr>
<td>Always had active say about what happened during birth (%)</td>
<td>57</td>
<td>37</td>
</tr>
<tr>
<td>Felt very well supported during birth (%)</td>
<td>85</td>
<td>93</td>
</tr>
<tr>
<td>Pleased with the birth (%)</td>
<td>83</td>
<td>55</td>
</tr>
<tr>
<td>Disappointed with the birth (%)</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>Able to hold the baby at birth</td>
<td>96</td>
<td>73</td>
</tr>
<tr>
<td>Experienced severe post-natal pain</td>
<td>17</td>
<td>32</td>
</tr>
<tr>
<td>Needed a lot of help and advice about infant feeding</td>
<td>55</td>
<td>79</td>
</tr>
</tbody>
</table>

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0.001) than other Victorian women (Riley and King, 2003). Most participants who had a Caesarean birth stayed in hospital five nights or longer (71/84, 85%), a higher proportion than the 60% of Victorian women who stayed in hospital five nights or longer after Caesarean birth (P < 0.001) (Riley and King, 2003). Comparing participants with women living in Victoria who gave birth in private care in 2002, the proportion staying five nights or longer was significantly higher (62% versus 44%, P < 0.001) (Riley and King, 2003). In spite of the relatively high proportion of participants who stayed in hospital for five nights or more, 22% felt that the hospital stay was too short to meet their needs.

Maternal confidence about baby care when leaving the hospital

Participants were asked to recall whether they had felt ‘very anxious and worried’, ‘occasionally anxious and worried’, ‘fairly confident’ or ‘very confident’ about caring for their baby when they left the hospital. Over half the sample (52%) recalled feeling some anxiety when first bringing the baby home from hospital. The proportion of participants who reported feeling anxious about baby care when leaving the hospital was almost double that of women of all parities in the year 2000 VSRM where only 28% reported feeling equivalent anxiety (P < 0.001) (Brown et al., 2001). Study participants with twins were more likely than those with single babies to recall feeling anxious about caring for their babies when leaving the hospital (69% versus 48%, P = 0.03) and first time mothers were more likely than those who had other children to recall feeling anxious about baby care (65% versus 20%, P < 0.001). Compared with the first time mothers in an earlier VSRM where the relationship between confidence and parity was reported, more primiparous participants in this study recalled feeling anxious about baby care when leaving the hospital (47% versus 65%, P < 0.001) (Brown and Lumley, 1997).

In order to ascertain whether the differences observed between women who gave birth vaginally or by Caesarean were linked to characteristics present before they gave birth, univariate between group comparisons of data collected in advanced pregnancy were made. In late pregnancy, there were no differences between women who later had a vaginal or a Caesarean birth in maternal age or level of education, but more of those with private health insurance had Caesarean births. There were no differences between these two groups in self-reported mood, quality of intimate partner relationship or personality characteristics assessed in late pregnancy (Table IV). This is clear evidence that the differences were attributable to childbirth experiences, not to pre-existing characteristics.

Discussion

This study has a number of methodological strengths in comparison to most previous research in this field. These include the prospective longitudinal design of the study, the recruitment of a consecutive cohort which included multiparous, women who had used donor gametes to conceive and women with a multiple birth, excluded in most previous studies of childbirth after ART (McMahon et al., 1997; Hjelmstedt et al., 2004; Cox et al., 2006; Repokari et al., 2006), and it had higher response and retention rates (Greenfeld and Klock, 2001; Hjelmstedt et al., 2004; Cox et al., 2006). Furthermore, it was established that treatment characteristics of those who took part in the study and those who declined participation were similar and that the sample represented Australian women who give birth after ART accurately. Other longitudinal studies of childbirth after ART have not explored the experience of the birth and only one previous study (van Balen et al., 1996) had as its aim to investigate the birth experience among women who have conceived with ART, and that study was limited in scope. The reliance on maternal recall of obstetric outcomes rather than drawing information from medical records may be considered a limitation of the current study. However, there is consistent evidence that women recall intrapartum events accurately in both the short and longer term and that this is reflected in high levels of agreement between medical records and maternal reports of obstetric and neonatal outcomes (Rowe-Murray and Fisher, 2002; Rice et al., 2007).

The extraordinarily high rate of Caesarean section delivery (51%) observed in this study indicates that for Australian women, the risk of operative birth is twice as high after ART than spontaneous conception. In some other countries, the difference in Caesarean section rate between those who conceive with ART and other women is less marked (Koudstaal et al., 2000; Ochsenkühn et al., 2003; Jackson et al., 2004).

In the Australian, two-tiered health-care system patients in private care are more likely to have obstetric interventions than those in public care. The fact that most study participants gave birth in private care and were cared for by an obstetrician partly explains the elevated rate of Caesarean section. As more participants had a multiple birth, a premature and low birthweight baby than women who conceive spontaneously this also accounts for some of the excess in Caesarean births. However, even when comparing participants who had a singleton birth with all women who gave birth in private care, participants were more likely to experience a Caesarean delivery. This is in spite of the fact that their babies had the same mean birthweight as the spontaneously conceived babies. Only speculative reasons for this can be offered but may include non-clinical factors. Windridge and Berryman (1999) suggested that treating obstetricians may view ART pregnancies as more ‘precious’ because women are older and thought not to be able to conceive again, and this may make them more inclined to intervene. Fear of malpractice litigation and the convenience to the treating doctor of a scheduled birth may also have contributed to the high Caesarean section rate. In Scandinavian countries such as Finland and Sweden, where private obstetric care is not available, similar rates of Caesarean section for women who have conceived with ART and other women are reported (Koivurova et al., 2002; Sydsjö et al., 2002; Hjelmstedt et al., 2003).

Irrespective of the explanation for the high rate of Caesarean section among participants, the adverse effect of operative birth on women’s overall rating of the experience of the birth is
There is evidence that surgical delivery negatively influences the first contact between a mother and her baby and that initiation of breastfeeding is delayed after Caesarean section (Rowe-Murray and Fisher, 2001; Rowe-Murray and Fisher, 2002). Of participants in this study who had a Caesarean section more than one quarter were separated from their baby at birth. Furthermore, almost one-third had twins and an equal proportion experienced severe post-natal pain. These factors, when added to the difficulties involved with the experience of infertility and infertility treatment and disappointment with the birth, may have a cumulative effect in eroding maternal confidence. This may in part explain the almost universal need for extensive help with infant feeding among participants who had a Caesarean section.

Previous research has found that anxiety about caring for the baby is associated with longer post-natal hospital stay (Brown and Lumley, 1997). The direction of this effect is ambiguous, anxious women may be encouraged to stay longer and longer stay may contribute to anxiety. However, lack of confidence about caring for the baby at home may explain the high proportion of participants in this study who stayed in hospital for 5 days or longer after the birth (62%). In spite of the prolonged hospital stay, participants were more likely to feel anxious about caring for their baby when they left the hospital than comparison groups. This suggests that the well-described negative effect of infertility on self-esteem and feelings of self-efficacy (Andrews et al., 1991; Abbey et al., 1992; Downey and McKinney, 1992; Anderson et al., 2003) may persist after giving birth and hinder the development of a confident maternal identity.

In conclusion, we have shown that rates of Caesarean child birth are extremely high after ART and lead to separation from the baby and severe post-natal pain. Together these are associated with dissatisfaction, infant feeding difficulties and anxiety about infant care which might persist through the post-partum year.

Table IV. Association between mode of delivery and pre-existing factors.

<table>
<thead>
<tr>
<th></th>
<th>Vaginal (n = 82)</th>
<th>Caesarean section (n = 84)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (± SD) age of mothers (years)</td>
<td>34.2 (3.9)</td>
<td>34.6 (4.3)</td>
<td>NS</td>
</tr>
<tr>
<td>Had a university degree (%)</td>
<td>61</td>
<td>55</td>
<td>NS</td>
</tr>
<tr>
<td>Private health insurance (%)</td>
<td>73</td>
<td>85</td>
<td>0.05</td>
</tr>
<tr>
<td>Mean (± SD) Total POMS* score</td>
<td>23.6 (23.4)</td>
<td>24.7 (22.2)</td>
<td>NS</td>
</tr>
<tr>
<td>Mean (± SD) EPDS* score</td>
<td>6.0 (5.9)</td>
<td>6.1 (5.6)</td>
<td>NS</td>
</tr>
<tr>
<td>Mean (± SD) VPSd vulnerability subscale score</td>
<td>30.7 (5.3)</td>
<td>30.6 (5.8)</td>
<td></td>
</tr>
<tr>
<td>Mean (± SD) IBMd control subscale score</td>
<td>3.9 (3.3)</td>
<td>4.7 (4.0)</td>
<td></td>
</tr>
<tr>
<td>Mean (± SD) VPSd vulnerability subscale score</td>
<td>15.2 (4.0)</td>
<td>14.7 (3.9)</td>
<td>NS</td>
</tr>
</tbody>
</table>

*Profile of Mood States (McNair et al., 1971).
*Edinburgh Post-natal Depression Scale (Cox et al., 1987).
*Intimate Bonds Measure (Wilhelm and Parker, 1988).
*Vulnerable Personality Scale (Boyce et al., 2001).

References


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