

## **Perception of the childbirth experience: Continuity and changes over the postpartum period**

Ana Albertina Conde<sup>a</sup>, Bárbara Figueiredo<sup>a\*</sup>, Raquel Costa<sup>a</sup>, Alexandra Pacheco<sup>a</sup>  
and Álvaro Pais<sup>b</sup>

<sup>a</sup>*University of Minho, Department of Psychology, Portugal;* <sup>b</sup>*Júlio Dinis Maternity Hospital, Anesthesiology Service, Largo da Maternidade, Porto, Portugal*

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The way mothers reconstruct the childbirth experience during the early postpartum period may interfere in their mood and predisposition to get pregnant again. This study explored continuity and changes in the perception of childbirth experience throughout the first six postpartum months, taking into account different types of delivery. The sample consisted of 68 Portuguese pregnant women, who filled in the Childbirth Experience and Satisfaction Questionnaire 48 h after delivery and in the third and sixth postpartum months. A continuity in the mothers' overall perceptions of childbirth experience, and usefulness of relaxation techniques, social support, health conditions and care provided, and other postpartum events was found over time. Despite that, mothers developed a more positive perception of this experience marked by fewer worries about the infant's health and well-being as well as their own, and by a decrease in the perception of the pain felt. The type of delivery had an impact both on the mothers' perceptions of childbirth experience and on memory changes over time. Results suggest that the construction of a more positive perception of childbirth can be a relevant postpartum developmental task which can help mothers to better adjust to motherhood.

**Keywords:** memory; childbirth; type of delivery; labour; postpartum

### **Introduction**

The childbirth experience assumes a single meaning for each woman (Costa, Figueiredo, Pacheco, & Pais, 2003), although in most cases it is perceived as a significant family event (Halldorsdottir & Karlsdottir, 1996) with both positive and negative, permanent and long-term impact on a woman's life, namely on her relationship with her partner (Brudal, 1985), children, and the newborn infant (Lagerkrantz, 1979; Oakley, 1983; Green, Coupland, & Kitzinger, 1990; Morris-Thompson, 1992; Simkin, 1992).

Many studies have tried to understand how women give meaning to their childbirth experience, the impact of different factors on this meaning, and the impact of the perception of childbirth experience on the mothers' health and well-being, on the infants' health, and on the mother-infant interaction. However, few studies have explored continuity and changes in the perception of childbirth experience over the early postpartum months, and most of them do not reach consensual results (Bennett, 1985; Simkin, 1991, 1992; Waldenström, 2003).

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\*Corresponding author. Email: [bbfi@iep.uminho.pt](mailto:bbfi@iep.uminho.pt)

One of the first studies focusing on women's memories of childbirth involves interviews with 72 women at 3 weeks and 2 years postpartum (Bennett, 1985). Results show that women recalled their first childbirth events in a fairly accurate manner, but became more critical about procedures used during labour over time. The ones who had a second child viewed their first childbirth more negatively, possibly as a result of memory changes due to their subsequent experiences.

Simkin (1992) also studied changes in the perception of childbirth experience over time. Twenty primiparous women answered a questionnaire shortly after delivery and 14–20 years later. The women's memories years after childbirth were generally accurate, despite the decrease in the information recalled and the occurrence of more lapses or errors in the memory of specific childbirth experience details. Results also showed that women with worse perceptions of the childbirth experience seemed to intensify and increase their negative perceptions over time, whereas the positive aspects remained consistently positive in most cases.

Waldenström (2003) tried to investigate how women remembered pain and their overall experience of labour and delivery, 2 months postpartum (this time point is relevant in studies which aim to analyse the impact of the mothers' childbirth experience in early adjustment to motherhood) and 1 year after delivery (this time point is relevant in the analysis of long-term effects of the mothers' childbirth experience). A longitudinal cohort study of 2428 women recruited in early pregnancy was conducted. Forty-seven percent of the participants made the same assessment of pain intensity, and at 1 year 60% of them made the same assessment of childbirth overall as they had done at the second postpartum month. One year after delivery, 35% recalled pain as less severe, and 18% as more severe; 24% mentioned labour and childbirth as being more negative, whereas 16% said it was more positive.

Although results are far from conclusive (Algom & Lubel, 1994; Rofe & Algom, 1985), research has shown that the recall of pain intensity felt during childbirth experience is generally fairly accurate or, instead, is perceived as less severe over time (Niven & Murphy-Black, 2000).

Waldenström (2004) showed that some women's memories of their childbirth changed over time, and such changes may be underestimated when group measures are used rather than individual answers. Results also showed that women's memories of pain, labour and overall childbirth experience changed in opposite directions: in general, pain became less severe, whereas the overall perception of childbirth became more negative over time. She hypothesised that this could be due to three factors. One of them may be that whereas the recall of pain intensity can be related to processes of memory loss, changes in the overall perception of childbirth may involve other subjective psychological processes. Another explanation is that negative changes in the mothers' perceptions of childbirth experience over time could be due to the relief felt when the delivery is finished and to euphoric reactions associated to the birth of a healthy baby that may brighten up the first perception. However, over time new perceptions are constructed and may express a more balanced view. Women have the opportunity to think about their childbirth experience and deal with its negative aspects, such as long labour, medical interventions, or an unsatisfactory relationship with the caregiver. Another hypothesis is that infant outcomes, such as functional problems or hospital care provided during the first year, could interfere in the



mothers' perceptions of childbirth. Psychosocial factors, such as depression, lack of the partner's support, or fear of childbirth can also have an impact on the construction of this perception over time. On the other hand, women who changed their first assessment from negative to more positive perceptions may have come to terms with their childbirth experience because of the influence of the same, but opposing, factors.

In this sense, the mothers' perceptions of psychosocial support and medical care provided during childbirth seem to remain stable throughout the time. In fact, mothers who showed a positive perception related to these aspects were less worried about delivery and more satisfied with the support provided by the midwife who attended labour and delivery (Simkin, 1991; Waldenström, 2004). An association between child disorders and changes in the perception of childbirth experience over time was not found in this study. However, some maternal characteristics, such as being single, depressed, or scared of labour and delivery in early pregnancy seem to be associated with changes in the initial positive perception of childbirth experience in a negative direction, suggesting that the childbirth experience did not have a 'healing' effect on these women (Waldenström, 2004).

Other researchers, such as Simkin (1992), associated the occurrence of changes in the recall of childbirth experience during the postpartum period with attention-related and memory factors. In their opinion, women who recently gave birth are clearly selective and subjective about their experience, but this perception became more global and generalised over time. Concerning this, studies pointed out more cognitive changes in pregnant women comparatively to non-pregnant women, not only during the gestational period, but also during the postpartum period. According to these researchers, these changes could be related to the hormonal reactions which were dominant in this period (Crawley, 2002).

Differences in the perception of childbirth experience and its possible impact on the mothers' health and well-being, on the babies' development, and on the mother-infant interaction (Figueiredo, 2001) suggested the need to explore in-depth how women perceive their childbirth experience and which factors interfere in the quality of the changes that occur over time.

The health care provided to pregnant women in Portugal is characterised by a specific health system profile. In general, pregnant women attend public health centres while maternity hospitals provide specialised obstetric and gynaecological care to women who present health risks. However, the Júlio Dinis Maternity Hospital works in partnership with Health Centres and provides regular check-ups to pregnant women with normal pregnancies.

Almost all of the Portuguese pregnant women (98%) have, at least, one prenatal appointment during pregnancy, which begins before 16 weeks of gestation (for more than 80%). Most of the deliveries occur in public hospitals of the National Health Care System (more than 90%), with high incidence of Caesareans (more than 20%). Usually the mother and the infant remain in the maternity hospital for 2–4 days. A hospital appointment is booked 4–8 weeks postpartum and if no clinical reason justifies a hospital appointment, follow-up is booked with a Health Centre general practitioner.

This study tried to assess continuity and/or changes in the mothers' overall perceptions of childbirth experience over the first six postpartum months. Different aspects of childbirth experience were taken into account: (1) relaxation, (2) social

support, (3) partner's support, (4) conditions and care provided by health caregivers, (5) positive and negative quality of childbirth experience, (6) the mothers' perceptions of different postpartum events, and (7) worries about the mothers' and the infants' health and well-being.

The impact of the type of delivery on continuity and/or changes in the perception of different aspects of childbirth experience was also analysed.

## Method

### *Participants*

The participants consisted of 68 mothers followed in the third and sixth postpartum months, from a large study which involved a sample of 306 pregnant women.<sup>1</sup> The women were recruited at the antenatal obstetric service of the Júlio Dinis Maternity Hospital (MJD, Oporto, Portugal), between September 2001 and July 2002.

As we can observe in Table 1, the majority of women selected were between 19 and 28 years old, were Portuguese (90.2%), and White (95.8%). Most of them were either married or cohabiting, and lived only with the partner. A significant number of them had low education (less than 12 years) and few had graduate studies. Most women were employed.

Table 1. Socio-demographics.

		<i>N</i> =68 (%)
Age (years)	15–18	7.0
	19–28	67.6
	29–39	25.4
Marital status	Single	14.1
	Married/cohabiting	86.9
Household arrangements	Living with the partner	85.9
	Not living with the partner	14.1
Education (years)	<9	30.2
	≥9 ≤ 12	58.7
	>12	11.1
Occupation	Employed	74.6
	Unemployed	25.4

Most of the women were primiparous (88.7%) and all of them had term gestations (between 37 and 41 weeks of gestation). A high proportion gave birth by Caesarean (53.5%); and while 22.5% did not have any type of analgesia, 31% had general anaesthesia and 46.5% had epidural anaesthesia during delivery (cf. Table 2).

### *Measures*

#### *Demographic factors*

At the interview women were asked about their employment and occupation, marital status, household arrangements, and educational attainment. They were also asked about the father of the child and his occupation.



Table 2. Obstetrical features.

		N=68 (%)
Parity	Primiparous	88.7
	Not primiparous	11.3
Type of delivery	Normal delivery – 38.0	
	Without anaesthesia	22.5
	With epidural anaesthesia	15.5
	Distocic delivery – 62.0	
	Caesarean with general anaesthesia	31.0
	Caesarean with epidural anaesthesia	22.5
	Instrumental delivery	8.5

*Childbirth Experience and Satisfaction Questionnaire (CESQ; Costa, Figueiredo, Pacheco, & Pais, 2004)*

The CESQ was designed to allow the assessment of the mothers' perception of childbirth experience. This self-report questionnaire is composed of 104 questions related to expectations, experiences, satisfaction, and pain felt during labour, delivery, and postpartum events; the items adopt a four-point Likert scale ('nothing', 'a little', 'a lot', 'very much'). The questionnaire usually takes less than 30 min to fill in.

Some of the aspects included are related to: physical conditions and quality of health care; the use of breathing and relaxation techniques; the feeling of self-control and confidence in dealing with the experience; the social support provided by significant others; the severity of pain and negative emotions, such as fear, related to labour, delivery, and postpartum events; how long it takes between labour, delivery, and the moment the mother first touches and picks up the baby. Hierarchical cluster analysis allowed us to identify eight subscales composing the questionnaire: (1) Conditions and Care (composed by 14 items): related to the quality of the physical and human conditions provided by the health institution; (2) Positive Experience (22 items): related to the confirmation of expectations, and to self-control, self-confidence, knowledge, pleasure, and satisfaction felt during labour and delivery; (3) Negative Experience (12 items): including negative feelings such as pain and discomfort felt during labour and delivery; (4) Relaxation (6 items): related to the use and helpfulness of relaxation techniques during labour and delivery; (5) Social Support (3 items): corresponds to the support provided by significant others; (6) Partner's Support (8 items): related to the specific support provided by the partner; (7) Worries (14 items): this subscale assesses worries about both the mother's and the infant's health and well-being; and (8) Postpartum (25 items): takes into account different early postpartum events, namely those related to the first contact with the newborn (cf. Table 3).

In both all subscales and in the total scale the higher scores correspond to better perceptions of childbirth experience.

The psychometric study of CESQ showed a good internal consistency (Cronbach's Alpha=.91, split-half coefficient=.68), a high test-retest reliability (test-retest=.59), and is highly correlated with the later occurrence of postpartum depression (CESQ; Costa et al., 2004).

Table 3. Items' examples of the CESQ subscales.

Subscales	Items with			
	Higher results	Lower results	Higher variability	Higher correlation with the subscale
Conditions and Care	(8) Were the conditions offered at the Maternity Centre during delivery as you expected (quality of the institution)?	(88) Were you satisfied with the Maternity Centre's conditions during the postpartum period?	(13) Was the length of labour as you expected?	(10) Was the quality of the healthcare provided during labour as you expected?
Positive Experience	(5) Was the pain you felt during delivery as you expected?	(45) Did you feel pleasure or satisfaction at any time during labour?	(4) Was the pain you felt during labour as you expected?	(80) Are you satisfied with how the labour took place?
Negative Experience	(49) How much discomfort did you feel during delivery?	(92) Are you satisfied with the pain intensity felt during labour?	(100) Maximum intensity of pain felt during delivery	(61) Do you remember the delivery as painful?
Relaxation	(18) Did you use breathing and relaxation techniques during labour?	(21) Which relaxation level did you reach during delivery?	(22) Did relaxation techniques help you during labour?	(22) Did relaxation techniques help you during labour?
Social Support	(38) Did you receive support from a significant other (family or friend), right after delivery?	(37) Did you receive support from a significant other (family or friend), during delivery?	(36) Did you receive support from a significant other (family or friend), during labour?	(36) Did you receive support from a significant other (family or friend), during labour?
Partner's Support	(35) Did you find your partner's support useful right after delivery?	(31) Did you have your partner's support during delivery?	(31) Did you have your partner's support during delivery?	(33) Did you find your partner's support useful during labour?
Worries	(51) Were you worried about your health condition during labour?	(69) How worried is your partner about your pain?	(55) Were you worried about the infant's health during delivery?	(56) Were you worried about the infant's health right after delivery?
Postpartum	(16) Was the period of time until you touched the infant, after delivery, as you expected?	(94) Are you satisfied with the pain intensity felt during postpartum?	(6) Was the pain you felt during the postpartum period as you expected?	(62) Do you remember the postpartum period as painful?

### Procedures

Ethical permission for this study was obtained from the Júlio Dinis Maternity (MJD) Hospital Ethical Commission.

Medical registers of pregnant women attending the MJD Hospital were consulted in order to identify the women whose gestation time was between 18 and 26 weeks. The women who did not know how to read and/or write in the Portuguese language (1.4%), and had a gestational age above 26 weeks or below 18 weeks, were excluded. The pregnant women were contacted and asked to participate in this study during their pregnancy routine medical appointment. They were informed about the study, assured total confidentiality of information, and asked for



voluntary cooperation. After signing an informed consent, social and demographic data of the participants were collected.

All mothers were contacted again immediately after delivery and asked to fill in the CESQ, while remaining at the MJD hospital. At the third and sixth postpartum months the CESQ was sent and returned by mail.

### ***Statistical analysis***

Continuity and/or changes, over the first six postpartum months, in the mothers' overall perceptions of childbirth experience and in its specific dimensions were analysed using the general linear model of repeated measures. The type of delivery was selected as the between-subjects factor for this model. Scores obtained in the total scale and in each subscale were considered as the within-subject factors, which included three levels: results obtained 48 h after delivery, and at the third and sixth postpartum months.

The mothers' perceptions of pain felt during the childbirth experience were also taken into account in this study. The Pain subscale, composed of the items 29, 54 and 60 of the CESQ, was specially created in order to analyse this variable. Scores obtained in this subscale were also analysed using the general linear model of repeated measures.

## **Results**

### ***Overall perceptions of childbirth experience (CESQ total scores)***

No impact of the type of delivery on the scores obtained for the whole scale in the three time periods selected ( $F=.147$ ;  $p=.96$ ) was found. We also did not find any significant differences between the total scores obtained 48 h after delivery, and at the third and sixth postpartum months ( $F=2.979$ ;  $p=.06$ ), nor did we find an impact of the type of delivery on CESQ total scores ( $F=1.317$ ;  $p=.25$ ) in any of the assessments.

### ***Relaxation<sup>2</sup>***

An impact of the type of delivery on the scores obtained in the Relaxation subscale was found in the three time periods selected (48 h after delivery, third and sixth postpartum months) ( $F=5.872$ ;  $p<.01$ ). The Scheffé post-hoc test pointed out that these differences were between mothers who had Caesareans with epidural anaesthesia and women who had normal deliveries with and without epidural anaesthesia. The women who had normal deliveries, both with and without epidural anaesthesia, perceived their relaxation experience significantly more positively comparative to the women who had Caesareans with epidural anaesthesia (cf. Table 4).

No significant differences were found between the results of the Relaxation subscale for the three time periods considered ( $F=.790$ ;  $p=.46$ ), nor was an impact of the type of delivery on the changes observed in this subscale's scores over time ( $F=1.244$ ;  $p=.29$ ).

### ***Social Support***

No impact of the type of delivery on the scores obtained for the Social Support subscale in the three time periods selected ( $F=1.517$ ;  $p=.21$ ) was found. We also did

Table 4. Differences in the Relaxation subscale related to the type of delivery ( $N=32$ ): repeated measures.

Type of delivery		48 h after delivery Mean (SD)	Third postpartum month Mean (SD)	Sixth postpartum month Mean (SD)	<i>F</i>	<i>p</i>	Scheffé post-hoc test
Normal delivery	With epidural anaesthesia (A)	13.43 (7.25)	17.43 (4.61)	15.43 (7.50)	5.872	$p < .01$	A&D B&D
	Without epidural anaesthesia (B)	13.54 (4.84)	13.09 (6.20)	13.00 (5.78)			
Caesarean	With general anaesthesia (C)	7.67 (1.53)	6.67 (.58)	7.00 (4.58)			
	With epidural anaesthesia (D)	2.83 (2.04)	5.83 (3.43)	6.33 (2.80)			
Delivery by forceps/ventouse (E)		13.80 (3.27)	12.40 (6.50)	14.40 (2.30)			

not find any significant differences between the results obtained 48 h after delivery, and at the third and sixth postpartum months for the Social Support subscale ( $F=.152$ ;  $p=.86$ ), nor did we find an impact of the type of delivery on the results of this subscale ( $F=1.270$ ;  $p=.26$ ) in any of the assessments.

### Partners' Support

An impact of the type of delivery on the Partners' Support subscale results ( $F=3.132$ ;  $p < .05$ ) was established for the three time points. The Scheffé post-hoc test showed that these differences were between mothers who had Caesareans with general anaesthesia and women who had normal deliveries with epidural anaesthesia. Those who had normal deliveries with epidural anaesthesia perceived their partners' support significantly more positively when compared to the ones who had Caesareans with general anaesthesia (cf. Table 5).

No significant differences between the Partners' Support subscale scores in any time period considered ( $F=.137$ ;  $p=.87$ ), nor any impact of the type of delivery on changes in the Partners' Support subscale scores over time ( $F=1.088$ ;  $p=.38$ ) were found.

Table 5. Differences in the Partners' Support subscale related to the type of delivery ( $N=60$ ): repeated measures.

Type of delivery		48 h after delivery Mean (SD)	Third postpartum month Mean (SD)	Sixth postpartum month Mean (SD)	<i>F</i>	<i>p</i>	Scheffé post-hoc test
Normal delivery	With epidural anaesthesia (A)	26.54 (4.18)	26.09 (6.99)	26.36 (5.64)	3.132	$p < .05$	A&C
	Without epidural anaesthesia (B)	25.06 (5.99)	25.38 (7.12)	24.69 (8.06)			
Caesarean	With general anaesthesia (C)	18.33 (5.42)	19.67 (5.13)	20.67 (6.37)			
	With epidural anaesthesia (D)	22.22 (4.41)	21.44 (6.02)	19.67 (6.48)			
Delivery by forceps/ventouse (E)		23.33 (9.87)	24.33 (6.90)	24.17 (9.52)			



### Conditions and Care

No impact of the type of delivery on the scores obtained for the Conditions and Care subscale for the three time periods ( $F=1.547$ ;  $p=.20$ ) was found. We also did not find any significant differences between the scores obtained for the Conditions and Care subscale in any time period considered ( $F=1.290$ ;  $p=.28$ ), nor any impact of the type of delivery on the results of this subscale ( $F=.647$ ;  $p=.74$ ) at each moment.

### Negative Experience

An impact of the type of delivery on the results of the Negative Experience subscale was obtained for the three time periods ( $F=10.043$ ;  $p<.001$ ) (cf. Table 6). The Scheffé post-hoc test showed that these differences can be noted between:

1. Mothers who had Caesareans with general anaesthesia and women who had normal deliveries with and without epidural anaesthesia: those who had Caesareans with general anaesthesia had a lower perception of their childbirth experience as a negative experience when compared to the ones who had normal deliveries with and without epidural anaesthesia.
2. Mothers who had Caesareans with epidural anaesthesia and women who had normal deliveries without epidural anaesthesia: those who had Caesareans with epidural anaesthesia had a lower perception of their childbirth experience as a negative experience when compared to the ones who had normal deliveries without epidural anaesthesia.
3. Mothers who had Caesareans with general anaesthesia and women who had deliveries by forceps and ventouse: those who had Caesareans with general anaesthesia had a lower perception of their childbirth experience as a negative experience when compared to the ones who had deliveries by forceps and ventouse.

Table 6. Differences in the Negative Experience subscale related to the type of delivery ( $N=57$ ): repeated measures.

Type of delivery		48 h after delivery Mean (SD)	Third postpartum month Mean (SD)	Sixth postpartum month Mean (SD)	<i>F</i>	<i>p</i>	Scheffé post-hoc test
Normal delivery	With epidural anaesthesia (A)	24.80 (5.79)	27.60 (6.42)	27.50 (7.15)	10.043	$p<.001$	A&C B&C A&D C&E
	Without epidural anaesthesia (B)	22.40 (6.67)	24.33 (9.48)	24.33 (7.69)			
Caesarean	With general anaesthesia (C)	37.06 (8.84)	36.31 (8.14)	39.56 (7.69)			
	With epidural anaesthesia (D)	31.20 (9.02)	35.30 (6.02)	35.60 (6.59)			
Delivery by forceps/ventouse (E)		19.83 (4.71)	28.50 (6.38)	25.83 (5.74)			

Significant differences in the Negative Experience subscale were found between the scores obtained 48 h after delivery and in the third postpartum month ( $F=20.608$ ;  $p<.001$ ): at the third postpartum month mothers had a lower perception of their childbirth as a negative experience (Mean=30.63; SD=9.06) comparatively to this

perception 48 h after delivery (Mean=28.21; SD=9.75). An impact of the type of delivery on the changes observed in the Negative Experience subscale scores over these two time periods ( $F=3.898$ ;  $p<.01$ ) was found.

### *Positive Experience*

No impact of the type of delivery on the Positive Experience subscale scores for the three time periods considered was found ( $F=.885$ ;  $p=.48$ ). Significant differences were found between the results of this subscale obtained 48 h after delivery and in the third postpartum month ( $F=11.877$ ;  $p<.001$ ), regardless of the women's type of delivery ( $F=.905$ ;  $p=.52$ ). At the third postpartum month, mothers had a higher perception of their childbirth as a positive experience (Mean=57.17; SD=12.65) comparative to this perception 48 h after delivery (Mean=52.59; SD=12.61).

### *Postpartum*

An impact of the type of delivery on the results of the Postpartum subscale obtained in each moment of assessment was found ( $F=4.043$ ;  $p<.01$ ). The Scheffé post-hoc test pointed out that these differences were between mothers who had Caesareans with epidural anaesthesia and mothers who had normal deliveries with epidural anaesthesia. Those who had normal deliveries with epidural anaesthesia had a better perception about a large variety of postpartum events than the ones who had Caesareans with epidural anaesthesia (cf. Table 7).

Table 7. Differences in the Postpartum subscale related to the type of delivery ( $N=58$ ): repeated measures.

Type of delivery	48 h after delivery Mean (SD)	Third postpartum month Mean (SD)	Sixth postpartum month Mean (SD)	<i>F</i>	<i>p</i>	Scheffé post-hoc test	
Normal delivery	With epidural anaesthesia (A)	82.89 (4.86)	82.11 (8.81)	80.00 (12.05)	4.043	$p<.01$	A&D
	Without epidural anaesthesia (B)	79.78 (9.10)	77.36 (13.98)	79.78 (13.17)			
Caesarean	With general anaesthesia (C)	68.88 (11.80)	72.06 (14.46)	70.00 (14.31)			
	With epidural anaesthesia (D)	65.00 (14.13)	65.46 (15.50)	65.62 (12.80)			
Delivery by forceps/ventouse (E)	72.83 (7.76)	75.83 (11.30)	79.67 (13.32)				

No significant differences between the Postpartum subscale results for each time period considered were found ( $F=.376$ ;  $p=.69$ ), nor was any impact of the type of delivery on changes in the Postpartum subscale scores over time ( $F=.857$ ;  $p=.56$ ).

### *Worries*

No impact of the type of delivery on the Worries subscale scores for the three time periods was found ( $F=1.134$ ;  $p=.35$ ). Significant differences in the results of this subscale were found between the third and the sixth postpartum months ( $F=9.534$ ;  $p<.01$ ), regardless of the type of delivery considered ( $F=.853$ ;  $p=.56$ ). At the sixth



postpartum month, mothers recall having less worries about their own health and about the infant's health and well-being (Mean=39.68; SD=7.38) than at the third postpartum month (Mean=36.47; SD=9.02).

### *Pain*

An impact of the type of delivery on the Pain subscale scores for the three time periods was found ( $F=10.665$ ;  $p<.001$ ) (cf. Table 8). The Scheffé post-hoc test showed that these differences were between:

1. Mothers who had Caesareans with general anaesthesia and mothers who had normal deliveries with and without epidural anaesthesia: those who had Caesareans with general anaesthesia perceived the pain they felt during the childbirth experience as being less severe comparatively to the ones who had normal deliveries with and without epidural anaesthesia.
2. Mothers who had Caesareans with epidural anaesthesia and mothers who had normal deliveries without epidural anaesthesia: those who had Caesareans with epidural anaesthesia perceived the pain as being less severe comparatively to the ones who had normal deliveries without epidural anaesthesia.
3. Mothers who had Caesareans with general anaesthesia and mothers who had deliveries by forceps and ventouse: those who had Caesareans with general anaesthesia perceived the pain felt during the childbirth experience as being less severe than the ones who had deliveries by forceps and ventouse.

Table 8. Differences in the Pain subscale according to the type of delivery ( $N=57$ ): repeated measures.

Type of delivery		48 h after delivery Mean (SD)	Third postpartum month Mean (SD)	Sixth postpartum month Mean (SD)	$F$	$p$	Scheffé post-hoc test
Normal delivery	With epidural anaesthesia (A)	13.07 (4.40)	18.00 (5.64)	18.20 (5.41)	10.665	$p<.001$	A&C B&C A&D C&E
	Without epidural anaesthesia (B)	13.07 (3.86)	15.13 (6.17)	15.20 (4.81)			
Caesarean	With general anaesthesia (C)	23.87 (7.48)	23.93 (6.33)	25.67 (5.23)			
	With epidural anaesthesia (D)	22.27 (6.26)	24.36 (5.01)	25.36 (4.88)			
Delivery by forceps/ventouse (E)		12.67 (3.26)	18.50 (4.68)	16.67 (4.27)			

Significant differences between the Pain subscale scores obtained 48 h after delivery and in the third postpartum month ( $F=20.127$ ;  $p<.001$ ) were also found, regardless of the impact of the type of delivery on changes observed in the results of this subscale over time ( $F=1.603$ ;  $p=.13$ ). At the third postpartum month mothers perceived the pain they felt during the childbirth experience as being less severe (Mean=20.09; SD=6.80) comparatively to this perception 48 h after delivery (Mean=18.11; SD=7.22).

## Discussion

The way mothers remember their childbirth experience over the first six postpartum months is unique (Bennett, 1985; Simkin, 1991, 1992; Waldenstrom, 2003). Changes in this perception over time do not necessarily work in a single direction, but different and personal ways (Waldenström, 2003).

The main aim of the study was to analyse continuity and changes in the mothers' perceptions of childbirth experience, during the first six months after delivery. As reported in other studies, we found continuity in the perception of the childbirth experience over time. We also observed that the positive or negative nature of changes occurred in this perception, over the early postpartum months, was specific for each aspect of this experience and can assume different directions in the same women. However, as in the studies of Bennett (1985) and Simkin (1992), a continuity was found in the mothers' childbirth memories over the early postpartum months, despite the occurrence of changes in some aspects of the experience.

Continuities in the way mothers recall the overall childbirth experience and in the use and usefulness of relaxation techniques, social support provided (both by the partner and by significant others, family and friends), conditions and care provided (by health caregivers), and several postpartum events, was found over time. Some of these results seem to be supported by other studies, such as Simkin (1991) and Waldenström (2004) where mothers' perceptions of psychosocial support and medical care received during the childbirth experience seem to remain stable through time.

Despite these continuities concerning some aspects of the childbirth experience, changes in the mothers' perceptions of their childbirth experience as a positive experience (where feelings of self-control and self-confidence were confirmed), in mothers' perceptions of childbirth as a negative experience (dominated by fear, pain and discomfort), and in the mothers' perceptions of worries about their own and the infants' health and well-being, were also found over time. A progressive change on all the aspects referred above, in a positive direction, was obtained at this level. Over the first six postpartum months, mothers showed a tendency to be less negative about their childbirth experience, to be more positive and to have fewer worries about their own and the infants' health and well-being, and to perceive the pain they felt during the childbirth as being less severe (this is, over the first six postpartum months, mothers showed a tendency to minimize the negative feelings, worries and pain felt during the childbirth experience and, on the other hand, to maximize the positive feelings felt at that time). Waldenström (2003) investigated how women remembered the pain they felt in labour, 2 months and 1 year after delivery and found that one year after delivery 35% of women recalled pain as less severe. Other studies also supported this view, that even though the recall of pain intensity felt during the childbirth experience was fairly similar, over time it may be perceived as less severe (Niven & Murphy-Black, 2000).

The main contribution of this study is related to its second aim, which concerned the impact of the type of delivery on the mothers' perceptions of different aspects of childbirth experienced at the time points selected (48 h after delivery, third and sixth postpartum months), and also in changes observed in these aspects over time. As Costa, et al. (2003) pointed out, we found an impact of the type of delivery on the perception of different aspects of childbirth experience.



The study of the impact of the type of delivery on the use and usefulness of relaxation techniques during the childbirth experience showed that mothers who had normal deliveries, both with and without epidural anaesthesia, perceived their relaxation experience more positively than mothers who had Caesareans with epidural anaesthesia.

When we focused on the mothers' perceptions of the support provided by their partners during childbirth we found that mothers who had normal deliveries with epidural anaesthesia perceived this support as more positive and relevant compared with those who had Caesareans with general anaesthesia.

Differences in the mothers' perceptions of childbirth experience as a negative experience related to the type of delivery were also found. Specifically, mothers who had Caesareans with general anaesthesia had a lower perception of their childbirth experience as a negative experience when compared to those who had normal deliveries; mothers who had Caesareans with epidural anaesthesia had a lower perception of their childbirth experience as a negative experience when compared to those who had normal deliveries without epidural anaesthesia; and mothers who had Caesareans with general anaesthesia had a lower perception of their childbirth experience as a negative experience when compared with those who had delivered by forceps and ventouse.

The mothers' perceptions of different postpartum events were also influenced by the type of delivery. Mothers who had normal deliveries with epidural anaesthesia had a more positive perception of a great variety of postpartum events when compared to those who had Caesareans with epidural anaesthesia.

Finally, differences between the mothers' perceptions of pain felt during childbirth experience depending on the type of delivery were found. Results showed that: mothers who had Caesareans with general anaesthesia perceived the pain felt during the childbirth experience as less severe when compared to those who had normal deliveries with or without epidural anaesthesia; mothers who had Caesareans with epidural anaesthesia perceived the pain felt during the childbirth experience as less severe when compared to those who had normal deliveries without epidural anaesthesia; and mothers who had Caesareans with general anaesthesia perceived the pain felt during the childbirth experience as less severe when compared to the ones who had deliveries by forceps and ventouse.

An influence of the type of delivery on the positive changes in the mothers' perceptions of their childbirth as a negative experience was found over time. However, the positive changes observed in the mothers' perceptions of their childbirth as a positive experience, in the perceptions of worries about their own and infant's health and well-being, and of pain felt during the childbirth experience were independent of the type of delivery involved.

The small number of mothers who filled in the CESQ at all the time points required, that is, 48 h after delivery, and in the third and sixth postpartum months, and the large proportion of mothers experiencing Caesarean section birth were the main limiting features of the study which may affect broader generalisation of the findings.

## **Conclusion**

Transition to parenthood implies important cognitive, emotional and interpersonal changes. During this period, the childbirth experience is incorporated (Rubin, 1984). Negative perceptions of childbirth experience may lead to emotional problems and



negative perceptions about the newborn's behaviour, making the development of maternal identity and parental care more difficult (Rubin, 1984; Fowles, 1994). On the other side, women's psychological well-being will be promoted if the expectations about childbirth experience are confirmed; satisfaction and availability to infant care will increase in this situation (Green et al., 1990; Green, 1993).

This study suggests that the construction of a more positive perception of childbirth experience may be a postpartum developmental task which could help mothers to better adjust to motherhood. Similar results were found in studies related to the recall of traumatic events over time, suggesting that memory of highly emotional events are malleable and subject to distortion, as well as perceived as indelible and consistent over the lifetime and trauma-related symptoms may also negatively influence the consistency of memory of a traumatic event over time. Memory of stressful events appears to be more extensive than memory of non-stressful events; the central and critical details are better remembered than peripheral details (van Giezen, Arensman, Spinhoven, & Wolters, 2005).

Initially, research into memory processes underlying the recall of neutral events was expected to provide answers that could be generalised to the recall of emotionally arousing events. Recent research (e.g. McNally, 2003; Ayalon, 2005), however, has revealed that both emotional reactions at the time of occurrence of an event and present mood may distort memories of event (van Giezen et al., 2005). A review of literature conducted by van Giezen et al. (2005) on emotionally arousing events pointed out that the degree and direction of memories changes over time can be partly explained by the nature of the event, the extent of personal involvement, and the amount of psychological or psychiatric symptoms present. This review also suggests that in cases where an individual has been personally affected by a stressful event, the absence of a complete reconstruction of the event in the first phase after the event is likely to be related to the emotional reactions at the time of the event and/or at later points in time when the event is discussed again. On the basis of the review, it can be concluded that it is likely that additional details of an emotionally arousing event may be remembered at a later stage. It is unlikely, however, that an individual will not remember the event at all or that the information concerning the event will be entirely distorted at a later stage.

The type of delivery seems to be an important factor that should be taken into account in intervention programmes to promote an adaptative and more positive psychological integration of the childbirth experience, with an impact not only on the mothers' memories of their childbirth experience, but also on the changes in these perceptions over time.

In summary, while the sample characteristics may limit broader generalisation, the study does contribute to knowledge about women's perceptions of their childbirth experience and may help health professionals, such as general practitioners, obstetricians and paediatricians, to better support patients throughout the motherhood experience. The focus of this study was on the Portuguese health and social care systems and a need for cross-cultural studies using a similar research design is indicated.

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## Notes

1. Differences between the initial recruited sample and the selected women who filled in the CESQ 48 h after delivery, and in the third and sixth postpartum months related to social, demographic, and obstetrical data were analysed. Significant differences related to age ( $t=2.297$ ;  $p=.022$ ), occupation ( $\chi^2(1)=24.124$ ;  $p=.000$ ), gestation length ( $\chi^2(2)=77.971$ ;  $p=.000$ ), parity ( $\chi^2(1)=17.357$ ;  $p=.000$ ), and type of delivery ( $\chi^2(4)=10.347$ ;  $p=.035$ ) were found between the two groups. The pregnant women in the initial sample were more likely to be older (Mean=26.92; SD=4.77), unemployed, have shorter gestations ( $\leq 41$  weeks), be multiparous, and have normal deliveries, both with and without epidural anaesthesia.
2. The small number of participants considered in the Relaxation subscale ( $N=32$ ) is related to the fact that only these mothers had used relaxation techniques during labour and/or delivery.

## References

- Algom, D., & Lubel, S. (1994). Psychophysics in the field: Perception and memory of labor pain. *Perception and Psychophysics*, *55*, 133–141.
- Ayalon, L. (2005). Challenges associated with the study of resilience to trauma in Holocaust Survivors. *Journal of Loss & Trauma*, *10*(4), 347–358.
- Bennett, A. (1985). The birth of a first child: Do women's reports change over time? *Birth*, *12*(3), 153–158.
- Brudal, L.F. (1985). *Födandets Psykologi [The psychology of childbirth]*. Stockholm: Natur och Kultur.
- Costa, R., Figueiredo, B., Pacheco, A., & Pais, A. (2004). Questionário de Experiência e Satisfação com o Parto (QESP) [Childbirth Experience and Satisfaction Questionnaire (CESQ)]. *Psicologia: Saúde & Doenças*, *5*(2), 159–187.
- Costa, R., Figueiredo, B., Pacheco, A., & Pais, A. (2003). Tipo de parto: Expectativas, experiências, dor e satisfação. [Type of delivery: Expectations, experiences, pain and satisfaction]. *Revista Portuguesa de Obstetricia*, *26*(6), 265–306.
- Crawley, R. (2002). Self-perception of cognitive changes during pregnancy and the early postpartum: Salience and attentional effects. *Applied Cognitive Psychology*, *16*, 617–633.
- Figueiredo, B. (2001). *Mães e bebês [Mothers and infants]*. Lisboa: Fundação Calouste Gulbenkian e Fundação para a Ciência e a Tecnologia.
- Fowles, E. (1994). The relationship between prenatal maternal attachment, postpartum depressive symptoms and maternal role attainment. Unpublished doctoral dissertation. Chicago: Loyola University of Chicago.
- Green, J.M., Coupland, V.A., & Kitzinger, J.V. (1990). Expectations, experiences, and psychological outcomes of childbirth: A prospective study of 825 women. *Birth*, *17*, 15–24.
- Green, J.M. (1993). Expectations and experiences of pain in labor: Findings from a large prospective study. *Birth*, *20*, 65–72.
- Halldorsdottir, S., & Karlsdottir, S.I. (1996). Journeying through labour and delivery: Perceptions of women who have given birth. *Midwifery*, *12*, 48–61.
- Lagerkrantz, E. (1979). *Förstföderskan och hennes barn [The primiparae and her child]*. Stockholm: Wahlström and Widstrand.
- McNally, R.J. (2003). *Remembering trauma*. Cambridge, MA: The Belknap Press of Harvard University Press.
- Morris-Thompson, P. (1992). Consumers, continuity, and control. *Nursing Times*, *88*, 29–31.
- Niven, C.A., & Murphy-Black, T. (2000). Memory of labor pain: A review of the literature. *Birth*, *27*, 244–253.
- Oakley, A. (1983). Social consequences of obstetric technology – the importance of measuring soft outcomes. *Birth*, *10*, 99–108.

- Rofe, Y., & Algom, D. (1985). Accuracy of remembering post-delivery pain. *Perceptual and Motor Skills*, 60, 99–105.
- Rubin, R. (1984). *Maternal identity and the maternal experience*. New York: Springer.
- Simkin, P. (1991). Just another day in a woman's life? Part I: Women's long-term perceptions of their first birth experience. *Birth*, 18, 203–210.
- Simkin, P. (1992). Just another day in a woman's life? Part II: Nature and consistency of women's long-term memories of their first birth pregnancies. *Birth*, 19, 64–81.
- van Giezen, A.E., Arensman, E., Spinhoven, P., & Wolters, G. (2005). Consistency of memory for emotionally arousing events: A review of prospective and experimental studies. *Clinical Psychology Review*, 25, 935–953.
- Waldenström, U. (2004). Why do some women change their opinion about childbirth over time? *Birth*, 31(2), 102–107.
- Waldenström, U. (2003). Women's memory of childbirth at two months and one year after the birth. *Birth*, 30(4), 248–254.