Central European Journal of Nursing and Midwifery

*Cent Eur J Nurs Midw* 2019;10(4):1118–1124
doi: 10.15452/CEJNM.2019.10.0023

## ORIGINAL PAPER

# BIRTH CENTRE VERSUS DELIVERY ROOM – THE RELATIONSHIP BETWEEN PLACE OF BIRTH AND EXPERIENCE OF CHILDBIRTH

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Received June 6, 2019; Accepted October 7, 2019. 

## Abstract

*Aim:* Satisfaction with medical care is an important element of birth experience. The aim of this study was to attempt to assess the effect of location (birth centre and delivery room) on the experiences and opinions of labouring women concerning childbirth. *Design:* Cross-sectional study. *Methods:* Two hundred women after childbirth participated in surveys, which were conducted one-four days after childbirth. The research tools used were the authors' own survey questionnaire and a standardised tool: the Inventory to Measure Coping Strategies with Stress – Mini-Cope. *Results:* Women who gave birth at the birth centre more often considered that the delivery had met their expectations. Both the women who gave birth to children at the birth centre and those who gave birth in the delivery room wanted to have their next childbirth in the same place. Women who underwent childbirth at a birth centre rated the experience more highly than women who experienced childbirth in a delivery room, and also managed stress better during childbirth. *Conclusion:* Women who chose to have their birth at a birth centre and, thus, to experience it more fully, more often stated that the childbirth had met their expectations. They managed stress better during childbirth and gave significantly better assessments of the experience of childbirth.

**Keywords:** birth centre, delivery room, experience, natural birth, parturition, stress.

## Introduction

Comprehensive analysis of the experiences and opinions of laboring women regarding medical care is key to enabling assessment of and improvement in quality of obstetric services (Conesa Ferrer et al., 2016). Hospitals investigate patients' expectations concerning medical staff, their behaviour, and equipment, thus obtaining an overview of the situation and conditions in the hospital (Parand et al., 2014).

In Poland, according to law, women can choose the place of childbirth – hospital, birth centre or home. Hospital care is covered by the system of health insurance and, thus, is free of charge. A birth centre is a place where the experience of childbirth is not disturbed by the use of unexplained medical procedures (Nawrot, 2015).

In 2012 the first Polish Outpatient Birth Centre was opened at our hospital in Warsaw. It is a place for women who would prefer a non-medicalised, natural childbirth in intimate conditions, resembling home births (Nawrot, 2015). In the course of childbirth medical interventions and procedures that are standard in delivery rooms are not used, so the cost of a patient's hospital stay is significantly lower (Janssen, Mitton, Aghajanian, 2015). Laboring women stay under the care of a midwife, who monitors mother and baby, but restricts intervention to the essential safe minimum and is careful not to infringe on the mother's freedom or to interfere with the natural course of labor (Nawrot, 2015).

The delivery room at hospital is standardly equipped. The possibility of quick transfer from the birth centre to the delivery room is an important asset. Insertion of a central venous catheter and performance of regular CTG recordings are standard in the delivery room. Women can also take advantage of pharmacological methods of labor pain relief, such as epidural anaesthesia (database of St. Sofia's Hospital in Warsaw).

A considerable number of female patients choose our hospital in Warsaw as the birthplace for their

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children. In 2016, 6,868 infants were born there, and in 2017 this rose to 7,035 (total number of births in the birth centre and in the delivery room – database of our hospital). However, the question of whether women's experience of childbirth in the birth centre and in the delivery room differs is important.

## Aim

The main aim of the study was to attempt to assess the influence of the birth location chosen by the women (birth centre or delivery room) on their experiences of, satisfaction with, and opinions of giving birth. An additional aim was to assess the relationship between the mothers' choice of birth location and their self-declared methods of coping with stress.

## Methods

### *Design*

Cross-sectional study.

### *Sample*

Two hundred women who had undergone physiological childbirth, participated in the study. The research was conducted one-four days after childbirth. Participation in the study was voluntary, anonymous, and required informed consent. A detailed characteristic of the study group is presented in Table 1.

**Table 1** Characteristics of the study group

| Characteristics of group | Total n (%) | Delivery room | Birth centre |
|---|---|---|---|
| **Age** | | | |
| up to 20 years | 0 (0) | 0 (0) | 0 (0) |
| 21–25 | 8 (4) | 6 (3) | 2 (1) |
| 26–30 | 72 (36) | 40 (20) | 32 (16) |
| 31–35 | 99 (49.5) | 43 (21.5) | 56 (28) |
| over 36 | 21 (10.5) | 11 (5.5) | 10 (5) |
| **Education** | | | |
| vocational | 3 (1.5) | 1 (0.5) | 2 (1) |
| secondary | 19 (9.5) | 14 (7) | 5 (2.5) |
| higher | 178 (89) | 85 (42.5) | 93 (46.5) |
| **Marital status** | | | |
| single | 27 (13.5) | 17 (8.5) | 10 (5) |
| married | 172 (86) | 83 (42) | 89 (44) |
| divorced | 1 (0.5) | 0 (0) | 1 (0.5) |
| **Day after childbirth** | | | |
| 1 | 116 (58) | 69 (34.5) | 47 (23.5) |
| 2 | 64 (32) | 23 (11.5) | 41 (20.5) |
| 3 | 16 (8) | 6 (3) | 10 (5) |
| 4 | 2 (1) | 1 (0.5) | (0.5) |
| > 4 | 2 (1) | 1 (0.5) | 1 (0.5) |
| **Number of childbirths including the most recent** | | | |
| 1 | 71 (35.5) | 46 (23) | 25 (12.5) |
| 2 | 96 (48) | 44 (22) | 52 (26) |
| 3 | 29 (14.5) | 8 (4) | 21 (10.5) |
| 4 | 2 (1) | 1 (0.5) | 1 (0.5) |
| 5 | 2 (1) | 1 (0.5) | 1 (0.5) |
| 6 | 1 (0.4) | 0 (0) | 1 (1) |
| **Did previous childbirths take place at our hospital?** | | | |
| no | 26 (20.2) | 14 (25.9) | 12 (16) |
| not all of them | 13 (10) | 3 (5.6) | 10 (13.3) |
| yes | 90 (69.8) | 37 (68.5) | 53 (70.7) |
| **Total** | 129 (100) | 54 (100) | 75 (100) |

### *Data collection*

The research tools were an original survey questionnaire compiled by the authors, consisting of 20 questions, and a standardised tool: the Inventory to Measure Coping Strategies with Stress – Mini-Cope by Charles Carver (Polish version) (Juczyński, Ogińska-Bulik, 2009).

The questions in the survey concerned women's experiences and opinions of childbirth, and their satisfaction with it.

A five-point Likert scale was used for evaluation: 5 – strongly agree; 4 – agree; 3 – cannot comment; 2 – disagree; 1 – strongly disagree. The answers obtained were categorised, resulting in the creation of a scale of emotions and feelings associated with childbirth. Based on this scale, four groups of female respondents were selected: Group 1 – women satisfied with childbirth; Group 2 – women planning medicalisation of their next childbirth (e.g. deciding to have a cesarean section); Group 3 – women who appreciated accompanying persons or medical staff; and Group 4 – passive women, not feeling fully involved in the childbirth, not feeling any emotions associated with the childbirth, considering it as merely the inevitable next stage in life.

In addition to the questionnaire designed by the authors, it was decided to include another research tool: the Mini-Cope Inventory, in order to determine the ways mothers react and feel in situations of severe stress (Juczyński, Ogińska-Bulik, 2009). In relation to the purpose of the study, the tool was intended to help the authors answer the question of whether the choice of birth location is associated with methods of coping with stress. Based on the Mini-Cope Inventory, three principal methods of coping with stress were identified: one of which is having an internal feeling of control over stress – a woman applying this method actively copes with stress by accepting it and planning how to solve her problems. She wants to positively redefine the situation or understand its meaning and is focused on action. The second method is to have an external feeling of control over stress. A characteristic feature of this method is for a woman to seek support from those close to her. People who use such a strategy claim that the presence of others reduces their anxiety. Other women turn to religion to relieve stress. The third way of coping with stress is for women to divert their attention away from the stressor. This method consists in using humour, focusing attention on the performance of everyday activities, using psychoactive substances, and being in denial of the situation. Analysis of the Mini-Cope test results was conducted under the supervision of a psychology graduate.

### *Data analysis*

In the data analysis, the following statistical analyses were used: descriptive statistics, analysis of variance (Student's t-test and ANOVA), factor analysis and correlation.

Statistical analysis was performed using SPSS software. The level of statistical significance was set at 0.05.

## Results

A considerable number of women had had a previous childbirth at our hospital and were asked to determine their feelings associated with their last childbirth at this facility, with one corresponding to the most negative feelings, and five to the most positive. Sixty-eight percent of women assessed their previous childbirth at above four on this scale. Only one woman evaluated childbirth as a negative experience.

In the questionnaire of the survey developed by the authors themselves, a scale of feelings and emotions associated with the last childbirth was created. The scale enabled comparison of whether expectations of satisfaction with childbirth were met, and whether this depended on the birthplace. The evaluative scale was, again, from one to five. It is important to gather data on whether childbirth meets women's expectations. Female respondents who had given birth in the birth centre more often claimed that the childbirth had met their expectations ($p = 0.042$), and more often reported that they were not passive during childbirth, their freedom was not restricted, and the childbirth was not medicalized. The results obtained were statistically significant ($p = 0.033$). Notably, regardless of birth location, female respondents intended to undergo their next childbirth at the same place ($p < 0.001$). Importantly, women giving birth in the delivery room significantly more often would like to have a cesarean section during their next pregnancy ($p < 0.001$) (Table 2).

The female respondents were also asked for their opinion on the best method of pain relief during childbirth. Water immersion was the method most frequently chosen by women laboring in the birth centre (43%; $p < 0.001$). Women laboring in the delivery room most often indicated epidural anaesthesia (31%; $p < 0.001$) and use of a birth ball (10%; $p = 0.017$). The results are shown in Table 3.

Factor analysis with Varimax rotation was performed for the scale of feelings and emotions. Four categories were established, explaining 59% of variance. The first of the groups identified consisted of female respondents who were satisfied with their childbirth (20% of variance). They felt satisfaction with the childbirth and claimed that it had met their expectations. In addition, these women stated that the childbirth had made them feel like mothers who had fully achieved their task. The second group of women expected their next childbirth to be more medicalised (16% of variance). The third group was composed of women who appreciated the contribution of those who had accompanied them, or those who had assisted them during their childbirth. The fourth group consisted of "passive" women who had not felt

**Table 2** A scale of feelings and emotions associated with the last childbirth

| Emotions/feelings | Place of birth | mean | SD | t | p* |
|---|---|---|---|---|---|
| Childbirth met my expectations | delivery room | 4.47 | 0.69 | -2.05 | 0.042 |
| | birth centre | 4.66 | 0.62 | | |
| I truly feel that I am a mother | delivery room | 4.68 | 0.63 | -0.55 | 0.582 |
| | birth centre | 4.73 | 0.65 | | |
| I feel that I managed the task | delivery room | 4.68 | 0.60 | -0.23 | 0.816 |
| | birth centre | 4.70 | 0.61 | | |
| I feel satisfied | delivery room | 4.69 | 0.56 | -1.13 | 0.259 |
| | birth centre | 4.78 | 0.56 | | |
| I feel that, thanks to the support of my family and medical staff, I will manage breastfeeding and childcare | delivery room | 4.49 | 0.78 | -1.35 | 0.178 |
| | birth centre | 4.63 | 0.68 | | |
| I feel admiration for the person who assisted during my childbirth | delivery room | 4.40 | 0.83 | 1.22 | 0.223 |
| | birth centre | 4.25 | 0.90 | | |
| I feel admiration for the person who accompanied me | delivery room | 4.58 | 0.67 | -0.75 | 0.456 |
| | birth centre | 4.65 | 0.66 | | |
| I do not want to give birth anymore, because it was too hard for me | delivery room | 2.09 | 0.93 | 0.61 | 0.544 |
| | birth centre | 2.01 | 0.93 | | |
| I felt that I did not do anything during the childbirth (medicalised, lack of freedom) | delivery room | 1.41 | 0.67 | 2.15 | 0.033 |
| | birth centre | 1.22 | 0.58 | | |
| I do not feel anything after my last childbirth, it was simply the next stage in my life | delivery room | 1.64 | 1.04 | 1.75 | 0.082 |
| | birth centre | 1.41 | 0.81 | | |
| I know that I will manage it myself, I do not need help from anyone | delivery room | 2.45 | 1.15 | 0.44 | 0.662 |
| | birth centre | 2.38 | 1.11 | | |
| After this childbirth I will give birth in the Birth Centre next time | delivery room | 2.19 | 0.87 | -14.26 | < 0.001 |
| | birth centre | 4.00 | 0.92 | | |
| After this childbirth I will give birth in the Delivery room next time | delivery room | 3.74 | 0.89 | 12.27 | < 0.001 |
| | birth centre | 2.21 | 0.87 | | |
| After this childbirth I will request to have a cesarean section next time | delivery room | 2.06 | 0.95 | 4.43 | < 0.001 |
| | birth centre | 1.51 | 0.80 | | |

*SD – standard deviation; t – student's t-test result; p* – level of significance 0.05*

**Table 3** The best methods of relieving pain during labor

| | Number | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Delivery room | Birth centre | $\chi^2$ | df | p* | t | df | p** |
| Warm compress | 10 | 14 | 52.342 | 5 | < 0.001 | 0.758 | 1 | 0.257 |
| Water immersion | 14 | 43 | | | | 20.636 | 1 | < 0.001 |
| Nothing relieved my labor pain | 15 | 16 | | | | 0.038 | 1 | 0.500 |
| Birth ball | 10 | 2 | | | | 5.674 | 1 | 0.017 |
| Changing position | 20 | 25 | | | | 0.717 | 1 | 0.249 |
| Epidural anaesthesia | 31 | 0 | | | | 36.686 | 1 | < 0.001 |

*$\chi^2$ – chi square test; df – degrees of freedom; p* – level of significance 0.05; t – student's t-test result; p** – level of significance 0.05*

fully involved in their labor. They did not feel any emotions associated with childbirth and merely considered it the next stage in life (11%) (Table 4).

Table 5 shows ANOVA analysis of variance to test statistical differences between the mean results obtained from the delivery room and the birth centre. Women who gave birth in the birth centre were more satisfied with their childbirth compared to the women undergoing childbirth in the delivery room, but the differences were not statistically significant ($p = 0.137$). Women laboring in the delivery room significantly more often expected more medicalisation during their next childbirth ($p < 0.001$), and significantly more frequently reported passivity and lack of involvement in labor ($p = 0.023$).

There was a relationship between birthplace and evaluation of childbirth on the scale from one to five (1 – negative experience; 5 – positive experience) and self-assessment of dealing with stress during childbirth (1 – inability to deal with stress; 5 – deals well with stress). Female respondents who gave birth in the birth centre, more highly evaluated their childbirth than women from the delivery room, with the median amounting to 4.35 and 3.86, respectively. The results obtained were statistically significant ($p < 0.001$). Women from the birth centre also coped better with stress during childbirth than women from

the delivery room on a scale from one to five, with medians amounting to 4.11 and 3.59, respectively. The results obtained were statistically significant ($p < 0.001$).

The investigators were interested in whether there was any relationship between dealing with stress in personal life and childbirth. Thus, factor analysis with Varimax rotation was conducted on 14 scales of the Mini-Cope Inventory. Each of the 14 scales corresponded to strategies for dealing with stress in life. After factor analysis, three broad categories of ways of dealing with stress were obtained, explaining 46% of variance. The first category was an internal feeling of having control over stress (19% of variance). The second way of coping with stress was to divert attention from the stressor (14% of variance). The final way of dealing with stress was to have an external feeling of control over stress (13% of variance) (Lothian, 2009).

The investigators tested whether there was a relationship between methods of dealing with stress in personal life (presented above) and choice of birthplace. They observed that the women in the sample were significantly most often those who chose to deal with stress in personal life by diverting attention from the stressor ($p < 0.001$).

The Investigators also analysed whether there was any relationship between methods of dealing with stress in personal life and subjective assessments of coping with stress during childbirth. It was noted that women dealing with stress by having an internal feeling of control over it coped significantly better with stress during childbirth ($p < 0.001$).

**Table 4** Factor analysis of emotions and feelings associated with childbirth (rotation using Varimax method with Kaiser normalisation)

| Emotions/feelings | Factors | | | |
|---|---|---|---|---|
| | **Satisfied with childbirth** | **Expecting medicalisation during the next childbirth** | **Admired by the accompanying persons/ medical staff** | **Not involved in labor/ passive** |
| I feel satisfied | 0.857 | | | |
| I feel that I managed the task | 0.852 | | | |
| I truly feel that I am a mother | 0.789 | | | |
| I feel that, thanks to the support of my family and medical staff, I will manage breastfeeding and childcare | 0.575 | | | |
| Childbirth met my expectations | 0.467 | | | |
| After this childbirth I will give birth in the birth centre next time | | -0.904 | | |
| After this childbirth I will give birth in the delivery room next time | | 0.902 | | |
| After this childbirth I will request a cesarean section next time | | 0.587 | | |
| I feel admiration for the person who accompanied me | | | 0.850 | |
| I feel admiration for the person who assisted during my childbirth | | | 0.738 | |
| I do not want to give birth anymore, because it was too hard for me | | | -0.471 | |
| I do not feel anything after the last childbirth, it was simply the next stage in my life | | | | 0.771 |
| I felt that I did not do anything during the childbirth (medicalised, lack of freedom) | | | | 0.681 |

**Table 5** Emotions and feelings toward childbirth depending on the birthplace

| Emotions/feelings | Place of birth | mean | SD | df* | t | p** |
|---|---|---|---|---|---|---|
| Satisfaction with childbirth | delivery room | 4.6 | 0.46 | 198 | -1.495 | 0.137 |
| | birth centre | 4.7 | 0.46 | | | |
| Expecting childbirth medicalisation | delivery room | 3.2 | 0.60 | 198 | 13.567 | <0.001 |
| | birth centre | 1.9 | 0.73 | | | |
| Appreciation of others | delivery room | 4.29 | 0.6 | 198 | 0.000 | 1.000 |
| | birth centre | 4.29 | 0.57 | | | |
| Lack of involvement in labor | delivery room | 1.52 | 0.72 | 198 | 2.293 | 0.023 |
| | birth centre | 1.31 | 0.56 | | | |

*SD – standard deviation; df – degrees of freedom, t – student's t-test result; p** – level of significance 0.05*

## Discussion

With regard to perinatal care, it is important to take account of the particular birthplace. Hospital is often an unknown place for future parents, so medical staff should try to create a friendly atmosphere and keep them informed of the current situation (DeCherney et al., 2012). Women want to be under care in a place where they feel safe (Lothian, 2009).

The authors' own studies have indicated that 69.8% of multiparous women who had previously given birth at our hospital chose it again as the birthplace for their next child. In a publication by Baston and Hall, the authors brought attention to studies conducted by Niven and Murphy-Black 17 years ago, whose results showed that labor pain is quickly forgotten by mothers. They reported that while 47% of women made the same assessment of labor pain at two months and at one year after giving birth, 35% of women made less severe pain assessments one year after giving birth (Baston, Hall, 2009).

Each woman should choose the method of pain relief most appropriate to herself. Mollamahmutoğlu et al. (2012) state that many women shared the opinion that water births were comfortable and alleviated labor pain. Kowal (2009) demonstrated that water reduced pain intensity by 1.32 points on the Visual Analogue Scale (from 6.51 to 5.9 points).

The authors' own studies have indicated that for women laboring in the birth centre, water immersion was the best method of pain relief (43%; $p < 0.001$), whereas for women laboring in the delivery room, the best methods were epidural anaesthesia (31%; $p < 0.001$) and using a birth ball (10%; $p = 0.017$).

It is estimated that in Poland cesarean sections are performed without medical indications in 6–50% of cases, especially in non-public hospitals (Kotarski, Bobiński, 2014). In our own studies it was demonstrated that 67% of women laboring in the birth centre do not intend to give birth to their next child by cesarean section, whereas only 36% of women who underwent childbirth in the delivery room shared this intention.

Studies by Zieliński, Ackerson, Kane Low (2015) have demonstrated that women planning home birth were highly satisfied with being at home, feeling safe in their own environment, and having a feeling of control over childbirth (Zielinski, Ackerson, Kane Low, 2015). Such childbirth is not medicalised, meaning the exclusion of epidural anaesthesia, monitoring of foetal heart function, or episiotomy (Wax et al., 2010). Our own studies indicated that women laboring in the birth centre were more satisfied with childbirth and coped better with stress during labor than women laboring in the delivery room.

Podolska et al. (2009) reported that less constructive ways of reacting to stressful situations can cause complications during childbirth. The most appropriate method of coping with stressful situations is when an individual focuses on the task at hand (Podolska et al., 2009), which, for a laboring woman, is giving birth to a healthy newborn. This approach decreases the level of fear of childbirth and helps women better manage their pain during childbirth (Guardino, Schetter, 2014). Our own studies indicated that women that have an inner feeling of control over stress coped better with the stress of childbirth.

Those who deal with stress by seeking emotional support, or taking action in order to tackle the problem suffer fewer adverse effects of stress, whereas those who avoid dealing with stress, or who engage in negative health behaviors, such as smoking, to reduce stress, increase their chances of experiencing negative outcomes (Guardino, Schetter, 2014).

Podolska and Majewska (2007) demonstrated that women with symptoms of perinatal depression, for whom childbirth had ended in a cesarean section, significantly more often focused on emotions and displacement activities in stressful situations (Podolska, Majewska, 2007). In the authors' own studies it was observed that women who attempt to divert themselves from the stressor or to occupy themselves with other activities during stressful

situations, made up the group expecting a more medicalised childbirth in the future, e.g., by cesarean section.

## Conclusion

The study, as conducted, enables us to conclude that the location of childbirth, in some respects, had an impact on experience of it. Women experiencing childbirth in the birth centre, in which laboring woman rely on their own strength and natural support, more often reported that the childbirth had met their expectations. They more often assessed childbirth as a positive experience, and coped better with stress during childbirth.

Women who dealt with stress by means of an internal feeling of control coped better with the stress of childbirth and declared a high degree of satisfaction with it. Women who, in their personal lives, cope with stress by diverting themselves from the stressor, tended to choose the delivery room for the birth.

In general, we can conclude that the experience of childbirth for the studied sample at either of the birth locations was sufficiently positive that they wished to give birth in the same place again.

## Ethical aspects and conflict of interest

The authors declare no conflict of interest.

## Author contributions

Conception and design (GB, SR) data analysis and interpretation (SR, BB, DS), manuscript draft (SR, BB, AK), critical revision of the manuscript (TD, GB, AK), final approval of the manuscript (DS).

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