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The effect of giving birth in a “birth environment room” versus a standard delivery room on the birth experience: A randomized controlled trial

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Fremtidens fødemiljø

- et randomiseret kontrolleret studie

Dato: 1. juli 2020
Forfatter: Merete Lausten Hansen
Speciale udarbejdet ved Kandidatuddannelsen i Jordemodervidenskab ved Syddansk Universitet
Vejledere: Ellen Aagaard Nøhr og Ingrid Jepsen
Antal anslag: 72.570

Dansk resumé

Baggrund: En positiv fødselsoplevelse menes at kunne føre kvinden og hendes partner styrket ind i forældreskabet, mens en negativ oplevelse forbindes med efterfødselsreaktioner. Formålet med dette studie var derfor at undersøge, hvilken indflydelse det har på kvinders og partneres fødselsoplevelse at føde på en multisensorisk fødemiljøstue.

Metode: Studiet er baseret på data fra en randomiseret kontrolleret ikke-blindet undersøgelse af det fysiske fødemiljø på Regionshospitalet i Herning gennemført fra maj 2015 til marts 2018. Kvinderne og deres partnere blev randomiseret til at føde enten på en multisensorisk fødemiljøstue eller på en standard fødestue. Kvindernes og deres partneres fødselsoplevelse blev målt i et postpartum-spørgeskema, som blev sendt til dem henholdsvis 6 uger og 1-2 uger efter fødslen. Den overordnede fødselsoplevelse var et præspecificeret sekundært udfald i den randomiserede undersøgelse og hovedudfaldet i dette studie. Andre udfald var overordnet tilfredshed med omsorgen under fødslen og desuden en række specifikke elementer relateret til fødselsoplevelse og omsorg. Alle udfald blev målt på en Likert-skala og Mann Whitney U-test blev anvendt til at sammenligne grupperne.

Resultater: Der var 326 kvinder og 236 partnere i interventionsgruppen og 315 kvinder og 209 partnere i kontrolgruppen, som besvarede postpartum-spørgeskemaet. Intention-to-treat analyserne viste, at der ikke var nogen forskel i hverken kvindernes eller partnernes overordnede oplevelse af fødslen (henholdsvis p 0,81 og p 0,17), men at partnerne på interventionsstuen overordnet var mere tilfredse med den behandling og omsorg de modtog under fødslen, end partnerne på kontrolstuen ($p<0,05$). For de specifikke elementer relateret til fødselsoplevelsen oplevede både færre kvinder og partnere på fødemiljøstuen, at de ikke havde uforstyrret samvær med deres nyfødte efter fødslen. Ligeledes vurderede de, at det fysiske miljø havde større betydning for deres fødselsoplevelse. Derudover observerede vi ingen forskelle mellem de to grupper.

Konklusion: Det forbedrede hverken kvindernes eller partnernes overordnede fødselsoplevelse at føde i et multisensorisk fødemiljø sammenlignet med en stor og veludstyret standard fødestue. Partnerne på fødemiljøstuen var dog overordnet mere tilfredse med den omsorg og behandling de fik under fødslen. Disse resultater bør dog ses i lyset af, at studiet blev udført i kliniske rammer, hvor der allerede var meget høj kvalitet i fødselshjælpen samt høj tilfredshed blandt de fødende.

Abstract

Objective: To evaluate the effect of giving birth in a Snoezelen environment compared to a standard delivery room on the birth experience in both women and partners.

Design: A single center randomized controlled open label trial. Women and partners were enrolled during a 3-year period (May 2015 to March 2018).

Setting: The Department of Obstetrics and Gynecology at Herning Hospital, Denmark.

Participants and intervention: A total of 680 Danish speaking nulliparous women above 17 years with a singleton pregnancy in cephalic presentation, and a spontaneous onset of labour birthing after week 36 and before week 42, and their partners were randomly assigned to give birth in a Snoezelen birth environment (n=340) or in a standard delivery room (n=340) at arrival to the birth unit.

Main outcome measures: Main outcome was the overall birth experience, measured on a Likert scale, obtained in the postpartum questionnaire sent to the women and their partners 6 and 1-2 weeks after birth, respectively. Other outcomes were overall satisfaction with care and specific elements of the birth experience and patient-centered care. All outcomes were prespecified secondary outcomes of the trial. We applied Mann Whitney U test for comparing the two groups.

Results: Data was received from 326 women and 236 partners in the intervention group and from 315 women and 209 partners in the control group. The intention-to-treat analysis revealed no difference in the overall experience of birth, for neither women nor for partners (p 0.81 and p 0.17, respectively). Partners in the intervention group reported more overall satisfaction with care compared to partners in the control group ($p < 0.05$). For specific elements of the birth experience both women and partners in the Snoezelen room were less likely to report that they had not been allowed undisturbed contact with the newborn after birth. Also, they reported the physical environment of higher importance of their birth experience. Otherwise there were no differences between groups.

Conclusion: Neither in women nor partners did a Snoezelen birth environment improve the overall experience of birth compared to a standard, well-equipped birth environment, but partners in the intervention group were overall more satisfied with care. The study was carried out in a setting with very high quality of standard care, which should be taken into considerations when interpreting the results.

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Læsevejledning

Dette speciale er skrevet i artikelform og indeholder først et udkast til en videnskabelig artikel med selvstændig referenceliste efterfulgt af tilhørende figurer og tabeller. Artikeludkastet er sat op til tidsskriftet, BMC Pregnancy and Childbirth. Efter artiklen uddybes den videnskabelige artikel med 3 supplerende afsnit. Der vil først være en uddybende beskrivelse af det traditionelle fødestuedesign og udviklingen af fødemiljøstuen på Regionshospitalet i Herning. Derefter præsenteres supplerende resultater fra en kvalitativ analyse af udsagn om fødselsoplevelsen på fødemiljøstuen. Afslutningsvist vil der være en uddybende diskussion med en bredere inddragelse af eksisterende studier, supplerende resultater, flere metodiske overvejelser samt implikationer i en national kontekst.

Forside: Billede af den multisensoriske fødemiljøstue i Herning

Draft of scientific paper

BMC Pregnancy and Childbirth

Research article

The effect of giving birth in a "birth environment room" versus a standard delivery room on the birth experience: A randomized controlled trial.

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Abstract

Objective: To evaluate the effect of giving birth in a Snoezelen environment compared to a standard delivery room on the birth experience in both women and partners.

Design: A single center parallel randomized controlled open label trial. Women and partners were enrolled during a 3-year period (May 2015 to March 2018).

Setting: The Department of Obstetrics and Gynecology at Herning Hospital, Denmark.

Participants and intervention: A total of 680 Danish speaking nulliparous women above 17 years with a singleton pregnancy in cephalic presentation, and a spontaneous onset of labour, and their partners were randomly assigned to give birth in a Snoezelen birth environment (n=340) or in a standard delivery room (n=340) at arrival to the birth unit.

Main outcome measures: Main outcome was the overall birth experience, measured on a Likert scale, obtained in the postpartum questionnaire sent to the women and their partners 6 and 1-2 weeks after birth, respectively. Other outcomes were overall satisfaction with care and specific elements of the birth experience and patient-centered care. All outcomes were prespecified secondary outcomes of the trial. We applied Mann Whitney U test for comparing the two groups.

Results: Data was received from 326 women and 236 partners in the intervention group and from 315 women and 209 partners in the control group. The intention-to-treat analysis revealed no difference in the overall experience of birth, for neither women nor for partners (p 0.81 and p 0.17, respectively). Partners in the intervention group reported more overall satisfaction with care compared to partners in the control group ($p < 0.05$). Both women and partners in the Snoezelen room were less likely to report that they had not been allowed undisturbed contact with the newborn after birth. Otherwise there were no differences between groups.

Conclusion: Neither in women nor partners did a Snoezelen birth environment improve the overall experience of birth compared to a standard, well-equipped birth environment, but partners in the intervention group were overall more satisfied with care.

Trial registration: NCT02478385 retrospectively registered on 23rd of June 2015
Funding: Financed by the Department of Obstetrics and Gynecology at Herning Hospital, DK

Keywords: Physical birth environment, Snoezelen environment, Multi-sensory environment, Alternative birth setting, Birth experience, Satisfaction with care, Perception of care, Partners.

Background

Birth is normally referred to as a physical process, but it is as much a mental process. Findings from a meta-synthesis indicated that when birth is a positive experience, women feel empowered to meet the new challenge in their lives - motherhood (1). The experience of birth seems to have short- as well as long-term consequences for women´s mental health and well-being and to influence women´s personal development positively as well as negatively (1, 2). It is important to reduce the risk of a negative birth experience since the cost for women, families and society may be substantial. A negative birth experience seems to be related to postnatal depression which is a risk factor for impaired bonding between mother and child (2). Preference for delivery by caesarean section in future pregnancies and refraining from having more children have also been described as consequences of a traumatic birth experience (3, 4).

While the significance of the birth experience for women has been studied for the last decades, the impact of the partner´s experience of birth is not very well examined. In a cross sectional study, the experience of birth seemed to predict mental wellbeing few weeks after birth for partners and also influence the mental condition of the mothers in the weeks after birth (5). A negative birth experience can be overwhelming for the partner, and feelings of helplessness and powerlessness after birth have been reported (6, 7).

There are several reasons for the birth experience to have such an impact. The woman in labour is experiencing something different from all other experiences and she is the only one for which this is an internal experience (8). For the partner, the moment of birth has been described as a life changing event, since in that moment he actually becomes a father physically as well as mentally (9). Also, this experience often takes place in a strange environment with foreign peo-ple (8). Evidence indicates that the physical birth environment is important for the birth experience and that the conventional hospital birth unit environment influences the laboring woman to be pas-sive - to be a patient, while a more homelike place encourages the woman to take an active role

(10). Other influencing factors on the birth experience of the woman are the feeling of personal control and the intensity of labour pain (11).

When the traditional birth environment at the hospital was designed, it was designed for interventions in labour (12). In the last decades, designing birth environments with the mental process of birth in focus has received much more attention. The Snoezelen concept has been used in designing delivery rooms (13, 14). Snoezelen is a multisensory environment, that is used to make people feel relaxed and in control (14). Findings from a qualitative Australian study indicated that the Snoezelen environment could offer women in labour relaxation, comfort and safety in a private atmosphere (14), but intervention studies are needed to examine the impact of the Snoezelen environment on the experience of birth. We used data from a randomized controlled study to examine if the birth experience of the women and her partner was improved by giving birth in a Snoezelen environment. Our hypothesis was that giving birth in the "birth environment room" was associated with an improved birth experience of both the woman and her partner.

Methods

Study design, setting and participants

The study design was a two-arm parallel randomized controlled trial with allocation ratio 1:1. The primary outcome of the study was use of augmentation during labour (these results will be published elsewhere). The present work focused on the birth experience of both women and partners, which were prespecified secondary outcomes (15).

The trial took place at the Department of Obstetrics and Gynecology at Herning Hospital, Denmark. Eligible participants were Danish speaking nulliparous women above 17 years with a singleton pregnancy in cephalic presentation and a spontaneous onset of labour, who gave birth

after week 36 and before week 42 of gestational age. Women with no consent were excluded. Partners to the above-mentioned women were also participants.

A total of 680 nulliparous women were recruited from May 2015 to March 2018. Women were recruited at the antenatal visit in week 28 of gestational age, where they were informed about the study and received an information sheet and a consent form (see flowchart, Figure 1). In week 35, they completed the consent form in the antenatal clinic and were asked to bring it to the labour ward when given birth if they wanted to participate. One or two weeks after birth, a questionnaire was e-mailed to the partner and six weeks after birth a questionnaire was e-mailed to the woman. Both questionnaires focused on the experience of birth and perception of care. The investigators did not participate in the recruitment process.

Randomization

The midwife present at admission to the labour ward confirmed that the woman met the inclusion criteria and that she still wanted to participate. If also labour onset was established, though she did not need to be in active labour, the midwife carried out the randomization. Both "the birth environment room" and a standard delivery room needed to be free to carry out randomization.

Randomization occurred in a series of blocks of 40 using sequentially numbered sealed opaque envelopes. The midwife took the next sequentially numbered envelope. Inside, a piece of paper told the allocation to either "the birth environment room" or a standard delivery room. The enrolling midwives did not know the randomization sequence. After the trial, it was ensured that randomization had followed the planned sequence and procedures.

Blinding

Blinding was not possible for neither the midwife nor the couple in labour. To minimize high expectations and disappointments, "the birth environment room" was not promoted on the hospital´s website or else while the trial took place.

Intervention

The intervention was giving birth in a "birth environment room" compared with giving birth in a standard delivery room. After randomization, which took place when the woman was admitted to the labour ward, the couple was immediately followed to the allocated room, where they stayed throughout labour and the first hours after birth.

The standard delivery rooms

At the labour ward, there were five standard delivery rooms of 55 square meters each (see pictures, Figure 2 and 3). All were furnished with a labour bed, a resuscitation-table for the newborn, equipment such as cardiotocography and intravenous pole. Furthermore, there was a lounge chair to the partner next to the labour bed and chairs for the woman and the midwife. In the room there was a compact disc player and compact discs. The couple also had the opportunity to bring their own music. All rooms had birth pools and own bathrooms.

"The birth environment room"

The main features of "the birth environment room" were the use of wooden material and furniture to make the room home-like and video projections on three of the walls featuring nature scenes to bring nature into the room (see pictures, Figure 4 and 5). The couple could choose

from the following scenes: Forest winter landscape, beach with waves, forest springtime and forest autumn. The nature scenes were accompanied with music or sounds from the nature. The couple could also bring their own music. The room was furnished with a double-sized mattress

with several pillows to move around to make it a bed or a couch. Furthermore, there were modern chairs, tables and lamps in non-clinical design and materials. The room was divided into three zones: Wellness-, active- and birth-zone. A birth pool was central in the wellness-zone. Cardiotocography and intravenous pole were placed outside the room, and the resuscitation-table for the newborn was placed next to the labour bed. This room was 39 square meters.

Data collection

Post-partum questionnaires

Information about the birth experience came from the questionnaires sent to the woman and her partner 6 and 1 - 2 weeks after birth, respectively. The woman´s questionnaire (Appendix A) included the WOCCA - on woman-centred care during labour and childbirth questionnaire (16) with some supplementary questions. The WOCCA questionnaire is validated to evaluate the birth experience and perception of care (16). It contains 16 questions, two overall questions, ten regarding elements of patient-centered care, two about loss of control, one about care from the partner and one about wishes for the birth (see Table S1). All questions used a 5 or 6-point Likert-type scale with no neutral possibilities, but an opportunity to answer “don´t know” or “not relevant”. At the end of the questionnaire, women were invited to elaborate on their answers in an open space.

The partner´s questionnaire (Appendix B) contained 16 questions very similar to the WOCCA questionnaire (see Table S2). The partners were not asked if they had a midwife present when needed and if they felt loss of external control. Instead, they were asked if it was important to them that the midwife focused on their wellbeing during labour and if it was important that the midwife supported and cared for them during labour. Partners had the same answer categories as women with the exceptions that the question about loss of control used a 6-point scale and that they had the opportunity to elaborate on their answers after every question.

The partner´s questionnaire was validated by conducting five interviews with partners 1 - 7 days after birth. Because of the validation process, the questionnaire for the partner was not ready at the start of the trial and first distributed from January 2016.

Both for women and partners the questionnaires also included questions about the importance of the physical environment and preferences for type of delivery room before enrollment. For participants in the intervention group, four questions about the use of the special features of in "the birth environment room" were added. For more details on questions and response options, see Table S1 for women and Table S2 for partners. Furthermore, they were asked about civil status and educational level.

Baseline characteristics

Baseline characteristics of the participants were extracted from medical records regarding women´s age, body mass index, smoking, and medical conditions. Information about civil status and educational level were drawn from the post-partum questionnaires while information about cervical dilatation were extracted from a questionnaire completed by the midwife present when the woman was admitted to the labour ward.

Outcomes

The main outcome for the women and for the partners was the answers to the overall question "Overall, how would you describe your experience of giving birth?" with the range of score from score 1 "Very negative" to score 6: "Outstanding". Another outcome for the women and their partners was the question "Overall, how satisfied are you with the care you received during labour and birth?" which had a range of score from score 1 "Extremely dissatisfied" to score 6 "Extremely satisfied". Also, all specific questions on the elements of patient-centered care and the questions about loss of control, which were ranked from score 1 "No loss" to score 5 or 6 "Control lost all through birth", and care from or for partner, with ranges of scores from score

1 for the most negative answers to score 6 for the most positive answers, were outcomes. Furthermore, the supplementary questions of the importance of the physical environment were outcomes (see Table S1 and Table S2).

To describe how women and partners in the intervention group, experienced and used the special features in "the birth environment room", we also analyzed the four supplementary questions regarding the use of the features in the room: Use of nature scenes, importance of opportunity to choose nature scenes, if one nature scene was of special importance, and if one of the sound possibilities was of special importance (partners only).

Statistical methods

Characteristics of the participants were described as frequencies and means. All analyses were by intention-to-treat. For the main outcome as well as other outcomes, we applied Mann Whitney U test (Wilcoxon rank sum test) (16) for comparing the two groups. Moreover, we estimated the probability of participants from the intervention group answering a higher value, than participants from the control group.

In general, there is great satisfaction with maternity care in Denmark (17, 18), so focus is often on how to avoid a negative birth experience. Therefore, relative risks for a negative birth experience were estimated for all elements. Answers were dichotomized into the negative answers (score 1, 2 and 3) and the positive answers (score 4, 5 and 6). For partners, we estimated oddsratios for the following elements: Overall satisfaction with care, the opportunity to have undisturbed contact with the newborn and if birth wishes were met, because this made it possible to estimate confidence intervals, although no negative answers were observed in either the intervention or the control group. For all elements, most of the answers were in the most "positive" answer categories. Therefore, a supplementary analysis focusing on the differences between groups in the participant´s use of the top rating, was performed. Outcome variables were dichotomized into the top rating, score 6 or 5 and all

other scores. Relative risks of highly positive birth experiences were estimated. To describe the use of the specific features in "the birth environment room" descriptive statistics were used to cal-culate frequencies across answer categories.

In all analyses, a two-sided p-value (< 5%) was considered statistically significant. Data were analyzed using STATA 16.

Results

A total of 1151 women met the inclusion criteria and were invited to participate in the trial. Of these, 471 women were excluded before randomization: 145 women were not asked to participate at arrival to the labour ward, 62 declined to participate, 17 had a homebirth, and in 247 cases, a "birth environment room" and a standard delivery room were not available at the same time (See flowchart, Figure 1). Of the 680 women that were randomized, 340 were allocated to "the birth environment room" and 340 to a standard delivery room. After randomization, four women were excluded, either because they declined to participate (n=3) or because they did not meet inclusion criteria and data were not available (n=1). Of these women, one was from the intervention group and three were from the control group. Of the randomized women, 8 women did not meet the inclusion criteria, because active labour had not set in spontaneously (n=3), because of birth in 36 or 42 weeks of gestation (n=4) or because of unexpected breech (n=1). Of these women, four were from the intervention group and four were from the control group. These 8 women were not excluded. There was a high level of compliance as 99.1 % in the intervention group and 98.2 % in the control group received the allocated intervention. The response rate to the postpartum questionnaire sent to the woman 6 weeks after birth were 96.2 % (326/339) in the intervention group and 93,5 % (315/337) in the control group. For partners, the response rate to the postpartum questionnaire was 89.7 % (236/263) in the intervention group and 79.8 % (209/262) in the control group. In the intervention group, 326 women and

236 partners were included in the analyses; in the control group these numbers were 315 women and 209 partners.

In Table 1, baseline characteristics of the women responding to the postpartum questionnaire are shown. Nearly all women were cohabiting and more than 80 % of them had a medium or long education. The mean age of the women were about 28 years, and the mean body mass index about 24 kg/m^2. Slightly more women in the intervention group were smokers, 14.4 % compared to 12.4 % in the control group. In the intervention group, 12.9 % had medical conditions, compared to 9.5% in the control group. For the partners responding to the postpartum questionnaire, the same distribution of the women´s characteristics were observed. Women and partners who did not respond to the questionnaire did not differ from those who did.

The birth experience of women

In Figure 6, women´s evaluation of their overall birth experience is shown. Both in the intervention and in the control group, about 95 % of women evaluated their overall experience of birth as either "good", "very good" or "outstanding" while the negative scores were rarely used. In the intervention group, 43 % of the women rated their overall experience of birth as "outstanding" (score 6), while this was the case for 41 % of women in the control group.

In Figure 7, women´s overall satisfaction with care is shown. About 60 % of women in both groups evaluated the overall care as "extremely satisfying" (score 6), 63 % in the intervention group and 59 % in the control group. Less than 1 % in both groups used the negative scores.

The distributions of answers for the elements regarding patient-centered care and the other elements regarding the woman´s ability to stay in control and the support she received from her partner, followed the same patterns as the overall experience of birth and care satisfaction, with most answers in the two most positive answer categories and with no obvious differences between groups (Appendix C). For the elements regarding the physical environment, differences

in the distributions of answers between groups were observed, with more answers in the two most positive answer categories in the intervention group.

Statistical analyses done by intention-to-treat showed no difference in the overall experience of birth between groups (Table 2). The medians in both groups were 5 indicating a “very good” birth experience and the probability for answering a higher value in the intervention group was 51 % (p 0.81). For the overall care satisfaction, the medians in both groups were 6, indicating “extremely satisfied” with the overall care. No difference between groups was observed as the probability for answering a higher value in the intervention group was 52 % (p 0.32). For the elements regarding patient-centered care, and the other elements regarding the woman´s ability to stay in control and the support she received from her partner, there were also no differences between the two groups. Thus, the probability for answering a higher value in the intervention group varied for these elements between 47 % and 53 %. For the importance of the physical environment on the birth process the median in the intervention group was 5 (“a great extent”) compared to 4 (“some extent”) in the control group. Thus, the probability for answering a higher value in the intervention group was 70 % (p 0.01). Also, a difference between groups was observed for the importance of the physical environment to staff´s ability to involve the woman in the birth process. Though, the medians in both groups were 4 (“some extent”), the probability for answering a higher value in the intervention group was 56 % (p 0.01).

We dichotomized the outcome variables into negative (scores 1-3) and positive answers (scores 4-6 or 4-5) and estimated the relative risks of a negative birth experience (Table 3). Numbers of dissatisfied women were very small, and relative risks were estimated with wide confidence intervals. In the intervention group, fewer women stated not to have had the opportunity for undisturbed contact with their newborn in the first hours after birth (0.6 % versus 3.3 %, relative risk 0.19 (95% CI 0.04-0.87)). Also, fewer women in the intervention group stated that the physical environment were of no importance for the birth process (9.7 % versus 34.8 %, relative

risk 0.28 (95% CI 0.19-0.40)), and for staff´s ability to involve the woman (27.6 % versus 37.2 %, relative risk 0.74 (95% CI 0.58-0.95)). For all other elements, no differences were observed.

We also estimated chances of highly positive births experiences, but we did not observe any differences between groups (see Table S3). Relative risks for all elements ranged from 0,90 to 1,07, and only for the possibility to have a midwife present when wanted, the relative risk was borderline statistically significant (1,07 (95% CI 0.99-1.15)). We did observe a difference between groups regarding the importance of the physical environment for the birth process (relative risk 2,87 (95 % CI 1,96-4,21)).

The birth experience of partners

In Figure 8, partners´ overall birth experience is shown. In both groups, 89 % of partners evaluated their overall experience of birth as "very good" or "outstanding". About half, 51 % of partners in the intervention group compared to 44 % in the control group rated their overall experience of birth as "outstanding" (score 6), while the negative scores were rarely used.

In Figure 9, partners´ overall satisfaction with care is shown. About 60 % of partners in the intervention group and 52 % of partners in the control group evaluated the overall care as "extremely satisfying" (score 6). Less than 1 % in the intervention group and none of the partners in the control group used the negative scores. The distributions of answers for the specific elements regarding patient-centered care, and the partner´s ability to stay in control and to support the birthing woman followed the same patterns as the overall birth experience and care satisfaction, with most answers in the two most positive answer categories and with no obvious differences between groups (Appendix D) . For the element regarding the importance of the physical environment for the birth process, a difference in the distribution of answers between groups was observed, with more answers in the most positive category in the intervention group.

Statistical analyses done by intention-to-treat showed no difference for partners´ overall experience of birth between groups (see Table 4). The median in the intervention group was 6 indicating an "outstanding" experience of birth and 5 in the control group indicating a "very good" experience of birth. The probability for answering a higher value in the intervention group was 53 % (p 0.17). A difference was observed for partners´ overall satisfaction with care. Although the medians in both groups were 6, indicating "extremely satisfied", the probability for answering a higher value in the intervention group was 55 % (p 0.05). Regarding the opportunity to have undisturbed contact with the newborn, a borderline statistically significant difference in the distribution of answers between groups was observed. Medians for this element were 6 indicating "optimal" opportunity, and the probability for answering a higher value in the intervention group was 54 % (p 0.07). For all other elements regarding patient-centered care, the partners´ ability to stay in control and to support the birthing women, no differences between groups were observed. The probability of answering a higher value in the intervention group varied for these elements between 47 % and 52 %. A difference between groups was observed concerning the importance of the physical environment for the birth process. The median in the intervention group was 5 ("a great extent") compared to 4 ("some extent") in the control group and the probability for answering a higher value in the intervention group was 69 % (p 0,01).

The estimated risks of a negative birth experience are shown in Table 5. As for women, numbers of dissatisfied partners were very small and relative risks were estimated with wide confidence intervals. In the intervention group, no partners stated not to have had the opportunity for undisturbed contact with the newborn, while 4 (2.0%) stated so in the control group (odds ratio 0.0 (95% CI 0.00-0.83)). Also, fewer partners in the intervention group stated that the physical environment was of no importance to the birth process (5.7 % versus 21.9%, relative risk 0.26 (95% CI 0.14 - 0.47)). For all other elements, no differences were observed.

Chances of a highly positive evaluation (score 6) of the overall experience of birth and of the overall satisfaction with care were about 8 % higher in the intervention group (51,8 % versus 43.3 % and 60,1 % versus 52.0 %, respectively), but these differences did not reach statistical significance (relative risk 1,17 (95% CI (0.96-1.43)) and relative risk 1.17 (95 % CI (0,99-1.39)), respectively) (see Table S4). Also, chances of an "optimal" opportunity to have undisturbed contact with the newborn was 8 % higher in the intervention group than in the control group, but this difference did not reach statistical significance (73 % versus 65 %, relative risks 1.12 (95% CI 0.99-1.28)). We found that far more partners in the intervention group considered the physical environment to be of "great" importance to the birth process (36.8 % versus 12.2 %, relative risk 3.01 (95 % CI 1.99-4.54)). Otherwise, no differences were observed.

Use of the features of "the birth environment room"

More than 80 % of the women and the partners allocated to "the birth environment room" used the video projection of nature scenes on the walls very much (see Table 6). About 75% of women found that the opportunity to choose different nature scenes had an impact on their own experience of birth and their partner´s wellbeing during birth. Less than 15 % did not think it had any impact. About two third of partners found that the opportunity to choose nature scenes had an impact on the woman´s wellbeing during birth, while about 18 % did not (partners were not asked about their own experience). While 42 % of women and 54 % of partners found some of the nature scenes to be of special importance to them, about one third of women and partners did not. More than 70 % of the partners found that some of the sound possibilities were of special importance for themselves or their partner during birth (women were not asked).

Discussion

Contrary to the hypothesis, this randomized controlled trial did not find an effect of birthing in a "birth environment room" on women´s overall experience of birth and satisfaction with care.

Neither did we observe any effect on partners' overall experience of birth, but overall care satisfaction was slightly higher among partners in "the birth environment room". Women and partners birthing in "the birth environment room" had lower risk of not having had the opportunity for undisturbed contact with their newborn after birth. Also, the physical environment was re-ported to be more important for the labour process by both women and partners in "the birth environment room".

We could only identify very few studies about maternity care using the Snoezelen concept (13, 19). When searching more broadly after studies of alternative physical birth environments to promote a more natural childbirth, we identified a systematic review from 2012 including ten trials (12). The review concluded that women birthing in an alternative birth setting had an increased likelihood of uncomplicated vaginal birth, no intrapartum analgesia, and breastfeeding 6 - 8 weeks after birth. Two trials included in the review also measured women´s perception of care (20, 21) and both found an increased likelihood of very positive perception of care among women in the alternative birth setting. The first trial was a pilot study with only 60 participants (20). The other trial was a Swedish study with 1230 participants that also examined women´s experience of birth and found no differences between groups regarding the birth experience (21), which is in accordance with our results. As a part of this trial, partners' perception of care and experience of birth were also examined, with 1143 partners included (22). In line with our findings, partners in the alternative birth setting were more satisfied with intrapartum care but no differences for their birth experience were observed. However, comparisons were difficult as there were other differences between the birth settings in the Swedish trial such as different staff, more continuity of care, limited medical interventions, and early discharge after birth in the alternative birth setting.

A more recent randomized controlled trial from Texas published in 2017 showed that women with access to a nature imagery during labour more frequently stated that doctors treated them with respect, sympathy, and in a positive manner compared to women in the control group (23). Also, their evaluation of the quality of care increased with increasing time watching the nature imagery. Only 60 participants were enrolled although a power calculation showed that more than 102 participants were needed in the trial. We did not observe any differences on these parameters, although more than 80 percent of women and partners in our trial used the video protection during most of the birth. This trial used a different tool to measure the experience of birth and another analytical strategy than we did, which might explain the conflicting results. A randomized controlled trial of 100 women conducted in Iran comparing a Snoezelen birth environment with a standard labour room found reduction in labour pain after 3 hours in the Snoezelen environment (13). The trial did not measure the women´s birth experience, but labour pain has been described as an important factor in this experience (6, 11). In the Iranian trial, the same midwife cared for all the women participating in the trial, which may also have affected the results. Besides, there are major differences in the maternity care in Iran and Denmark, which makes a comparison to our findings difficult. Maternity care in Iran is mostly handled by ob-stetricians (24), while midwives handle all uncomplicated deliveries autonomously in Denmark and complicated deliveries in collaboration with obstetricians (25).

In conclusion, very few highly calibrated trials have been conducted measuring the effect of alternative birth settings and in several of the conducted trials, findings might be confounded by important differences in the organization of maternity care, with special staff and more continuity of care in the alternative birth settings, as also the authors of the systematic review noted (26). Two highly calibrated trials on the topic are now in process, which measures women´s experience of birth among other outcomes (27, 28).

This study was a large randomized controlled trial with a high response rate to the follow up that included information about the birth experience for both women and partners. The experience of birth was measured with a validated questionnaire and data analyses followed the intention-to-treat principle. Also, “the birth environment room” was built on the labour ward among the standard delivery rooms, so that staff and the organization of maternity care were the same for both “the birth environment room” and the standard delivery rooms.

Several limitations of our study should be considered. Participants were not blinded as this was not possible. This may cause some placebo effect as the birth experience is a subjective measure, but our findings of no difference between groups did not indicate that this was the case. As midwives caring for the participants were not blinded either, there was also a risk that midwives caring for women assigned to the standard delivery room, would try to compensate for not being allowed to birth in “the birth environment room”. This could attenuate any possible effect of the intervention. Another limitation may be that the midwives may not have been familiar with the special features of the room as it was built shortly before the trial started. During the trial, every midwife had on average only four births in “the birth environment room”. Furthermore, we did not have statistical power to examine differences in negative birth experience, as the negative scores were rare.

However, a major problem for the study was probably the limited improvement potential. In general, Danish women have very positive birth experiences and satisfaction with care (17, 18). On top of that, the Department of Obstetrics and Gynecology at Herning Hospital has for the fourth year in a row been chosen as the best maternity ward in Denmark, by the newspaper ”Today´s Medicine”, which is an independent media in the health sector (29). The selection criteria are treatment quality, patient satisfac-tion, and reputation among colleagues. Furthermore, the standard delivery rooms at Herning

Hospital are large, comfortable, and very well-equipped. In an English survey, women listed the following as the most important features in a birth environment: Access to a clean room, en suite toilet, and a place to move around freely. If they were to design a labour room, they would prefer comfortable chairs and a compact disc (30). These features were part of all standard delivery rooms at Herning Hospital. Thus, in this study, very nice standard delivery rooms were compared to a highly luxurious Snoezelen birth environment, which might also be the reason for our null findings. It may also seem puzzling that Danish women evaluate their birth experience very positive, also in hospitals with old and small delivery rooms, without en suite toilet and birthing pools (18). This indicates that the importance of the physical environment on women´s birth experience may be limited compared to other influencing factors such as to feel safe, to have qualified staff around, and to have continuous one-to-one midwifery care (31, 32). In Denmark, continuous one-to-one care is highly prioritized (18), and in our trial, approximately 90% of the women had only one or two different midwives caring for them throughout labour, irrespective of group allocation.

Our results indicate the physical environment to be more important for the partners´ satisfaction with care. This may be explained by the different nature of the women´s and the partners´ experience of birth and satisfaction with care. For the women, this experience is mainly internal, and for most, it is the most challenging physical experience they ever meet including thoughts of life and death (1, 8). For the partners, the experience is mainly external, not a physically embodied challenge, although they may be worried about the safety of their partner and the baby (7). A meta-synthesis found that important elements of a positive birth experience for partners were being actively involved in the labour process and being able to support the labouring woman adequately (9). “The birth environment room” was designed to promote the partner´s active role and ability to support the birthing woman (33). Women and partners birth-ing in “the birth environment room” rated the physical environment to be more important to the

labour process than those birthing in the standard delivery room. This finding should probably be expected as a kind of placebo effect.

Conclusion

This study indicates that in a country with very high quality of midwifery care, a Snoezelen environment does not improve women´s experience of birth compared to a normal well-equipped birth environment. The care satisfaction of the partners was slightly improved and both women and partners seemed to have better opportunities for undisturbed contact with the newborn after birth. The generalizability of these findings is restricted to countries where the organ-ization and quality of maternity care are comparable with maternity care in Denmark, for in-

stance in other Scandinavian countries. This trial adds to the existing evidence on the physical birth environment, which is of great importance in the process of developing and building ma-

ternity wards also supporting the mental process of birth.

List of Abbrevitions

RR: Relative risk, OR: Odds ratio, CI: Confidence intervals

Declarations

Ethics approval and consent to participate

This trial was granted exemption from requiring ethical approval the 14rd of July 2014 by the Scientific Ethical Committee (Reference number: 247/2014) and was reported to the Danish Data Protection Agency the 18rd of February 2015 (Reference number: 1-16-02-34-15). This trial was also reported to ClinicalTrials.gov on the 23rd of June 2015 (Reference number NCTO2478385).

All participating women provided informed written consent.

Consent for publication

Not applicable.

Availability of data and materials

The data that support the findings of this study are available from the Department of Obstetrics and Gynecology at Herning Hospital, Denmark but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of Department of Obstetrics and Gynecology at Herning Hospital, Denmark.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

The author has under the supervision of EAN performed the statistical analyses and drafted the manuscript and under the supervision of IJ performed the qualitative analyses.

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References

1. Olza I, Leahy-Warren P, Benyamini Y, Kazmierczak M, Karlsdottir SI, Spyridou A, et al. Women's psychological experiences of physiological childbirth: a meta-synthesis. BMJ open. 2018;8(10):e020347.
2. Bell AF, Andersson E. The birth experience and women's postnatal depression: A systematic review. Midwifery. 2016;39:112-23.
3. Jenabi E, Khazaei S, Bashirian S, Aghababaei S, Matinnia N. Reasons for elective cesarean section on maternal request: a systematic review. J Matern Fetal Neonatal Med. 2019:1-6.
4. Gottvall K, Waldenström U. Does a traumatic birth experience have an impact on future reproduction? Bjog. 2002;109(3):254-60.
5. Gürber S, Baumeler L, Grob A, Surbek D, Stadlmayr W. Antenatal depressive symptoms and subjective birth experience in association with postpartum depressive symptoms and acute stress reaction in mothers and fathers: A longitudinal path analysis. European journal of obstetrics, gynecology, and reproductive biology. 2017;215:68-74.
6. Nystedt A, Hildingsson I. Women's and men's negative experience of child birth-A cross-sectional survey. Women and birth : journal of the Australian College of Midwives. 2018;31(2):103-9.
7. Steen M, Downe S, Bamford N, Edozien L. Not-patient and not-visitor: a metasynthesis fathers' encounters with pregnancy, birth and maternity care. Midwifery. 2012;28(4):362-71.
8. Simkin P. Just another day in a woman's life? Part II: Nature and consistency of women's long-term memories of their first birth experiences. Birth (Berkeley, Calif). 1992;19(2):64-81.
9. Johansson M, Fenwick J, Premberg A. A meta-synthesis of fathers' experiences of their partner's labour and the birth of their baby. Midwifery. 2015;31(1):9-18.
10. Mondy T, Fenwick J, Leap N, Foureur M. How domesticity dictates behaviour in the birth space: Lessons for designing birth environments in institutions wanting to promote a positive experience of birth. Midwifery. 2016;43:37-47.
11. Goodman P, Mackey MC, Tavakoli AS. Factors related to childbirth satisfaction. Journal of advanced nursing. 2004;46(2):212-9.
12. Hodnett ED, Downe S, Walsh D, Weston J. Alternative versus conventional institutional settings for birth. The Cochrane database of systematic reviews. 2012(9):Cd000012.
13. Jamshidi Manesh M, Kalati M, Hosseini F. Snoezelen Room and Childbirth Outcome: A Randomized Clinical Trial. Iran Red Crescent Med J. 2015;17(5):e18373.
14. Hauck Y, Rivers C, Doherty K. Women's experiences of using a Snoezelen room during labour in Western Australia. Midwifery. 2008;24(4):460-70.
15. Lorentzen I, Andersen CS, Jensen HS, Fogsgaard A, Foureur M, Lauszus FF, et al. Study protocol for a randomised trial evaluating the effect of a "birth environment room" versus a standard labour room on birth outcomes and the birth experience. Contemp Clin Trials Commun. 2019;14:100336.
16. Overgaard C. Care closer to home - what does it offer? A study of safety and quality of maternity care in freestanding midwifery units. 2012.
17. Overgaard C, Fenger-Grøn M, Sandall J. The impact of birthplace on women's birth experiences and perceptions of care. Social science & medicine (1982). 2012;74(7):973-81.
18. Kølbæk CØ. Landsdækkende undersøgelser af patientoplevelse - Fødende - National Rapport. www.patientoplevelser.dk: Kompetencecenter for Patientoplevelser; 2018.
19. Hauck Y, Rivers C, Doherty K. Women's experiences of using a Snoezelen room during labour in Western Australia. Midwifery. 2008;24(4):460-70.
20. Hodnett ED, Stremler R, Weston JA, McKeever P. Re-conceptualizing the hospital labor room: the PLACE (pregnant and laboring in an ambient clinical environment) pilot trial. Birth (Berkeley, Calif). 2009;36(2):159-66.

21. Waldenström U, Nilsson CA. Experience of childbirth in birth center care. A randomized controlled study. Acta obstetricia et gynecologica Scandinavica. 1994;73(7):547-54.
22. Waldenstrom U. Effects of birth centre care on fathers' satisfaction with care, experience of the birth. Journal of Reproductive & Infant Psychology. 1999;17(4):357-.
23. Aburas R, Pati D, Casanova R, Adams NG. The Influence of Nature Stimulus in Enhancing the Birth Experience. Herd. 2017;10(2):81-100.
24. Bazargan M, Donnellan-Fernandez R. An overview of childbirth in Iran: who does the maternity care system serve?2016.
25. Association DM. Midwives in Denmark. Danish Midwives Association: Danish Midwives Association; 2016.
26. Hodnett ED, Downe S, Walsh D. Alternative versus conventional institutional settings for birth. The Cochrane database of systematic reviews. 2012;2012(8):Cd000012.
27. Berg M, Goldkuhl L, Nilsson C, Wijk H, Gyllensten H, Lindahl G, et al. Room4Birth - the effect of an adaptable birthing room on labour and birth outcomes for nulliparous women at term with spontaneous labour start: study protocol for a randomised controlled superiority trial in Sweden. Trials. 2019;20(1):629.
28. Ayerle GM, Schäfers R, Mattern E, Striebich S, Haastert B, Vomhof M, et al. Effects of the birthing room environment on vaginal births and client-centred outcomes for women at term planning a vaginal birth: BE-UP, a multicentre randomised controlled trial. Trials. 2018;19(1):641.
29. Fødeafdelingen i Herning er landets bedste igen - igen. Herning Folkeblad. 2018 14.09 2018.
30. Singh MNaD. Creating a better birth environment. women´s views about the design and facilities in maternity wards. Midwifery unit network; 2003.
31. Lyndon A, Malana J, Hedli LC, Sherman J, Lee HC. Thematic Analysis of Women's Perspectives on the Meaning of Safety During Hospital-Based Birth. Journal of obstetric, gynecologic, and neonatal nursing : JOGNN. 2018;47(3):324-32.
32. Bohren MA, Hofmeyr GJ, Sakala C, Fukuzawa RK, Cuthbert A. Continuous support for women during childbirth. The Cochrane database of systematic reviews. 2017;7(7):Cd003766.
33. Folmer MB, Jangaard K, Buhl H. Design of Genuine Birth Environment: Midwives Intuitively Think in Terms of Evidence-Based Design Thinking. Herd. 2019;12(2):71-86.

Figures

Figure 1: Flowchart

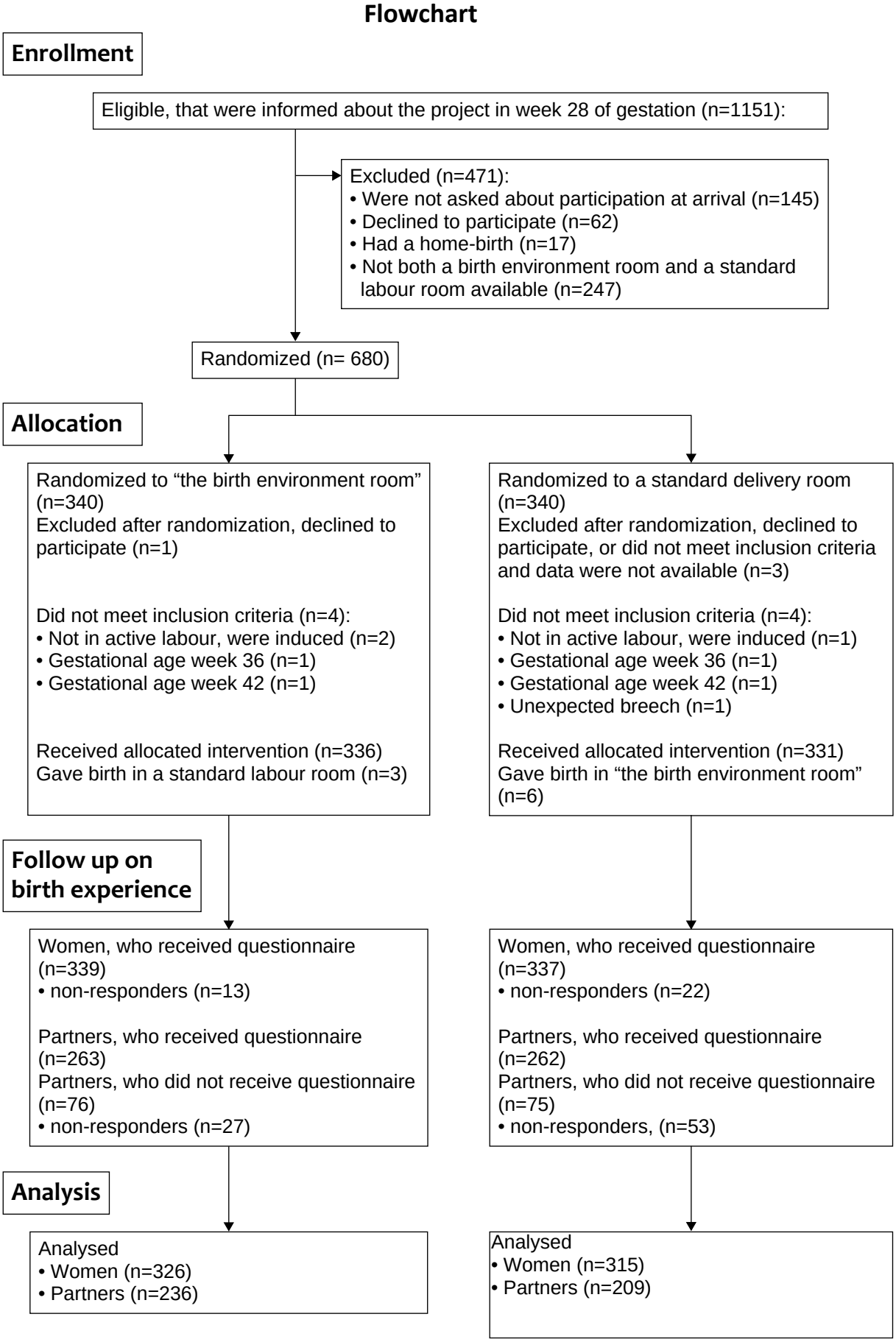


Figure 2: Picture of a standard delivery room

Figure 3: Picture of a standard delivery room

Figure 4: Picture of “the birth environment room”

Figure 5: Picture of “the birth environment room”

Figure 6: Women´s overall birth experience

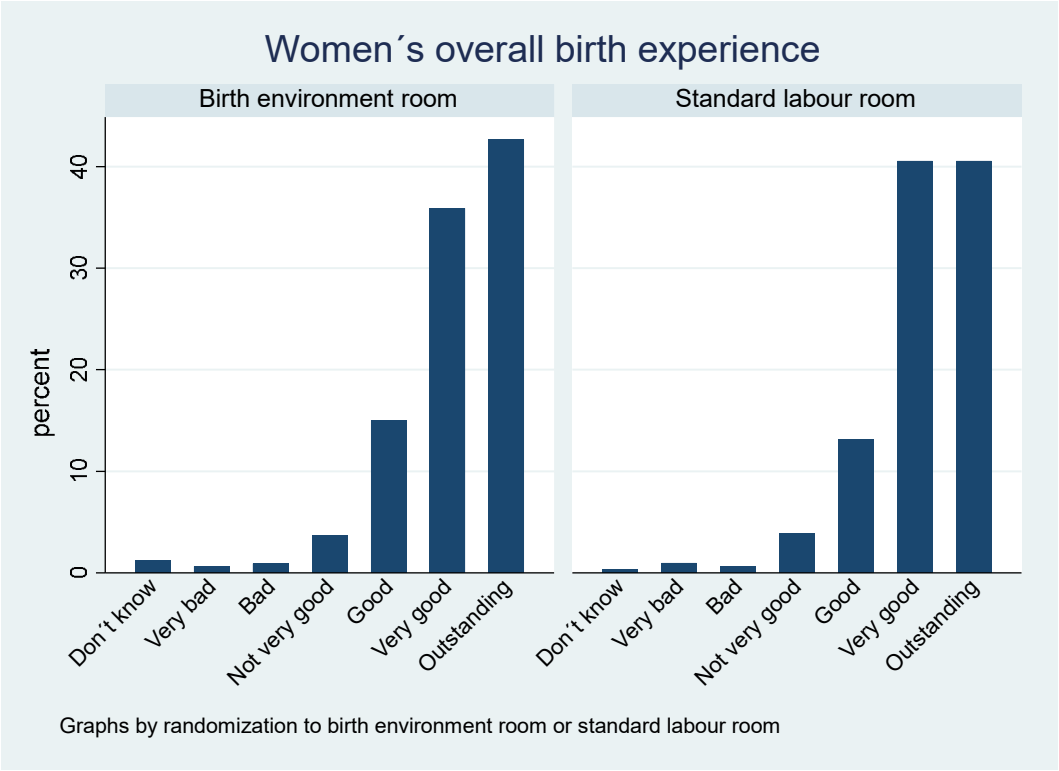


Figure 7: Women´s overall care satisfaction

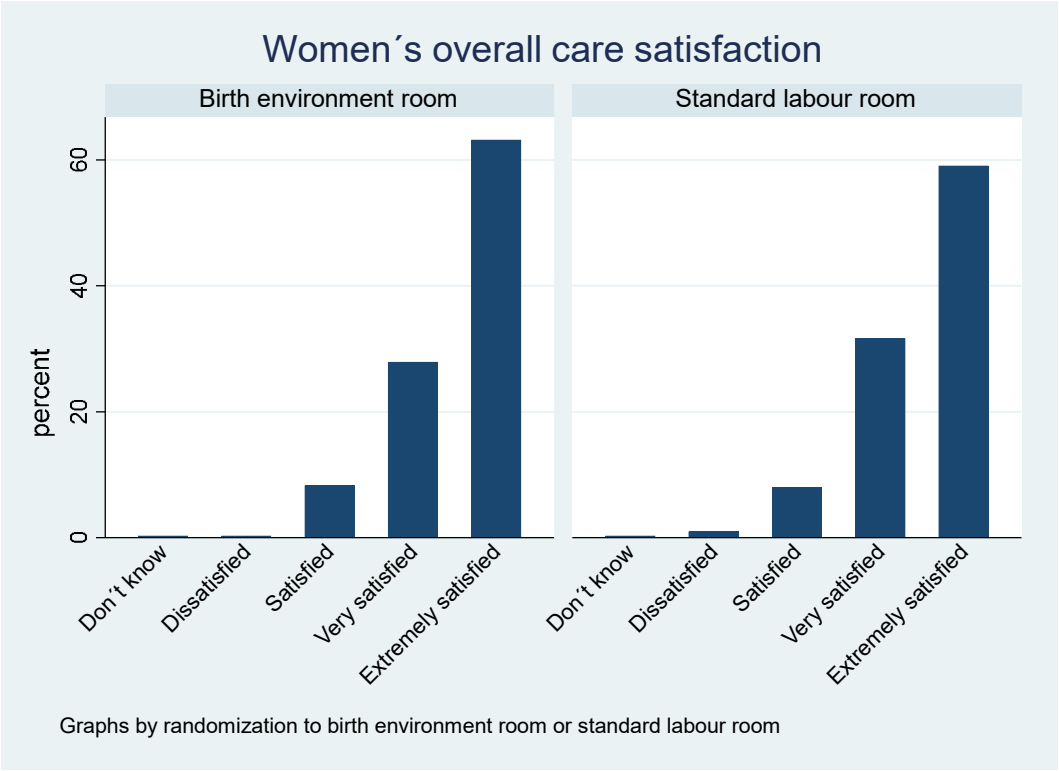


Figure 8: Partners´ overall birth experience

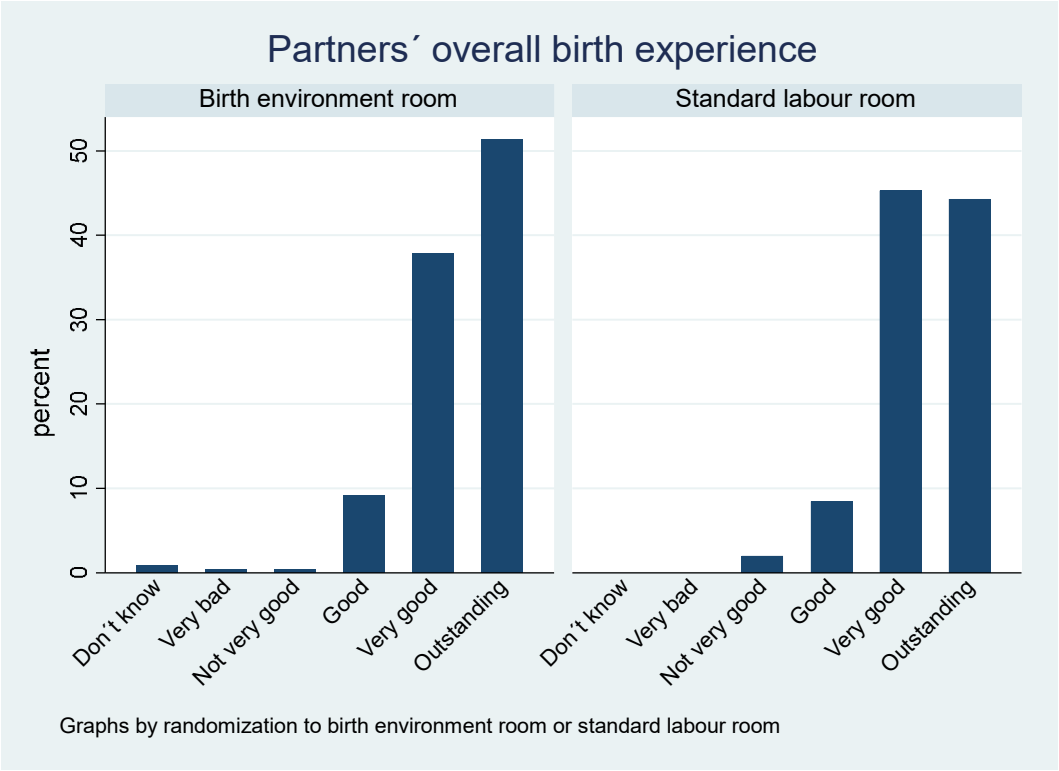
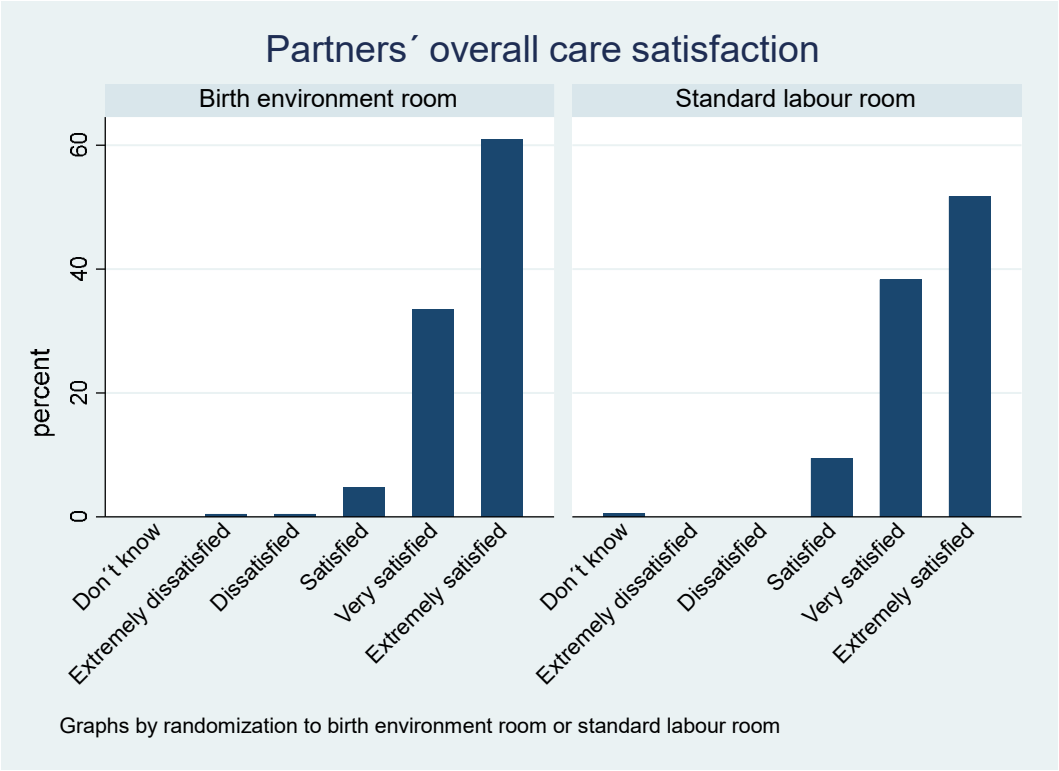


Figure 9: Partners´ overall care satisfaction



Tables

Table 1 Baseline characteristics of women according to group allocation

	"Birth environment room" n=(326)		Standard labour room n=(315)	
Civil Status				
Living with partner, n (%)	313	(96)	299	(95.0)
Living alone, n (%)	11	(3.4)	16	(5.1)
Unknown, n (%)	2	(0.6)	0	(0)
Educational level				
No education and less than 12 years´ schooling, n (%)	27	(8.3)	21	(6.7)
No education and 12 years´ schooling, n (%)	34	(10.4)	32	(10.2)
Medium/long education, n (%)	265	(81.3)	260	(82.5)
Missing, n (%)	0	(0)	2	(0.6)
Age (years), mean (SD)	28,0	(3.7)	27.6	(3.8)
Body mass index (kg/m^2), mean (SD)	24.1	(4.2)	24.4	(4.9)
Smoking, n (%)[a]	47	(14.4)	39	(12.4)
Medical conditions, n (%)	42	(12.9)	30	(9.5)
Cervical dilatation at arrival (cm), mean (SD)[a]	4.7	(2.1)	4.7	(2.1)

[a]Missing or "don´t know" were less than two.

Table 2 Women´s experience of birth according to group allocation

	"Birth environment room" (n=326)[b]			Standard labour room (n=315)[c]			Mann-Whitney U-test	
Intrapartum care and experience[a]	Median	Interquartile range	Mean	Median	Interguartile range	Mean	P-value	Probability for higher value in the intervention group
Overall elements								
Overall birth experience	5	1	5.15	5	1	5.14	0.81	0.51
Overall care satisfaction	6	1	5.54	6	1	5.49	0.32	0.52
Elements regarding patient-centered care								
Staff support for partner	5	1	5.32	6	1	5.34	0.56	0.49
Undisturbed contact with newborn	6	1	5.66	6	1	5.54	0.11	0.53
Feeling of being listened to	5	1	5.32	5	1	5.27	0.31	0.52
Level of information	5	1	5.20	5	1	5.27	0.21	0.47
Attention to psychological needs	6	1	5.40	6	1	5.34	0.74	0.51
Suggestions for pain-relief	5	1	5.23	6	1	5.28	0.37	0.48
Participation in decision-making	5	1	5.26	6	1	5.30	0.71	0.49
Midwife present when wanted	6	0	5.77	6	0	5.72	0.11	0.52
Support from midwife	6	0	5.68	6	1	5.68	0.84	0.50
Birth wishes were met[d]	6	1	5.47	6	1	5.41	0.22	0.53
Other elements								
Loss of internal control[e]	4	1	3.68	4	1	3.61	0.37	0.52
Loss of external control[e]	5	1	4.52	5	1	4.48	0.37	0.52
Support from partner	6	1	5.52	6	1	5.45	0.26	0.52
Elements regarding the physical environment								
Importance of physical environment for birth	5	2	4.81	4	2	3.89	0.00	0.70
Importance of physical environment for staff´s ability to involve the women[e]	4	2	3.89	4	1	3.58	0.01	0.56

[a] For all answers, 6 expressed the most positive and 1 the most negative answer. Don´t know answers were omitted.

[b] Numbers for the specific items varied between 290 and 326.

[c] Numbers for the specific items varied between 266 and 315.

[d] Numbers in "birth environment room" were 255 and in standard labour room 216, because a high number in both groups marked "did not have any birth wishes".

[e] 5-point scale: 5 expressed the most positive and 1 the most negative answer. Don´t know answers were omitted.

Table 3 Women´s risk of a negative birth experience according to allocation group

	"Birth environment room"		Standard labour room			
Intrapartum care and experience[a]	Percentage of negative answers	n/N	Percentage of negative answers	n/N	Relative risk	95% Confidence interval
Overall elements						
Overall negative birth experience	5.3%	(17/322)	5.4%	(17/312)	0.97	(0.50 ; 1.86)
Overall dissatisfied with care	0.3%	(1/325)	1.0%	(3/312)	0.32	(0.03 ; 3.06)
Elements regarding patient-centered care						
Poor support from staff for partner	1.3%	(4/316)	1.3%	(4/300)	0.95	(0.24 ; 3.76)
Poor opportunity for undisturbed contact with newborn	0.6%	(2/317)	3.2%	(10/304)	0.19	(0.04 ; 0.87)
Poor feeling of being listened to	0.6%	(2/324)	1.6%	(5/311)	0.38	(0.08 ; 1.96)
Low level of information	1.6%	(5/320)	1.9%	(6/311)	0.81	(0.25 ; 2.63)
Poor attention to psychological needs	3.1%	(10/319)	4.3%	(13/302)	0.73	(0.32 ; 1.64)
Poor suggestions for pain-relief	19.0%	(21/311)	19.0%	(18/301)	1.13	(0.61 ; 2.08)
Poor participation in decision-making	2.5%	(8/314)	2.6%	(8/307)	0.98	(0.37 ; 2.57)
Midwife not present when wanted	0.9%	(3/326)	1.0%	(3/315)	0.97	(0.20 ; 4.75)
Poor support from midwife	1.2%	(4/326)	0.6%	(2/314)	1.93	(0.36 ; 10.44)
Birth wishes were not met	2.4%	(6/255)	1.4%	(3/216)	1.69	(0.43 ; 6.69)
Other elements						
Loss of internal control during most of the labour[b]	10.8%	(35/325)	14.2%	(44/310)	0.76	(0.50 ; 1.15)
Loss of external control during most of the labour[b]	1.9%	(6/320)	2.3%	(7/309)	0.83	(0.28 ; 2.44)
Poor support from partner	2.2%	(7/325)	3.5%	(11/312)	0.61	(0.24 ; 1.56)
Elements regarding the physical environment						
No importance of physical environment for birth	9.7%	(31/319)	34.8%	(105/302)	0.28	(0.19 ; 0.40)
No importance of physical environment for staff´s ability to involve the women[b]	27.6%	(80/290)	37.2%	(99/266)	0.74	(0.58 ; 0.95)

[a] Answers were dichotomised into negative answers (score 1, 2 and 3) and positive answers (score 4, 5 and 6). The categorie "Don´t know" was omitted.

[b] 5-point scale, dichotomised into negative answers (score 1, 2 and 3) and positive answers (score 4 and 5). The categorie "Don´t know" was omitted.

Table 4 Partner´s experience of birth according to group allocation

	"Birth environment room" (n=232)[b]			Standard labour room (n=204)[c]			Mann-Whitney U-test	
Intrapartum care and experience[a]	Median	Interquartile range	Mean	Median	Interquartile range	Mean	p-value	Probability for higher value in the intervention group
Overall elements								
Overall birth experience	6	1	5.40	5	1	5.32	0.17	0.53
Overall care satisfaction	6	1	5.53	6	1	5.43	0.05	0.55
Elements regarding patient-centered care								
Staff support for partner	6	1	5.55	6	1	5.54	0.76	0.51
Undisturbed contact with newborn	6	1	5.65	6	1	5.52	0.07	0.54
Feeling of being listened to	5	1	5.22	5	1	5.25	0.79	0.49
Level of information	5	1	5.28	5	1	5.26	0.70	0.51
Attention to psychological needs	5	2	5.03	5	2	5.09	0.47	0.48
Suggestions for pain-relief	5	1	5.27	6	1	5.30	0.54	0.48
Participation in decision-making	5	1	5.30	5	1	5.34	0.60	0.49
Support from midwife	6	1	5.45	6	1	5.43	0.79	0.51
Birth wishes were met[d]	6	1	5.50	6	1	5.40	0.53	0.52
Other elements								
Loss of external control	6	1	5.39	6	1	5.34	0.84	0.51
Being supportive for partner	5	1	5.16	5	1	5.24	0.28	0.47
Element regarding the physical environment								
Importance of physical environment for birth	5	1	5.02	4	1	4.22	0.00	0.69

[a] For all answers, 6 expressed the most positive answer and 1 the most negative. Don´t know and not relevant answers were omitted.

[b] Numbers for the specific items varied between 213 and 232.

[c] Numbers for the specific items varied between 191 and 204.

[d] Numbers in "birth environment room" were 124 and in standard labour room 108, because a high number in both groups marked "did not have any birth wishes".

Table 5 Partner´s risk of a negative birth experience according to allocation group

	"Birth environment room"		Standard labour room			
Intrapartum care and experience[a]	Percentage of negative answers	n/N	Percentage of negative answers	n/N	Relative risk	95% Confidence interval
Overall elements						
Overall negative birth experience	0.9%	(2/228)	2.0%	(4/201)	0.44	(0.08 ; 2.38)
Overall dissatisfied with care[b]	0.9%	(2/230)	0.0%	(0/200)	-	(0.45 ; -)
Elements regarding patient-centered care						
Poor support from staff for partner	0.1%	(2/231)	0.5%	(1/201)	1.74	(0.16 ; 19.05)
Poor opportunity for undisturbed contact with newborn[c]	0.0%	(0/230)	2.0%	(4/200)	0.00	(0.00 ; 0.83)
Poor feeling of being listened to	0.9%	(2/224)	1.0%	(2/195)	0.87	(0.12 ; 6.12)
Low level of information	2.6%	(6/232)	2.0%	(4/200)	1.29	(0.37 ; 4.52)
Poor attention psychological needs	2.8%	(6/218)	2.1%	(4/191)	1.31	(0.38 ; 4.59)
Poor suggestions for pain-relief	3.8%	(8/213)	3.6%	(7/193)	1.04	(0.38 ; 2.80)
Poor participation in decision-making	0.9%	(2/229)	1.0%	(2/201)	0.88	(0.12 ; 6.17)
Poor support from midwife	1.7%	(4/229)	0.5%	(1/204)	3.56	(0.40 ; 31.62)
Birth wishes were not met[c]	0.0%	(0/124)	2.8%	(3/108)	0.00	(0.00 ; 1.10)
Other elements						
No or poor support for woman	4.3%	(10/230)	4.1%	(8/197)	1.07	(0.43 ; 2.66)
Loss of internal control during most of the labour	4.4%	(10/229)	5.5%	(11/199)	0.79	(0.34 ; 1.82)
Element regarding the physical environment						
No importance of physical environment for birth	5.7%	(13/228)	21.9%	(43/196)	0.26	(0.14 ; 0.47)

[a] Answers were dichotomised into negative answers (score 1, 2 and 3) and positive answers (score 4,5 and 6). The categories "don´t know" and "not relevant" were omitted.

[b] Presented as odds ratio to estimate confidence intervals, though no negative answers in the control group, were observed.

[c] Presented as odds ratio, to estimate confidence intervals, though no negativ answers in the intervention group, were observed.

Table 6 Use of the features of the "The birth environment room"

	Women (N=326)		Partners (N=236)	
	n	**%**	**n**	**%**
Did you use the nature scenes in the labour room during labour?[a]				
Yes, very much	290	90.9	189	83.3
Yes, shortly	14	4.4	26	11.5
No	9	2.8	9	4.0
Don´t know	6	1.9	3	1.3
Did you experience that the oppportunity to choose nature scenes had an impact on your experience of birth?[b,c]				
Yes, very much	107	33.5	-	-
Yes, to some extent	130	40.8	-	-
No	43	13.5	-	-
Don´t know	39	12.2	-	-
Did you experience that the opportunity to choose nature scenes had an impact on your partner´s wellbeing?[b]				
Yes, very much	113	35.4	59	26.0
Yes, to some extent	132	41.4	95	41.9
No	21	6.6	40	17.6
Don´t know	53	16.6	33	14.5
Were some of the nature scenes of particular importance for you or your partner?[d]				
Yes, very much	133	41.7	122	53.7
Not really	106	33.2	72	31.7
Don´t know	80	25.1	33	14.5
Were some of the sound possibilities of particular importance for you or your partner?[b,e]				
Yes, very much	-	-	73	32.2
Yes, to some extent	-	-	91	40.1
No	-	-	32	14.1
Don´t know	-	-	31	13.7

[a] Answers were divided into one group containing the 2 most positive answers, another group containing the 3 middle and a third group containing the most negative answer. Womens answers were on a 5-point scale and contained only 2 middle answers.

[b] Answers were divided into one group containing the 2 most positive answers, another group containing the 3 middle and a third group containing the most negative answer.

[c] Partners were not asked this specific question.

[d] Women´s answers were yes or no. Partner´s answers were dichotomised into one group containing the 3 positive answers and another group containing the 3 negative answers.

[e] Women were not asked this specific question.

Supplementary tables

Table S1 Questionnaire questions and response options for women

WOCCA questions - intrapartum care	**Response options**
Elements of overall birth experience and satisfaction	
1. Overall, how would you describe your experience of giving birth?	6-point scale: Very negative (1) to Outstanding (6)
2. Overall, how satisfied are you with the care you received during labour and birth?	6-point scale: Extremely dissatisfied (1) to Extremely satisfied (6)
Elements regarding patient-centered care	
3. How did you perceive the support the staff provided for your partner/birth companion during labour?	6-point scale: Unacceptable (1) to Optimal (6)
4. After giving birth, how was your opportunity to have undisturbed contact with you baby?	6-point scale: Unacceptable (1) to Optimal (6)
5. Do you feel that during labour, you were listened to by staff?	6-point scale: Not at all (1) to Extremely (6)
6. How did you perceive the information that you were given during labour?	6-point scale: Unacceptable (1) to Optimal (6)
7. How did you perceive the attention of your midwife/midwives towards your psychological needs?	6-point scale: Unacceptable (1) to Optimal (6)
8. How helpful did you find your midwife´s suggestions/initiatives to relieve your labour pain?	6-point scale: Unacceptable (1) to Optimal (6)
9. How was your opportunity to participate in decision-making when or if, you wanted to?	6-point scale: Unacceptable (1) to Optimal (6)
10. During labour, how was your possibility to have a midwife present, when you would like her to be with you?	6-point scale: Unacceptable (1) to Optimal (6)
11. How did you perceive the support and care that you received from your midwife/midwives during labour?	6-point scale: Unacceptable (1) to Optimal (6)
12. How did you perceive consideration of staff for your wishes for birth?	6-point scale: Unacceptable (1) to Optimal (6)
Other elements	
13. During labour, did you at any point have a feeling of loss of control over your body, behaviour or reactions?	5-point scale: No (1) to Yes, all through birth (5)
14. During labour, did you at any point have a feeling of loss of control over staff actions or what was done to you?	5-point scale: No (1) to Yes, all through birth (5)
15. How did you perceive the support your partner/birth companion was able to provide for you during labour?	6-point scale: No support (1) to Unequalled support (6)
Element regarding expectations	
16. Did you have any wishes for the birth beforehand?	5-point scale: Yes, I had some definite wishes, that meant a lot to me (1) to No, I would let the staff advise me (5)
Supplementary questions	
Elements regarding the physical environment	
17. To what extent did the physical environment impact your birth process?	6-point scale: Not at all (1) to Extremely (6)
18. To what extent did the physical environment impact on the staffs possibility to involve you in the birth process?	5-point scale: Not at all (1) to Highly (5)
19. Did you have wishes and expectations to which labour room you were going to give birth in beforehand?	5-point scale: Not at all (1) to Highly (5)
20. Did you think about which delivery room you were in when you were giving birth?	5-point scale: Not at all (1) to Highly (5)
Elements regarding the use of the features in "the birth environment room"	
21. Did you use the nature scenes in the delivery room?	5-point scale: No (1) to Yes, all through birth (5)
22. How did you perceive the oppportunity to choose nature scenes had impact on your experience of birth?	6-point scale: Not at all (1) to Extremely (6)
23. How did you perceive the opportunity to choose nature scenes had impact on your partners well-being during labour?	6-point scale: Not at all (1) to Extremely (6)
24. Did one of the nature scenes have a specific importance for you?	Yes (1) and No (2) followed by elaborate

Table S2 Questionnaire questions and response options for partners

Adjusted WOCCA questions - Intrapartum care	**Response options**
Overall elements	
1. Overall, how would you describe your experience of giving birth?	6-point scale: Very negative (1) to Outstanding (6)
2. Overall, how satisfied are you with the care you received during labour and birth?	6-point scale: Extremely dissatisfied (1) to Extremely satisfied (6)
Elements regarding patient-centered care	
3. How did you perceive the support the staff provided for you partner/birth companion during labour?	6-point scale: Unacceptable (1) to Optimal (6)
4. After giving birth, how was your opportunity to have undisturbed contact with you baby?	6-point scale: Unacceptable (1) to Optimal (6)
5. Do you feel that during labour, you were listened to by staff?	6-point scale: Not at all (1) to Extremely (6)
6. How did you perceive the information that you were given during labour?	6-point scale: Unacceptable (1) to Optimal (6)
7. How did you perceive the attention of your midwife/midwives towards your psychological needs?	6-point scale: Unacceptable (1) to Optimal (6)
8. How helpful did you find your midwife´s suggestions/initiatives to relieve the labour pain?	6-point scale: Unacceptable (1) to Optimal (6)
9. How was your opportunity to participate in decision-making when or if, you wanted to?	6-point scale: Unacceptable (1) to Optimal (6)
10. How did you perceive the support and care that you received from your midwife/midwives during labour?	6-point scale: Unacceptable (1) to Optimal (6)
11. How did you perceive consideration of staff for your wishes for birth?	6-point scale: Unacceptable (1) to Optimal (6)
Other elements	
12. During labour, did you at any point have a feeling of loss of control over your body, behaviour or reactions?	6-point scale: No (1) to Yes, all through birth (6)
13. How much support were you able to provide your partner/birth companion during labour?	6-point scale: No support (1) to Unequalled support (6)
Elements regarding exspectations	
14. Did you have any wishes for the birth beforehand?	5-point scale: Yes, I had some definite wishes, that meant a lot to me (1) to No, I would let the staff advise me (5)
15. Was it important for you that the midwife payed attention towards your psychological needs?	6-point scale: Not at all (1) to Extremely (6)
16. Was it important for you that the midwife gave you support and care during labour?	6-point scale: Not at all (1) to Extremely (6)
Supplementary questions	
Elements regarding the physical environment	
17. To what extent did the physical environment impact the birth process?	6-point scale: Not at all (1) to extremely (6)
18. Did you have wishes and expectations to which labour room you were going to be in during labour beforehand?	6-point scale: Not at all (1) to extremely (6)
19. Did you think about which labour room you were in during labour?	6-point scale: Not at all (1) to extremely (6)
Elements regarding the use of the features in "the birth environment room"	
20. Did you use the nature scenes in the labour room?	6-point scale: No (1) to Yes, all through birth (6)
21. How did you perceive the opportunity to choose nature scenes had impact on your partners well-being during labour?	6-point scale: Not at all (1) to Extremely (6)
22. Did some of the nature scenes have specific importance for you or your partner/birth companion during labour?	6-point scale: Not at all (1) to Extremely (6)
23. Did some of the sound possibilities have specific importance for you or your partner/birth companion during labour?	6-point scale: Not at all (1) to Extremely (6)

Table S3 Women´s chance of a highly positive birth experience according to allocation group

	"Birth environment room"		Standard labour room			
Intrapartum care and experience[a]	Percentage of highly positive answers	n/N	Percentage of highly positive answers	n/N	Relative risk	95% Confidence interal
Overall elements						
Overall outstanding birth experience	43.2%	(139/322)	40.7%	(127/312)	1.06	(0.88 ; 1.27)
Overall extremely satisfied with care	63.4%	(206/325)	59.3%	(185/312)	1.07	(0.94 ; 1.21)
Elements regarding patient-centered care						
Optimal staff support for partner	47.2%	(149/316)	50.7%	(152/300)	0.93	(0.79 ; 1.09)
Optimal undisturbed contact with newborn	73.8%	(234/317)	68.8%	(209/304)	1.07	(0.97 ; 1.19)
Exceptional feeling of being listened to	41.7%	(135/324)	37.6%	(117/311)	1.11	(0.91 ; 1.34)
High level of information	41.6%	(133/320)	46.3%	(144/311)	0.90	(0.75 ; 1.07)
Optimal attention psychological needs	57.7%	(184/319)	57.6%	(174/302)	1.00	(0.87 ; 1.15)
Optimal suggestions for pain-relief	49.2%	(153/311)	53.8%	(162/301	0.91	(0.78 ; 1.07)
Optimal participation in decision-making	48.7%	(153/314)	50.2%	(154/307)	0.97	(0.83 ; 1.14)
Midwife present when wanted	83.4%	(272/326)	78.1%	(246/315)	1.07	(0.99 ; 1.15)
Optimal support from midwife	75.5%	(246/326)	74.5%	(234/314)	1.01	(0.93 ; 1.11)
Birth wishes were met	62.0%	(158/255)	55.6%	(120/216)	1.12	(0.96 ; 1.30)
Other elements						
No loss of internal control[b]	20.3%	(66/325)	19.3%	(60/310)	1.05	(0.77 ; 1.43)
No loss of external control[b]	64.4%	(206/320)	60.5%	(187/309)	1.06	(0.94 ; 1.20)
Unequalled support from partner	62.5%	(203/325)	58.7%	(183/312)	1.06	(0.94 ; 1.21)
Elements regarding the physical environment						
Great importance of physical environment for birth	28.5%	(91/319)	10.0%	(30/302)	2.87	(1.96 ; 4.21)
High importance of physical environment for staff´s ability to involve the woman[b]	29.0%	(84/290)	24.4%	(65/266)	1.19	(0.90 ; 1.56)

[a] Answers were dichotomised into the most positive answer (score 6) and all other answers (scores 5-1). The categorie "don´t know" was omitted.

[b] 5-point scale, dichotomised into the most positive answer (score 5) and all other answers (scores 4-1). The categorie "don´t know" was omitted.

Table S4 Partner´s chance of a highly positive birth experience according to allocation group

	"Birth environment room"		Standard labour room			
Intrapartum care and experience[a]	Percentage of highly positive answers	n/N	Percentage of highly positive answers	n/N	Relative risk	95% Confidence interval
Overall elements						
Overall outstanding birth experience	51.8%	(118/228)	44.3%	(89/201)	1.17	(0.96 ; 1.43)
Overall extremely satisfied with care	60.1%	(140/230)	52.0%	(104/200)	1.17	(0.99 ; 1.39)
Elements regarding patient-centered care						
Optimal staff support for partner	63.2%	(146/231)	62.2%	(125/201)	1.02	(0.88 ; 1.18)
Optimal undisturbed contact with newborn	73.0%	(168/230)	65.0%	(130/200)	1.12	(0.99 ; 1.28)
Exceptional feeling of being listened to	33.4%	(75/224)	33.3%	(65/195)	1.00	(0.77 ; 1.32)
High level of information	46.6%	(108/232)	43.5%	(87/200)	1.07	(0.87 ; 1.32)
Optimal attention psychological needs	36.7%	(80/218)	40.8%	(78/191)	0.90	(0.70 ; 1.15)
Optimal suggestions for pain-relief	47.9%	(102/213)	51.3%	(99/193)	0.93	(0.77 ; 1.14)
Optimal participation in decision-making	48.0%	(110/229)	49.8%	(100/201)	0.97	(0.80 ; 1.17)
Optimal support from midwife	59.4%	(136/229)	58.8%	(120/204)	1.01	(0.86 ; 1.18)
Birth wishes were met	61.3%	(76/124)	59.2%	(64/108)	1.03	(0.84 ; 1.28)
Other elements						
No loss of internal control	60.0%	(135/229)	58.8%	(117/199)	1.00	(0.86 ; 1.18)
Great support for woman	37.4%	(86/230)	41.1%	(81/197)	0.91	(0.72 ; 1.15)
Element regarding the physical environment						
High importans of physical environment for birth	36.8%	(84/228)	12.2%	(24/196)	3.01	(1.99 ; 4.54)

[a] Answers were dichotomised into the most positive answers (score 6) and all other answers (scores 5-1). The categories "don´t know" and "not relevant" were omitted.

Uddybelse af den videnskabelige artikel

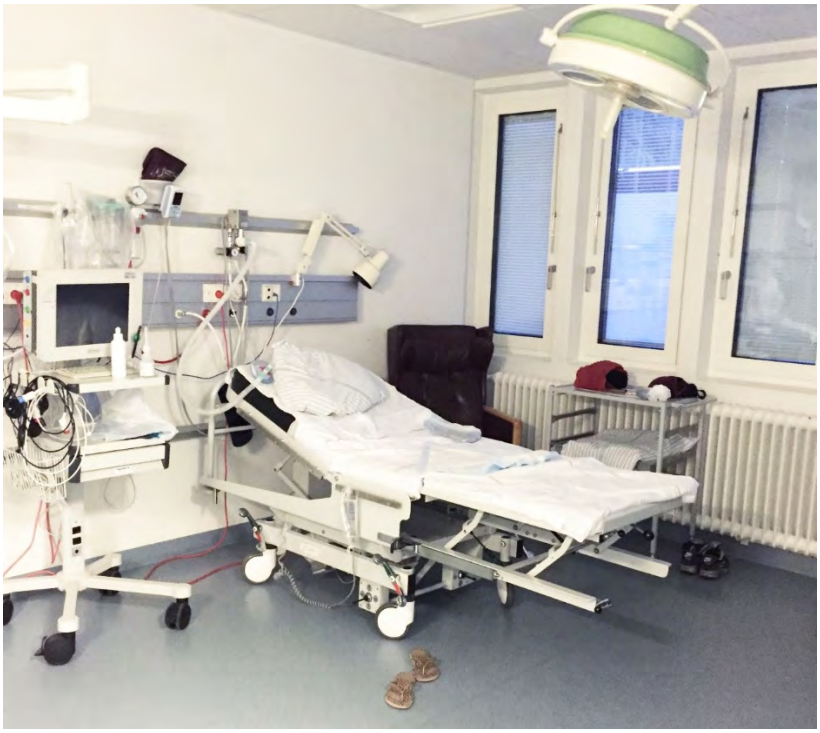
Denne del af specialet indeholder først en indledning med en beskrivelse af fødestuedesign. Derefter vil der præsenteres supplerende resultater fra en kvalitativ analyse af udsagn om fødselsoplevelsen. Til sidst inddrages disse samt allerede eksisterende observationelle og kvalitative studier i en udvidet diskussion, da de randomiserede kontrollerede studier blev diskuteret i den videnskabelige artikel[1]. Diskussionen afsluttes med supplerende metodiske overvejelser. Disse afsnit skal ses som en uddybelse af den videnskabelige artikel.

Indledning

Det traditionelle fødestuedesign

Fødestuer er traditionelt designet ligesom en operationsstue på et hospital, det vil sige med et leje placeret centralt i rummet og med overvågningsapparater, ilt og sug stående fremme. De er forbavsende ens rundt omkring i verden. Bortset fra farverne på væggene og små forskelle i udstyr ligner en fødestue inde midt i Vestafrika en klassisk dansk fødestue (1).

Figur 10 Klassisk fødestue (2)



[1] Disse studier er fundet gennem litteratursøgningen, som er beskrevet i appendiks E

I 1970´erne begyndte man i flere højindkomstlande at udvikle alternative fødestuer, der afspejlede en hjemlig og naturlig tilgang til fødslen, hvor det medicinske udstyr blev skjult, mens lejet dog fortsat havde en central plads i rummet (3, 4). Denne udvikling var en reaktion på den tilta-gende teknologiske tilgang til fødsler. De fleste fødestuer i Danmark er forsat traditionelt ind-rettet, men i de seneste år er der blevet udviklet fødestuer, som ligesom 70 ´ernes hjemlige stuer er udviklet for at fremme den normale fødsel. Disse stuer har gjort op med lejets centrale pla-cering for at øge kvindens mulighed for bevægelse under fødslen, og der er ofte også integreret forskellige sensoriske stimuli (3).

Denne udvikling kommer på baggrund af, at flere kvinder ønsker at føde i mindre sygehuslignende omgivelser (5) og en stærk formodning om, at det fysiske miljø kan være med til at understøtte den naturlige fødselsproces. Filosofien bag dette er, at hvis den fødende kvinde oplever det fysiske miljø som trygt og behageligt, hjælper det hende til at slappe af både fysisk og mentalt, hvilket nedsætter frygt- og stresssignalerne i hjernen og resulterer i bedre veer og bedre blodgennemstrømning i livmoderen. Oplever hun derimod det fysiske miljø som fremmet og utrygt, kan det føre til nedsat oxytocinudskillelse, hvilket kan hæmme den naturlige fødsel (6).

Udviklingen af den multisensoriske fødemiljøstue i Herning

I udviklingen af fødemiljøstuen på Regionshospitalet i Herning var der stort fokus på at tænke nyt. Derfor inviteredes mange forskellige fagligheder ind i designprocessen: En dyrepasser, en designpsykolog, en spiludvikler, en udvikler af apps i sundhedssektoren, en teaterkunstner, en wellnessarkitekt, en indretningsarkitekt og en producent af møbler og udstyr (7). Chefjordemoder Ann Fogsgaard og kvalitets- og udviklingsjordemoder Henriette Svenstrup, der ledede udviklingen af fødestuen, var også med i designprocessen. Jordemødrene fra afdelingen var ikke repræsenteret, fordi man antog, at de hver især havde deres personlige præferencer til stuens indretning, der ikke skulle påvirke designet (7). Ligeledes var de fødende kvinder og deres partnere heller ikke repræsenteret, da man ifølge chefjordemoder Ann Fogsgaard blev frarådet at invitere de nuværende brugere, fordi de ofte kan være for påvirkede af situationen til at kunne tænke nyt. Desuden kunne de andre inviterede også opfattes som brugere. Efterfølgende har kvinderne og deres partnere været med i evaluering af fødemiljøstuen gennem postpartumspørgeskemaet, som udover spørgsmålene til evaluering af deres fødselsoplevelse også indeholdt supplerende spørgsmål om betydningen og brugen af det fysiske miljø og muligheden for

at kommentere i åbne tekstfelter. Muligheden for kommentarer blev prioriteret, fordi man ønskede at få en dybere forståelse af, hvordan brugerne oplevede og anvendte fødemiljøet.

Anledningen til at den multisensoriske fødemiljøstue blev udviklet, var byggeriet af supersygehuset i Gødstrup, som gav en enestående mulighed for at tænke nyt og ændre på de fysiske rammer (1). Ved at designe fødemiljøstuen på den nuværende fødegang i Herning kunne man nå at afprøve denne i praksis og tage erfaringerne med i byggeriet af de nye fødestuer i Gødstrup. Derfor valgte man at lave et randomiseret kontrolleret studie af fødemiljøstuen først og fremmest for at måle på indgreb i fødslen, men også for at evaluere på fødselsoplevelsen.

Videnskabsteoretisk baggrund

Man valgte at udføre et randomiseret kontrolleret studie, fordi det anses for at være det stærkeste design til at undersøge kausale sammenhænge, og fordi det er ideelt til at vurdere effekt og bivirkninger af en intervention (8). Det adskiller sig fra andre design ved, at deltagerne fordeles tilfældigt i to eller flere grupper, der sammenlignes. Ulemperne ved dette design er, at det ofte er tidskrævende og dyrt at udføre (8). I dette studie var forskningsfeltet kvindernes og partnernes oplevelse af fødslen, som var forsøgt gjort målbart ved hjælp af en Likert-skala, hvilket bygger på en antagelse om, at en subjektiv oplevelse kan struktureres og måles, så den kan sammenlignes på tværs af grupper. En sådan antagelse er funderet i naturvidenskaben og den logiske positivisme, hvor netop målbarhed er et af nøglebegreberne (9). Det er dog svært at måle på en subjektiv oplevelse og nogle af udfordringerne herved vil blive diskuteret i den supplerende metodediskussion.

Supplerende kvalitative resultater

Postpartum-spørgeskemaerne som allerede er beskrevet i den videnskabelige artikel indeholdt som nævnt også åbne kommentarer. Kommentarerne fra de kvinder og partnere, der fødte på fødemiljøstuen inddrages her i studiet for at opnå en større forståelse af fødemiljøstuens betydning for fødselsoplevelsen. Dette afsnit indeholder først et metodeafsnit, og derefter analyseres kvindernes og partnernes udsagn hver for sig og afrundes i en kort opsummering. Derudover inddrages resultaterne af den kvalitative analyse i den udvidede diskussion.

Metode

Formålet med de åbne kommentarfelter var fra undersøgelsens start at kunne kvalificere de kvantitative resultater ved at opnå en større forståelse af, hvordan faciliteterne på fødestuerne fungerede under fødslen, og hvilken betydning kvinderne og deres partnere tillagde de forskellige faciliteter. De kvinder, der fødte på miljøfødestuen, havde mulighed for at uddybe deres svar på det spørgsmål, der handlede om stemningernes betydning (se tabel S1 - spørgsmål 24), og derudover blev de afslutningsvist opfordret til at skrive kommentarer i et åbent tekstfelt. Partnerne derimod blev opfordret til at skrive kommentarer efter hvert spørgsmål, og herudover fik de også afslutningsvist mulighed for at kommentere generelt på spørgeskemaet.

Fokus i denne analyse var fødemiljøstuens betydning for kvinders og partneres oplevelse af fødslen, og kun de udsagn, der var relevante, er medtaget i analysen. Fra kvinderne er der i alt taget 157 udsagn med i denne analyse. De 91 er fra de generelle kommentarer i afslutningen af spørgeskemaet, hvor hver enkelt udsagn typisk bestod af 50 til 100 ord. De resterende 66 er taget fra uddybningen af spørgsmål 24 og er typisk kortere udsagn bestående af mellem 10 til 30 ord. Der var i alt 234 udsagn, der var relevante i partnernes kommentarer. De 106 er fra de generelle kommentarer i afslutningen af skemaet og fra kommentarerne til spørgsmål 17. Disse udsagn var typisk mellem 50 og 100 ord lange, mens de resterende 128 udsagn var 10-30 ord lange og kommer fra kommentarerne til spørgsmål 1, 4 og 18 - 23.

Udsagnene blev analyseret efter en induktiv tematisk tilgang (10). Alle udsagn blev først læst grundigt igennem for at identificere de dele, der havde relevans for analysens fokus, og der blev undervejs genereret koder efter en semantisk analysetilgang. I anden gennemlæsning blev de relevante udsagn tildelt disse koder og kategoriseret i temaer. Tematisk analyse kan positionere sig i forskellige epistemiologiske paradigmer fra et realistisk til et konstruktivistisk paradigme (10). Denne tematiske analyse positionerer sig i en realistisk forforståelse, hvor man opfatter oplevelser og mening som noget, der er i individet (10), og hvor man anser teorier for at være en afspejling af en virkelighed, som reelt er til stede og tilgængelig (9).

Analyse af kvindernes oplevelse af fødemiljøstuen

Den induktive tematiske analyse resulterede i 15 koder, som blev kategoriseret i følgende hovedtemaer: ”Fødemiljøstuens gavnlige effekter” og ”Fødemiljøstuens begrænsninger” og en række undertemaer som er vist i tabel 7.

Tabel 7 Temaer i kvindernes oplevelse af fødemiljøstuen.

Fødemiljøstuens gavnlige effekter	**Fødemiljøstuens begrænsninger**
Fødemiljøstuen skabte en positiv ramme	Indre hæmmende omstændigheder
Stemningerne hjalp mig	Ænsede ikke stuen før barnet var født
Særlig gavnlig i fødslens rolige faser	Ænsede ikke stuen før epiduralblokaden
"Plads" til min partner i fødemiljøet	Ænsede ikke stuen - var på lattergas
	Ydre hæmmende omstændigheder
	Vi manglede introduktion til fødemiljøet
	Faciliteterne virkede ikke optimalt

Fødemiljøstuens gavnlige effekter

Fødemiljøstuen skabte en positiv ramme

I udsagnene blev fødestuen som en samlet ramme vurderet yderst positivt. Mange brugte udtryk som ”helt fantastisk”, ”optimale rammer” eller ”ikke-hospitalsagtig” i deres beskrivelse af stuen. Flere kvinder gav udtryk for, at de håbede, at alle kvinder i fremtiden kan føde på sådan en stue, og de vurderede, at fødemiljøet havde betydning for deres fødselsoplevelse.

Stemningerne hjalp mig

De sensoriske stimuli, der bestod af lyd, lys og billeder eller film på væggene, og som tilsammen dannede forskellige stemninger på stuen fyldte meget i udsagnene. Mange kvinder beskrev, hvordan disse stimuli hjalp dem til at slappe af og beroligede dem. De blev brugt til at flytte fokus væk fra de smertefulde veer. Enkelte kvinder beskrev effekten af de sensoriske stimuli som smertelindrende.

”Jeg er helt sikker på, at stuen har været med til at give mig sådan en rolig og god fødsel. (Fødte uden smertestillende, musik og billeder på væggen var mit smertestillende)”

Andre brugte disse stimuli som en hjælp til at trække sig ind i sig selv og koncentrere sig om fødslen eller til at personliggøre fødemiljøstuen.

”Ja vi valgte vesterhavsstemningen med bølger, hvilket havde en fantastisk beroligende effekt på mig, da jeg selv er opvokset tæt på Limfjorden og altid har opholdt mig meget ved fjorden”

Enkelte kvinder beskrev, hvordan de særligt, fordi de havde en hård og lang fødsel, havde stor gavn af fødemiljøstuen, som hjalp dem til at hvile og slappe af i det lange forløb.

Særlig gavnlig i fødslens rolige faser

Mange kvinder beskrev, at de havde mest gavn af stuen i de mindst smertefulde faser af fødslen enten tidligt i fødselsforløbet, mellem veerne eller i timerne efter fødslen, hvor den på en særlig måde faciliterede roen og samværet i den lille nye familie. Enkelte kvinder udtrykte en helende effekt af at være i fødemiljøet efter den voldsomme fødselsoplevelse.

"Efter den hårde og lange fødsel satte vi skovstemning på, og det virkede bare så godt for os. Stemningen blev meget rolig, og jeg følte en ny energi."

Sofaen havde en afgørende rolle i denne fase, fordi den muliggjorde tæt samvær og intimitet mellem dem alle tre - kvinden, partneren og den nyfødte baby.

"Plads" til min partner i fødemiljøet

Mange kvinder gav udtryk for, at deres partnere værdsatte muligheden for at hvile på sofaen og, at sofaen var med til at signalere, at der også var taget hensyn til deres behov i fødemiljøet. Partnernes ro og velvære smittede af på kvinderne.

"En flot fødestue, hvor især "lounge" området er hyggeligt for faderen, da det skaber en mere hyggelig stemning for ham, således kunne jeg også bedre fokusere på fødslen, da jeg vidste, han også havde et sted at være og ikke kun en stol ved siden af mig."

Fødemiljøstuens begrænsninger

Indre hæmmende omstændigheder

Ænsede ikke stuen før barnet var født

Flere kvinder udtrykte, at de ikke havde overskud til at registrere de omgivelser, de var i, før barnet var født. Årsagerne til dette var forskellige. En del kvinder var langt i fødslen, da de kom på stuen, eller de havde en meget hurtig fødsel og nåede derfor ikke at blive fortrolige med stuens muligheder. Andre havde trukket sig ind i deres egen verden og koncentrerede sig om det intense ve-arbejde. Der var også kvinder, for hvem fødslen var så voldsom og hård en oplevelse, at fødemiljøet ikke fik betydning for dem.

" i fødslens smertehelvede gjorde stuen ingen forskel for mig som fødende, dog nød min mand den betydeligt mere."

Enkelte kvinder kunne ikke rumme de sensoriske stimuli under fødslen og slukkede enten for nogle eller alle stimuli under fødslen.

Ænsede ikke stuen før epiduralblokaden
Kvinder, der havde fået epiduralblokade under fødslen, beskrev hvordan de før, de fik epiduralblokaden, ikke havde overskud til at benytte fødemiljøet, mens de efter epiduralblokaden havde gavn af de sensoriske stimuli.

"... Dog havde jeg under min lange fødsel et par smertefri timer grundet epidural, og der udforskede jeg stuen lidt fra sengen, hvor jeg tydeligt kunne se "hyggen" og de afstressende og rolige elementer i form af billeder på væggene, lyde, lys og indretning."

Ænsede ikke stuen - var på lattergas
Flere kvinder, der fik lattergas som smertelindring i fødslen, beskrev, at de ingen gavn havde af fødemiljøet.

"Jeg havde en lang og hård fødsel, og da jeg først var på lattergas, kunne jeg have født på månen, der var det ligegyldigt..."

Ydre hæmmende omstændigheder

Vi manglede introduktion til fødemiljøet
Flere kvinder manglede introduktion til at styre og anvende faciliteterne på stuen. Enkelte beskrev, at personalet ikke var fortroligt med faciliteterne, hvilket betød, at kvinderne ikke kunne udnytte faciliteterne optimalt.

"Derudover var både min kæreste og jeg enige i, at det ville være lidt bedre, hvis personalet havde bedre styr på alt det, lokalet kunne - herunder især styring af skærme og lyde."

Faciliteterne virkede ikke optimalt
En del kvinder beskrev tekniske problemer, som begrænsede deres brug af fødemiljøet. I nogle tilfælde kunne lyden ikke styres fra tabletten, i andre frøs billederne fast, lyset blinkede eller de 5 projektorer fulgtes ikke ad. Udover de tekniske problemer nævnte flere kvinder, at karret ikke virkede optimalt. Der var problemer med at få vand nok i det, og at finde en god afslappende stilling.

Analyse af partnernes oplevelse af fødemiljøstuen

Den tematiske analyse resulterede i 17 koder, som blev kategoriseret i 2 hovedtemaer og en række undertemaer som vist i tabel 8.

Tabel 8 Temaer i partnernes oplevelse af fødemiljøstuen.

Fødemiljøstuens gavnlige effekter	**Fødemiljøstuens begrænsninger**
Fødemiljøstuen skabte en hjemlig ramme	Indre hæmmende omstændigheder
Som fødselspartner nød jeg fødemiljøet	Min kæreste ænsede ikke fødemiljøet
Særlig gavnlig i fødslens rolige faser	- hun havde for ondt
Fødemiljøet gjorde stor forskel	Hurtig fødsel
for min kæreste	- vi nåede ikke at bruge fødemiljøet
	Ydre hæmmende omstændigheder
	Vi manglede introduktion til fødemiljøet
	Faciliteterne virkede ikke optimalt

Fødemiljøstuens gavnlige effekter

Fødemiljøstuen skabte en hjemlig ramme

En stor del af partnernes kommentarer beskrev fødemiljøet som en samlet positiv ramme. Fødemiljøet blev beskrevet som beroligende, afslappende, tryghedsskabende, varmt og hjemligt, ikke klinisk og koldt. Mange satte pris på det ikke-hospitalsagtige udtryk på stuen, særligt de, som havde det svært med at være på et hospital.

"Da vi kom op på fødegangen, kom vi ind på en normal fødestue med kedelige vægge og en kold fornemmelse og en følelse af, at man bare gerne ville hjem igen. Men da vi så kom over i den der fødemiljøstue, var det en mere varm og hyggelig fornemmelse og følelsen af, at man bare ville hjem igen var væk."

Derudover beskrev partnerne en tomhed i rummet, hvis projektorerne var slukkede, og der ikke var billeder på væggene, så følte de rummet var koldt og klinisk. De fremhævede også fødemiljøets store betydning både for sig selv og deres partner under forløbet.

"Man gik nærmest i en synergi med rummet. Man var i et space af velvære på trods af veer. Følelsen af tryghed og ro nærmest omkransede os"

Der var god plads i fødemiljøet, hvilket gav en følelse af frihed, gjorde det muligt for den fødende at bevæge sig og gav nogle partnere en følelse af at være i trygge hænder.

"... Specielt den store plads omkring alting gjorde, at jeg vidste, man nemt kunne enten flytte min partner til kejsersnit eller komme rundt om hende og hjælpe, hvis noget skulle gå galt."

Som fødselspartner nød jeg fødemiljøet

Flere partnere beskrev, at de havde nydt miljøet mere end deres kærester. De nød muligheden for at trække sig tilbage i loungeområdet, hvor de brugte sofaen til et tiltrængt hvil eller til at sidde behageligt under det lange fødselsforløb. Sofaen blev også brugt til at være tæt sammen under forløbet.

"Rart med sofa på stuen, så jeg kunne være tættere med min kone og ikke blot stå ved sengekanten."

De sensoriske stimuli gav partnerne en naturlig distraktion og skabte en god atmosfære. Muligheden for at styre de sensoriske stimuli gav dem noget at bruge ventetiden på.

"... Samtidigt var der hele tiden en fysisk og en psykisk afveksling i rummet, der fjernede "tomrummet" fra en kvadratisk hvid stue."

Desuden gav indretningen på fødestuen partneren en følelse af at være inkluderet og velkommen.

Særlig gavnlig i fødslens rolige faser

Nogle partnere gav udtryk for, at fødemiljøet havde størst betydning for dem i begyndelsen af fødslen, mellem veerne eller i de første timer efter fødslen. I fødslens mest intense faser kunne de kun koncentrere sig om deres kæreste. Mange har beskrevet, hvordan tiden på stuen efter fødslen var god med mulighed for intimitet og ro til at indtage de sensoriske stimuli på stuen, mens de nød deres nyfødte baby.

"Det var vildt dejligt med den dobbeltseng [Sofaen], hvor vi kunne ligge tæt alle tre efter fødslen"

Fødemiljøstuen gjorde stor forskel for min kæreste

Enkelte partnere vurderede, at stuen gjorde en stor forskel for deres kærester i den intense del af fødslen. De beskrev hvordan deres kærester slappede af i karret omgivet af naturbilleder og lyde, eller hvordan de fokuserede på stemningerne under veerne. Karret blev ofte nævnt som en facilitet, der hjælp kæresten med at tackle de svære ve-smerter.

"Vi tænkte over det, fordi det var så positivt, da vi blev flyttet. Det hjalp min kæreste langt mere, end I kan forestille jer."

Fødemiljøstuens begrænsninger

Indre hæmmende omstændigheder

Min kæreste ænsede ikke fødemiljøstuen - hun havde for ondt.
Mange partnere skrev, at deres kærester ikke havde gavn af stuen under fødslen, fordi smerterne var for intense og tog al fokus.

"De første mange, mange timer af fødslen ænsede hun ikke så meget, fordi hun havde en del smerter fra veerne. Det var først, da epiduralblokaden virkede, at hun overhovedet lagde mærke til, at der var stemning."

Hurtigt fødsel - vi nåede ikke at bruge fødemiljøet
En del partnere oplevede, at fødslen gik så hurtigt, at de ikke nåede at blive fortrolige med stuens muligheder. De havde ikke tid til at skifte stemning og oplevede, at de var kommet for sent ind på stuen til at have gavn af den.

"Fødslen gik meget hurtigt. Så vi kunne slet ikke leve os ind i den fine stue."

Ydre hæmmende omstændigheder

Vi manglede introduktion til fødemiljøet
Flere partnere gav udtryk for, at de ikke vidste, at stemningerne kunne skiftes eller, at de ikke kunne finde ud af at styre lyd, lys og billeder. For nogle betød det, at de slukkede for det hele, fordi de blev trætte af den samme musik igennem mange timer. Desuden skrev flere, at de ville ønske, at man kunne sætte sin egen musik til, hvilket faktisk var muligt, men da de ikke vidste det, kunne de ikke udnytte fødemiljøstuens muligheder optimalt. Derudover beskrev enkelte, at personalet virkede usikkert på, hvordan stuen fungerede.

"... Samtidigt var det også med til at give et mindre professionelt indtryk, at jordemødrene ikke vidste, hvordan badekarret virkede."

Faciliteterne virkede ikke optimalt
Der blev i kommentarerne beskrevet en del tekniske problemer, eksempelvis nævnte flere, at lyset på stuen blinkede ubehageligt, og at der var problemer med at styre de sensoriske stimuli fra tabletten. En del har også skrevet, at projektorerne frøs fast på ét billede eller gik ned under fødselsforløbet. Herudover har enkelte partnere oplevet ulemper ved de sensoriske stimuli

blandt andet, at projektorerne fik temperaturen til at stige på stuen, og at lyset i flere stemninger var så heftigt, at det var generende. Andre syntes, at de manglede en god stol at sidde i tæt på fødesengen.

Kort opsummering af den kvalitative analyse

Der var stor variation i kvindernes oplevelse af den multisensoriske fødemiljøstues gavnlighed under den hårde fødsel. Nogle kvinder beskrev fødemiljøstuen som uundværlig i de hårde og lange fødselsforløb, mens andre i disse forløb vurderede fødemiljøet helt overflødigt. På samme måde oplevede nogle kvinder, at fødemiljøet var en hjælp til at trække sig ind i sin egen verden og holde koncentrationen under ve-arbejdet, mens andre ikke havde gavn af fødemiljøet, fordi de allerede var i deres egen verden. Den grundlæggende forståelse af en fødsel er forskellig fra kvinde til kvinde. Medens nogle anser fødslen for at være en naturlig proces, betragter andre den som en medicinsk proces, der bør kontrolleres af sundhedsprofessionelle (11). Man kunne måske forestille sig, at kvinder med en naturlig opfattelse af fødslen ville føle sig bedst tilpas i fødemiljøstuen.

I partnernes evaluering af fødemiljøstuen indgik der overvejelser om, hvordan stuen ville fungere i akutte eller farlige situationer, men disse overvejelser blev ikke genfundet i kvindernes kommentarer. Dette kan være et udtryk for, at fødslen er en forskellig udfordring for kvinder og partnere, og at bekymringer for mor og barns helbred er en stor del af partnerens udfordring (12).

Udvidet diskussion

Observationelle studier af det fysiske fødemiljø

To observationelle studier, et engelsk studie af 559 kvinder og 521 mænd (13) og et svensk studie af 1333 kvinder og 1084 mænd (14), har undersøgt det fysiske miljø og kvinders og mænds tilfredshed med omsorg og behandling under fødslen. Overordnet viste disse studier, at de kvinder og partnere der fødte på de alternative fødestuer, var mere tilfredse med det fysiske miljø og med den omsorg, de fik under fødslen (13, 14). Dog fandt man i det svenske studie ikke nogen forskel i tilfredsheden for førstegangsmødre og -fædre, hvilket er i overensstemmelse med vores resul-tater for kvinderne. Det observationelle design i disse studier vanskeliggør dog reelle sammen-ligninger med nærværende studie. Desuden var der andre betydelige forskelle mellem de for-skellige fødestuer end det fysiske miljø, som kan have haft en effekt, da de alternative fødeste-der var jordemoderledede mindre afdelinger med højere grad af kontinuitet i omsorgen. Kun ét dansk studie har i et observationelt design undersøgt effekten af et fødemiljø med sensoriske stimuli, her fandt man, at risikoen for kejsersnit var lavere på den alternative fødestue (15). Betydning for fødselsoplevelse blev ikke undersøgt.

Viden fra kvalitative data om det fysiske fødemiljø

Kvalitative studier konkluderer, at de alternative fødestuer er mere behagelige og giver kvinden mulighed for bevægelse under fødslen (16). Desuden støtter de kvinden i at være aktiv, bevare kontrollen under forløbet og værner om hendes privatliv (4). På standardfødestuerne er kvinden passiv, føler sig overvåget, og indtager rollen som patient (4, 16-18). Færre kvinder og partnere på fødemiljøstuen i vores undersøgelse oplevede, at de ikke havde uforstyrret ro efter fødslen. Årsagen til denne forskel kan måske være, at jordemødrene påvirkes af det fysiske miljø (19, 20), og at fødemiljøstuen giver et tydeligere signal om at respektere de fødendes privatliv. Der-udover er det tydeligt i resultaterne af den kvalitative analyse, at fødemiljøstuen rigtig kom til sin ret i timerne efter fødslen. Faciliteterne på stuen understøttede på en særlig måde familiernes mulighed for intimitet, ro og restitution.

Vi fandt at mange kvinder ikke ænsede det fysiske miljø under fødslen, fordi de ikke havde overskud pga. de intense ve-smerter. Dette kan være med til at forklare, hvorfor vi ikke finder nogen forskel i kvindernes fødselsoplevelse og tilfredshed. I det tidligere nævnte svenske studie

viste det sig, at flergangsfødende både kvinder og partnere havde større effekt af det alternative fødemiljø (14), hvilket måske skyldes, at de i højere grad føler, de kan bevare kontrollen gennem fødslen (21) og dermed bedre kan udnytte det alternative fødemiljø.

Vi fandt også at fødemiljøstuen var mere gavnlig for partnerne, end den var for kvinderne, hvilket understøtter resultaterne i den kvantitative analyse. Udover, at partnerne ikke på samme måde som kvinderne var fysisk udfordrede og dermed havde mere overskud til at benytte fødemiljøstuens faciliteter, er det måske også et udtryk for, at standardfødestuen ikke opfylder partnernes behov i samme grad, som den opfylder kvindernes. Partnerne værdsatte sofaen, der gav dem mulighed for at hvile, for at være tæt på deres kærester og for at trække sig lidt tilbage. De oplevede, at de var tænkt ind i designet, hvilket de ikke i samme grad følte sig i det traditionelle fødestuedesign, som ikke har ændret sig markant efter, at partneren er med til fødslen. Dette bekræftes af det nævnte engelske studie, hvor partnerne oftere end kvinderne tilkendegav, at der ikke var taget hensyn til deres behov, og at der ikke var mulighed for privathed på standardfødestuerne (13).

Vores undersøgelse påviste ikke uhensigtsmæssige konsekvenser af at føde på fødemiljøstuen, men kvinderne på standardfødestuen evaluerede jordemoderens forslag og initiativer i forhold til smertelindring, muligheden for at deltage i beslutninger og informationsniveauet som lidt bedre end kvinderne på fødemiljøstuen. Det kan måske forklares med, at jordemødrene på fødemiljøstuen har været lidt tilbageholdende med at give medicinsk smertelindring, fordi de ikke syntes, at det passede ind i de naturlige rammer. Desuden har jordemødrene ikke den samme rutine og fortrolighed med fødemiljøstuens faciliteter, som de har med standardstuerne, hvilket måske også kan ses på disse resultater. Samtidig er epiduralblokade et vigtigt tema i den kvalitative analyse, hvor flere kvinder fortalte, at de først, da de har fået epiduralblokaden, kunne nyde den flotte stue. Et af ønskerne med at udvikle fødemiljøstuen var at nedbringe antallet af epiduralblokader. Derfor er det overraskende, at flere kvinder angav at have brug for denne smertelindring for at kunne have glæde af stuen.

Der var store nuanceforskelle mellem kvindernes og partnernes udsagn. For kvinderne var udsagnene om, hvordan de indre hæmmende omstændigheder gjorde, at de ikke ænsede rummet, meget nuancerede og detaljerede. Hos partnerne var disse udsagn blot konstateringer af, at deres kærester ikke registrerede omgivelserne pga. stærke ve-smerter. Derimod var partnernes beskrivelse af fødemiljøstuen som en hjemlig ramme mere detaljeret og beskrivende end kvindernes. Disse forskelle er nok forventelige, da de netop afspejler, at for kvinderne er fødslen en

indre ekstrem proces, der tager al fokus (22), mens den for partnerne er en proces, hvor de står ved siden af som beskytter og hjælper. De har tid til at lægge mærke til deres omgivelser og forholde sig til, hvordan disse bedst hjælper og sikrer den fødende og det ufødte barn.

Metodiske overvejelser

Postpartum-spørgeskemaet

En fødselsoplevelse er kompleks og kan vurderes fra mange vinkler (23). Vi valgte at bruge "WOCCA - on woman-centred care during labour and childbirth". Dette spørgeskema har stort fokus på at evaluere patientcentreret behandling, da det er udviklet til at sammenligne fødselsomsorg på obstetrisk-ledede og jordemoder-ledede afdelinger (24). Det kunne måske have været bedre at anvende et spørgeskema, som i højere grad havde fokus på at måle kvindens og partnerens følelser, tanker og adfærd under fødslen, da fokus i dette studie ikke var forskelle i faglig omsorg. I dette studie var fokus det fysiske miljø, og derfor var der også et par[2] supplerende spørgsmål om det fysiske miljøs indflydelse på fødslen (se tabel S1 og S2). Disse spørgsmål var måske ikke så informative, da de var påvirket af en slags placeboeffekt som nævnt i den videnskabelige artikel. Det ville i bagklogskabens klare lys nok have været bedre at få deltagerne til at forholde sig til konkrete udsagn som "jeg kunne nemt slappe af på stuen", "der var god plads til bevægelse på stuen" eller "jeg følte mig hurtigt hjemme på stuen".

En af de store udfordringer ved at måle på fødselsoplevelsen er, at tilfredshed med fødslen i høj grad afhænger af forventningerne (25, 26). Derfor ville det have været optimalt at måle deltagernes forventninger til fødslen allerede i graviditeten. I nærværende studie må man dog forvente, at det randomiserede design mindsker dette problem ved, at fødselsangste kvinder er fordelt ligeligt i de to grupper. En anden udfordring er, at både kvinder og partnere ofte scorer meget højt i tilfredshedsundersøgelser af fødsler, da de er præget af stor lettelse over, at fødslen er vel overstået (27). Lettelsen over det fantastiske resultat kan dermed komme til at skjule eventuelle utilfredsheder. Fra andre studier ved vi, at kvinders evaluering af deres fødselsoplevelse bliver mere negativ i løbet af det første år efter fødslen (28). Vi valgte at måle kvindernes fødselsoplevelse 8 uger efter fødslen, og partnernes 1-2 uger efter fødslen, så partnerne stadig var på barsel, når de modtog postpartum-spørgeskemaet.

[2] For partnerne var der kun et spørgsmål.

Den kvalitative analyse

Muligheden for, at deltagerne kunne uddybe deres svar i åbne tekstfelter, var en styrke ved studiet. Dels kunne deltagerne få afløb for det, som de havde på hjerte, og dels var det vigtige bidrag til at forstå resultaterne fra de kvantitative analyser. Kommentarerne havde dog også nogle begrænsninger. For det første blev deltagerne kun bedt om at kommentere eller uddybe deres svar, og derfor skrev de ofte ret korte sætninger. Hvis de var blevet bedt om at svare på et mere åbent spørgsmål, ville det måske have givet mere fyldige data. En anden begrænsning var, at muligheden for at kommentere var forskellig, da partnerne havde denne mulighed efter hvert spørgsmål, og kvinderne kun havde denne mulighed til sidst i skemaet[3].

Derudover viste det sig i kommentarerne, at enkelte partnere havde været i tvivl, om de skulle besvare spørgeskemaet sammen, fordi de modtog spørgeskemaet, før kvinderne modtog deres. I spørgeskemaundersøgelser er det en accepteret præmis, at man ikke kan være sikker på, at den, der er påtænkt at besvare spørgsmålene, faktisk er den, der gør det (27). Når det har været uklart for nogle, hvem spørgeskemaet var rettet til, så er der risiko for, at det ikke kun er partneren, der har besvaret spørgsmålene. Mange kommentarer viste dog tydeligt, at partneren havde besvaret spørgeskemaet på egne vegne.

En af de største udfordringer i kvantitativ metode er at bearbejde åbne kommentarer i et spørgeskema, så forbindelsen mellem teksten og koden bliver retvisende (29). Det anbefales da også at begrænse brugen af åbne spørgsmål i spørgeskemaer, fordi de er i strid med spørgeskemaets formål - at genere kvantitative data (30). Kommentarer og åbne spørgsmål egner sig til den personlige og nærværende historie (29), som vi så en fordel i at kunne inkludere i dette studie. Vi anvendte en induktiv tematisk analyse, som er en kvalitativ metode, hvor det er vigtigt, at temaerne er tæt knyttet til data, og at data ikke skal passes ind i allerede eksisterende temaer (10). Vi kunne også have valgt at lave en kvantitativ indholdsanalyse med forudbestemte tematiske kategorier (31), men da udviklingen af disse innovative fødestuer først har taget fart indenfor de seneste år, og der derfor ikke er meget eksisterende litteratur på området, ønskede vi i analysen at være åbne overfor alle perspektiver. I en kvantitativ indholdsanalyse antager man, at det øger objektiviteten, at temaerne er forudbestemte (31 p. 67), mens man i induktiv tematisk analyse argumenterer for, at forskerens teoretiske forforståelse ikke skal være styrende for genereringen af temaerne. Man er dog her opmærksom på, at temaer ikke bliver genereret i et tomrum, hvor forskerens forforståelse ingen betydning har (10). Dette har vi også været bevidste om i denne analyseproces, som er foregået efter, at vi har fået kendskab til vores

[3] Kvinderne på fødemiljøstuen havde også mulighed herfor i spørgsmål 24

kvantitative resultater og den eksisterende litteratur på området. En kvantitativ indholdsanalyse er ikke fortolkende, men tæller forekomsten af forskellige ord eller temaer i data, hvilket også øger dens objektivitet (31 p. 23). På samme måde har vi valgt at holde den tematiske analyse på et beskrivende niveau, hvor vi har genereret temaer, og beskrevet disse så datanært som muligt.

Implikationer for det danske jordemoderfag

Dette studies resultater lever ikke op til forventningerne blandt danske jordemødre, som i mange år har ønsket at have fødslerne i andre fysiske rammer end de traditionelle operationslignende fødestuer. Der har været en stærk overbevisning om, at bedre fysiske rammer både vil fremme den naturlige fødsel og forbedre fødselsoplevelsen. Flere steder i Danmark har man på baggrund af denne overbevisning i de seneste år udviklet innovative fødestuer i forskellige varianter (for eksempel på fødeafdelingerne i Hjørring, Hillerød, Herlev, Hvidovre og på Rigshospitalet), uden at vide noget om den egentlige effekt af sådanne fødestuer. Jordemødrene på Regionshospitalet i Herning har påtaget sig det store arbejde at undersøge effekten af den multisensoriske fødemiljøstue på fødselsoplevelsen samt andre fødselsudfald (publiceres i anden artikel). Dette er prisværdigt og bør give inspiration til andre jordemødre om at undersøge effekten af de ændringer, vi foretager i klinisk praksis, også når det gælder de fysiske rammer. I disse år bygges der store supersygehuse mange steder i Danmark, og undersøgelser som denne vil kunne kvalificere designet af de nye fødestuer på disse sygehuse.

Den multisensoriske fødemiljøstue på Regionshospitalet i Herning blev udviklet med stort fokus på at skabe gode rammer for partneren under fødslen. Vores resultater viser, at partnerne har følt sig bedre behandlet på fødemiljøstuen. De traditionelle fødestuer blev designet, før det var normalt at partneren var med til fødslen, hvilket betyder, at der er behov for, at jordemødre arbejder for at skabe bedre rum for partneren på de traditionelle fødestuer.

Referencer

1. Fremtidens sengestuer fødes i Herning Godtsygehusbyggeri.dk [Available from: https://godtsygehusbyggeri.dk/inspiration/cases/fremtidens-sengestuer-foedes-i-herning.
2. Billede af klassisk dansk fødestue. http://chrisserm.bloggersdelight.dk/.
3. Hodnett ED, Downe S, Walsh D. Alternative versus conventional institutional settings for birth. The Cochrane database of systematic reviews. 2012;2012(8):Cd000012.
4. Mondy T, Fenwick J, Leap N, Foureur M. How domesticity dictates behaviour in the birth space: Lessons for designing birth environments in institutions wanting to promote a positive experience of birth. Midwifery. 2016;43:37-47.
5. Brøsch MO. Nu kan du føde "hjemme" på hospitalet Nordsjællands Hospital: Nordsjællands Hospital; 2019 [cited 2020 20.06.]. Available from: https://www.nordsjaellandshospital.dk/presse-og-nyt/pressemeddelelser-og-nyheder/Sider/nu-kan-du-foede-hjemme-paa-hospitalet.aspx.
6. Berg M, Goldkuhl L, Nilsson C, Wijk H, Gyllensten H, Lindahl G, et al. Room4Birth - the effect of an adaptable birthing room on labour and birth outcomes for nulliparous women at term with spontaneous labour start: study protocol for a randomised controlled superiority trial in Sweden. Trials. 2019;20(1):629.
7. Folmer MB, Jangaard K, Buhl H. Design of Genuine Birth Environment: Midwives Intuitively Think in Terms of Evidence-Based Design Thinking. Herd. 2019;12(2):71-86.
8. Gordis L. Epidemiology. 5. ed: Elsevier Saunders; 2014. p. p. 138-76.
9. Birkler J. Videnskabsteori. In: Toft M, editor. 1. ed: Munksgaard; 2016. p. p. 33-65.
10. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative Research in Psychology. 2006;3(2):77-101.
11. Preis H, Benyamini Y. The birth beliefs scale - a new measure to assess basic beliefs about birth. Journal of psychosomatic obstetrics and gynaecology. 2017;38(1):73-80.
12. Steen M, Downe S, Bamford N, Edozien L. Not-patient and not-visitor: a metasynthesis fathers' encounters with pregnancy, birth and maternity care. Midwifery. 2012;28(4):362-71.
13. Symon AG, Dugard P, Butchart M, Carr V, Paul J. Care and environment in midwife-led and obstetric-led units: a comparison of mothers' and birth partners' perceptions. Midwifery. 2011;27(6):880-6.
14. Tingstig C, Gottvall K, Grunewald C, Waldenström U. Satisfaction with a modified form of in-hospital birth center care compared with standard maternity care. Birth (Berkeley, Calif). 2012;39(2):106-14.
15. Wrønding T, Argyraki A, Petersen JF, Topsøe MF, Petersen PM, Løkkegaard ECL. The aesthetic nature of the birthing room environment may alter the need for obstetrical interventions - an observational retrospective cohort study. Sci Rep. 2019;9(1):303.
16. Setola N, Naldi E, Cocina GG, Eide LB, Iannuzzi L, Daly D. The Impact of the Physical Environment on Intrapartum Maternity Care: Identification of Eight Crucial Building Spaces. Herd. 2019;12(4):67-98.
17. Nilsson C. The delivery room: is it a safe place? A hermeneutic analysis of women's negative birth experiences. Sexual & reproductive healthcare : official journal of the Swedish Association of Midwives. 2014;5(4):199-204.
18. Fahy KM, Parratt JA. Birth Territory: a theory for midwifery practice. Women and birth : journal of the Australian College of Midwives. 2006;19(2):45-50.
19. Hammond A, Foureur M, Homer CS. The hardware and software implications of hospital birth room design: a midwifery perspective. Midwifery. 2014;30(7):825-30.
20. Hammond AD, Homer CE, Foureur M. Messages from Space: An Exploration of the Relationship between Hospital Birth Environments and Midwifery Practice. Herd. 2014;7(4):81-95.

21. Green JM, Baston HA. Feeling in control during labor: concepts, correlates, and consequences. Birth (Berkeley, Calif). 2003;30(4):235-47.
22. Simkin P. Just another day in a woman's life? Part II: Nature and consistency of women's long-term memories of their first birth experiences. Birth (Berkeley, Calif). 1992;19(2):64-81.
23. Nilvér H, Begley C, Berg M. Measuring women's childbirth experiences: a systematic review for identification and analysis of validated instruments. BMC pregnancy and childbirth. 2017;17(1):203.
24. Overgaard C. Care closer to home - what does it offer? A study of safety and quality of maternity care in freestanding midwifery units. 2012.
25. Slade P, MacPherson SA, Hume A, Maresh M. Expectations, experiences and satisfaction with labour. Br J Clin Psychol. 1993;32(4):469-83.
26. Green JM, Coupland VA, Kitzinger JV. Expectations, experiences, and psychological outcomes of childbirth: a prospective study of 825 women. Birth (Berkeley, Calif). 1990;17(1):15-24.
27. Brown S, Lumley J. The 1993 Survey of Recent Mothers: issues in survey design, analysis and influencing policy. Int J Qual Health Care. 1997;9(4):265-75.
28. Waldenström U. Women's memory of childbirth at two months and one year after the birth. Birth (Berkeley, Calif). 2003;30(4):248-54.
29. Schmedes GANoK. Ledetråde til design og brug af spørgeskemaer Forlaget Colombus2009 [Available from: http://www.forlagetcolumbus.dk/fileadmin/user_upload/pdf/Lede_spoerge.pdf.
30. Olsen H. GUIDE TIL GODE SPØRGESKEMAER. vive.dk: Det nationale forsknings og analysecenter for velfærd; 2006.
31. Helles R, Eskjær MF. Kvantitativ indholdsanalyse. 1. udgave ed. Frederiksberg: Samfundslitteratur; 2015. 138 sider p.
32. m.fl. TFF. En guide til valide og reproducerbare systematiske litteratursøgninger. Ugeskrift for læger. 2014;176.
33. Information NCfB. PubMed.gov: U.S. National Library of Medicine; [cited 2020 25.06.]. Available from: https://pubmed.ncbi.nlm.nih.gov/about/). .
34. Hjælp til litteratursøgning. Nationalt Videnscenter for Demens.2017 [cited 2020 25.06.]. Available from: http://www.videnscenterfordemens.dk/forskning/hjaelp-til-litteratursoegning/.
35. Jamshidi Manesh M, Kalati M, Hosseini F. Snoezelen Room and Childbirth Outcome: A Randomized Clinical Trial. Iran Red Crescent Med J. 2015;17(5):e18373.
36. Info om database Aalborg Universitetsbiblioteket: Aalborg universitet; 2020. [cited 2020. 25.06.]. Available from: https://www.aub.aau.dk/find-materiale/databaser/info?id=1408796.
37. Nielsen JH, Overgaard C. Healing architecture and Snoezelen in delivery room design: a qualitative study of women's birth experiences and patient-centeredness of care. BMC Pregnancy & Childbirth. 2020;20(1):1-11.

Appendix

Appendix A: Womens questionnaire

Forskningsprojekt om fødemiljø

Spørgeskemaet omhandler din oplevelse af fødslen og dit barns ernæring indtil nu. Derudover bliver du spurgt til din længste skoleuddannelse og til hvordan din oplevelse på fødestuen har været.

De bedste hilsner

Iben Lorentzen

Vicechefjordemoder

1. A: Havde du inden fødslen nogle ønsker til denne? (Der tænkes ikke kun på konkrete ønsker som f.eks. at komme i badekar eller føde i en bestemt stilling, men også på andre forhold, som var vigtige for dig, eller som du gerne ville have mulighed for eller måske gerne ville undgå)

(1) ❑ Ja, jeg havde nogle konkrete ønsker, som det betød meget for mig at få opfyldt

(2) ❑ Ja, jeg havde nogle ønsker men tænkte, at de kunne ændre sig under fødslen

(3) ❑ Ja, der var nogle ting, jeg havde tænkt på, men det var ikke konkrete ønsker

(4) ❑ Nej, jeg havde ikke tænkt på noget specielt

(5) ❑ Nej, jeg ville lade mig råde af personalet

1 B: Hvis du havde nogle ønsker til fødslen, hvordan oplevede du da det hensyn, der blev taget til disse?

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

2. Hvordan var din mulighed under fødslen for at have en jordemoder hos dig, når du gerne ville

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

3. Hvordan oplevede du jordemoderens støtte og omsorg under fødslen?

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

4. Hvordan oplevede du din mulighed for at være med til at bestemme, når / hvis du gerne ville?(Her tænkes på såvel større som mindre ting, som du måske gerne ville have indflydelse på, f.eks. din mulighed for at bevæge dig under fødslen, om du skulle have

smertelindring og evt. hvilken type, om fostervandet skulle tages, om barnet skulle overvåges elektronisk med CTG, hvilken stilling, du skulle føde i, hvornår barnet skulle undersøges osv.)

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

5. Hvordan oplevede du jordemoderens forslag og initiativer i forhold til lindring af fødselssmerten?(Her tænkes på alle typer forslag og tiltag f.eks. støtte til vejrtrækning, massage, karbad, musik, varmepude, gode vestillinger, bevægelse, akupunktur, steriltvandspapler, morfin, rygmarvsbedøvelse (epiduralblokade), bedøvelse af mellemkødet lige før barnets fødsel (pudendusblokade))

(2) ❑ Helt optimale

(3) ❑ Meget gode

(4) ❑ Gode

(5) ❑ Ikke så gode

(6) ❑ Dårlige

(7) ❑ Helt uacceptable

(8) ❑ Ved ikke

6. Hvordan oplevede du jordemoderens opmærksomhed på, hvordan du havde det psykisk/følelsesmæssigt?

(2) ❑ Helt optimal

(3) ❑ Meget god

(4) ❑ God

(5) ❑ Ikke så god

(6) ❑ Dårlig

(7) ❑ Helt uacceptabel

(8) ❑ Ved ikke

7. Oplevede du perioder under fødslen, hvor du følte, at du ikke havde nogen kontrol over din egen krop, din opførsel eller dine reaktioner?

(1) ❑ Ja, under hele fødslen

(2) ❑ Ja, under en stor del af fødslen

(3) ❑ Ja, under en del af fødslen

(4) ❑ Ja, kortvarigt

(5) ❑ Nej

(6) ❑ Ved ikke

8. Oplevede du perioder under fødslen, hvor du følte, at du ikke havde nogen kontrol over, hvad personalet gjorde ved dig, eller hvad der skete?

(1) ❑ Ja, under hele fødslen

(2) ❑ Ja, under en stor del af fødslen

(3) ❑ Ja, under en del af fødslen

(4) ❑ Ja, kortvarigt

(5) ❑ Nej

(6) ❑ Ved ikke

9. Hvordan var den information, du fik i forbindelse med fødslen?

(2) ❑ Helt optimal

(3) ❑ Meget god

(4) ❑ God

(5) ❑ Ikke så god

(6) ❑ Dårlig

(7) ❑ Helt uacceptabel

(8) ❑ Ved ikke

10. Følte du, at personalets lyttede til dig under fødslen?

(1) ❑ I enestående grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

11. Hvordan oplevede du personalets støtte til, at du og/eller din evt. partner kunne have uforstyrret kontakt med (røre, holde, snakke med mv.) dit / jeres barn, da det var født?

(2) ❑ Helt optimal

(3) ❑ Meget god

(4) ❑ Gode

(5) ❑ Ikke så god

(6) ❑ Dårlig

(7) ❑ Helt uacceptabel

(8) ❑ Ved ikke

12. Hvor megen hjælp og støtte var din evt. partner / fødselsledsager i stand til at give dig under fødslen?

(1) ❑ Uovertruffen støtte

(2) ❑ Stor støtte

(3) ❑ En hel del støtte

(4) ❑ Lidt støtte

(5) ❑ Ikke så megen støtte

(6) ❑ Ingen støtte

(7) ❑ Ved ikke

13. Hvordan oplevede du personalets støtte til din partner / ledsager(e) under fødslen?

(2) ❑ Helt optimal

(3) ❑ Meget god

(4) ❑ God

(5) ❑ Ikke så god

(6) ❑ Dårlig

(7) ❑ Helt uacceptabel

(8) ❑ Ved ikke

14. Hvordan er din samlede oplevelse af fødslen?

(1) ❑ Enestående god

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Meget dårlig

(7) ❑ Ved ikke

15. Hvor tilfreds er du alt i alt med den samlede omsorg, pleje og behandling, som du fik under fødslen?

(1) ❑ Yderst tilfreds

(2) ❑ Meget tilfreds

(3) ❑ Tilfreds

(4) ❑ Utilfreds

(5) ❑ Meget utilfreds

(6) ❑ Yderst utilfreds

(7) ❑ Ved ikke

Hvad er din længste skoleuddannelse?

(1) ❑ 9. - 10. klasse

(2) ❑ Student, HF

(3) ❑ Mellemlang videregående eller lang videregående uddannelse

ErnæringErnæring af barnetHvordan har du givet dit barn mad de første dage?

(1) ❑ Jeg har ammet

(2) ❑ Jeg har givet udmalket modermælk

(3) ❑ Jeg har givet modermælkserstatning

AmningAmmer du stadig?*Ved fuld amning forstås, at barnet kun får mad ved at spise ved brystet. Herved forstås, at der ud over bryst, kan gives supplement med vand og lignende og/eller maksimalt ét måltid med modermælkserstatning om ugen

(1) ❑ Ja, jeg ammer fuldt*

(2) ❑ Ja, jeg ammer, men mit barn får også modermælkserstatning

(3) ❑ Nej, jeg ammer ikke mere

UdmalkningGiver du stadig dit barn udmalket modermælk uden at give det andet end din mælk? *Ved fuld udmalkning forstås, at barnet kun får din modermælk. Herved forstås i Danmark, at der ud over modermælk kan gives supplement med vand og lignende og/eller maksimalt ét måltid med modermælkserstatning om ugen

(1) ❑ Ja, jeg udmalker fuldt*

(2) ❑ Ja, jeg giver udmalket modermælk, men mit barn får også modermælkserstatning

(3) ❑ Nej, jeg er holdt med at malke ud?

De følgende spørgsmål omhandler din oplevelse af at være på fødestuen.I hvilken grad oplevede du at de fysiske rammer havde indflydelse på forløbet ?(Her tænkes på større og mindre ting som rummets størrelse, møblement, indretning, belysning og teknik)

(1) ❑ I enestående grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

I hvilken grad mener du at de fysiske rammer havde betydning for hvordan personalet kunne inddrage dig i forløbet?

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Havde du på forhånd haft ønsker og forventninger til hvilken fødestue du/I skulle føde på?

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Tænkte du over hvilken stue du/I var kommet på da fødslen var i gang?

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Hvilken fødestue fødte du på?

(1) ❑ En almindelig fødestue

(2) ❑ Fødemiljøstuen

(3) ❑ Ved ikke

Brugte I naturstemningerne på stuen?

(1) ❑ Ja, under hele fødslen

(2) ❑ Ja, under en stor del af fødslen

(3) ❑ Ja, under en del af fødslen

(4) ❑ Ja, kortvarigt

(5) ❑ Nej

(6) ❑ Ved ikke

Oplevede du at muligheden for at vælge forskellige stemninger havde betydning for din oplevelse af fødslen?

(1) ❑ I enestående grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Oplevede du, at muligheden for at vælge forskellige stemninger havde betydning for, hvordan din partner havde det under fødslen?

(1) ❑ I enestående grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Var det en af naturstemningerne som havde særlig betydning for dig eller din partner under fødslen?

(1) ❑ Ja

(2) ❑ Nej

(3) ❑ Ved ikke

Uddyb gerne

_____

Hvis du har nogle kommentarer til spørgeskemaet kan du skrive dem her

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Tusind tak fordi du tog dig tid til at besvarelse spørgeskemaet og for din deltagelse i forsknings-projektet omkring fødemiljø.

Spørgeskemaet er gemt, og du kan lukke din browser.

Fortsat held og lykke til jer med den lille!

Appendix B: Partners´ questionnaire

Forskningsprojekt om fødemiljø

Spørgeskemaet omhandler din oplevelse af fødslen. Derudover bliver du spurgt til din længste skoleuddannelse, og til hvordan din oplevelse på fødestuen har været.

Det tager omkring 10 minutter at besvare spørgeskemaet.

Når du besvarer spørgsmålene omkring din fødselsoplevelse, skal du tænkte på det du oplevede mens du var på fødegangen.

De bedste hilsner

Iben Lorentzen

Vicechefjordemoder

1. A: Havde du inden fødslen nogle ønsker til denne?(Der tænkes ikke kun på konkrete ønsker som f.eks. at klippe navlesnoren eller se barnet blive født, men også andre forhold som du gerne ville have mulighed for eller måske gerne ville undgå)

(1) ❑ Ja, jeg havde nogle konkrete ønsker, som det betød meget for mig at få opfyldt

(2) ❑ Ja, jeg havde nogle ønsker men tænkte, at de kunne ændre sig under fødslen

(3) ❑ Ja, der var nogle ting, jeg havde tænkt på, men det var ikke konkrete ønsker

(4) ❑ Nej, jeg havde ikke tænkt på noget specielt

(5) ❑ Nej, jeg ville lade mig råde af personalet

(6) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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1 B: Hvis du havde nogle ønsker til fødslen, hvordan oplevede du da det hensyn, der blev taget til disse?

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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2. A: Var det vigtigt for dig, at jordemoderen gav dig støtte og omsorg under fødselsforløbet?

(1) ❑ I meget høj grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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2. B:Hvordan oplevede du jordemoderens støtte og omsorg for dig under fødselsforløbet?

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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3. Hvordan oplevede du din mulighed for at have indflydelse under fødselsforløbet?(Her tænkes på såvel større som mindre ting, som du måske gerne ville have indflydelse på, f.eks. din mulighed for at støtte din partner under fødslen, om hun skulle have smertelindring under fødslen eller din mulighed for at klippe navlesnoren efter fødslen osv.)

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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4. Hvordan oplevede du jordemoderens forslag og initiativer i forhold til lindring af fødselssmerten?(Her tænkes på alle typer forslag og tiltag f.eks. støtte til vejrtrækning, massage, karbad, musik, varmepude, gode vestillinger, bevægelse, akupunktur, steriltvandspapler,

morfin, rygmarvsbedøvelse (epiduralblokade), bedøvelse af mellemkødet lige før barnets fødsel (pudendusblokade))

(1) ❑ Helt optimale

(2) ❑ Meget gode

(3) ❑ Gode

(4) ❑ Ikke så gode

(5) ❑ Dårlige

(6) ❑ Helt uacceptable

(7) ❑ Ved ikke

(8) ❑ Min partner havde ikke brug for forslag/støtte fra jdm ift. lindring af fødselssmerten

Skriv her hvis du har kommentarer til spørgsmålet

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5. A: Var det vigtigt for dig, at jordemoderen var opmærksom på, hvordan du havde det under fødslen?

(1) ❑ I meget høj grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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5. B: Hvordan oplevede du jordemoderens opmærksomhed på, hvordan du havde det psykisk/følelsesmæssigt?

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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6. Oplevede du perioder under fødslen, hvor du følte, at du ikke havde nogen kontrol over din opførsel eller dine reaktioner?

(1) ❑ Ja, under hele fødslen

(2) ❑ Ja, under det meste af fødslen

(3) ❑ Ja, under en stor del af fødslen

(4) ❑ Ja, under en del af fødslen

(5) ❑ Ja, kortvarigt

(6) ❑ Nej

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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7. Hvordan var den information, du fik under fødselsforløbet?

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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8. Følte du, at personalets lyttede til dig under fødslen?

(1) ❑ I enestående grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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9. Hvordan oplevede du personalets støtte til, at I som forældre kunne have uforstyrret kontakt med (røre, holde, snakke med mv.) jeres barn, da det var født?

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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10. Hvor megen hjælp og støtte var du for din partner under fødslen?

(1) ❑ Uovertruffen støtte

(2) ❑ Stor støtte

(3) ❑ En hel del støtte

(4) ❑ Lidt støtte

(5) ❑ Ikke så megen støtte

(6) ❑ Ingen støtte

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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11. Hvordan oplevede du personalets støtte til din partner under fødselsforløbet?

(1) ❑ Helt optimal

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Helt uacceptabel

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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12. Hvordan er din samlede oplevelse af fødselsforløbet?

(1) ❑ Enestående god

(2) ❑ Meget god

(3) ❑ God

(4) ❑ Ikke så god

(5) ❑ Dårlig

(6) ❑ Meget dårlig

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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13. Hvor tilfreds er du alt i alt med den samlede omsorg, pleje og behandling, som I fik under fødselsforløbet?

(1) ❑ Yderst tilfreds

(2) ❑ Meget tilfreds

(3) ❑ Tilfreds

(4) ❑ Utilfreds

(5) ❑ Meget utilfreds

(6) ❑ Yderst utilfreds

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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De følgende spørgsmål omhandler din oplevelse af at være på fødestuen.14. I hvilken grad oplevede du at de fysiske rammer havde indflydelse på fødselsforløbet ?(Her tænkes på større og mindre ting som rummets størrelse, møblement, indretning, belysning og teknik)

(1) ❑ I meget høj grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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15. Havde du på forhånd haft ønsker og forventninger til hvilken fødestue I skulle føde på?

(1) ❑ I meget høj grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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16. Tænkte du over hvilken stue I var kommet på da fødselsforløbet var i gang?

(1) ❑ I meget høj grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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17. Hvilken fødestue fødte du på?

(1) ❑ En almindelig fødestue

(2) ❑ Fødemiljøstuen

(3) ❑ Ved ikke

17 A: Brugte I naturstemningerne på stuen?

(1) ❑ Ja, under hele fødslen

(2) ❑ Ja, under det meste af fødslen

(3) ❑ Ja, under en stor del af fødslen

(4) ❑ Ja, under en del af fødslen

(5) ❑ Ja, kortvarigt

(6) ❑ Nej

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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17 B: Oplevede du, at muligheden for at vælge forskellige stemninger havde betydning for, hvordan din partner havde det under fødslen?

(1) ❑ I enestående grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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17 C: Var der nogle af naturstemningerne som havde særlig betydning for dig eller din partner under selve fødslen?

(1) ❑ I enestående grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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17 D: Var der nogle af lydmulighederne (naturlyde/musik) som havde særlig betydning for dig eller din partner under fødslen?

(1) ❑ I enestående grad

(2) ❑ I høj grad

(3) ❑ I nogen grad

(4) ❑ Ikke i så høj grad

(5) ❑ En lille smule

(6) ❑ Slet ikke

(7) ❑ Ved ikke

Skriv her hvis du har kommentarer til spørgsmålet

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18. Hvad er din længste skoleuddannelse?

(1) ❑ 9. - 10. klasse

(2) ❑ Student, HF

(5) ❑ Håndværker uddannelse

(6) ❑ Kort videregående uddannelse

(3) ❑ Mellemlang videregående eller lang videregående uddannelse

(4) ❑ Ved ikke

19. Hvad er din civilstatus?

(1) ❑ Jeg er gift med barnets mor?

(2) ❑ Jeg er samboende med barnets mor?

(3) ❑ Jeg er skilt fra barnets mor

(4) ❑ Ved ikke

Er det dit første barn?

(1) ❑ Ja

(2) ❑ Nej

(3) ❑ Ved ikke

Hvis du har flere kommentarer til spørgeskemaet kan du skrive dem her

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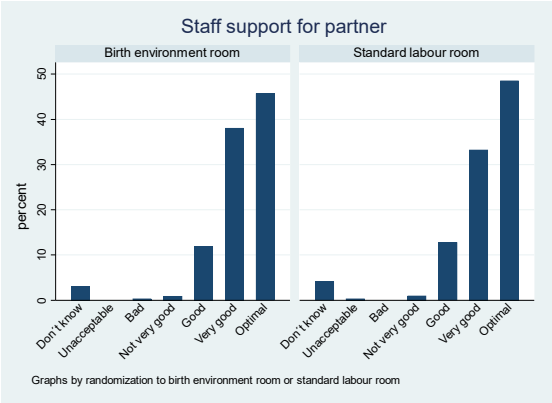
Tusind tak fordi du tog dig tid til at besvare spørgeskemaet og for din deltagelse i forskningsprojektet omkring fødemiljø.

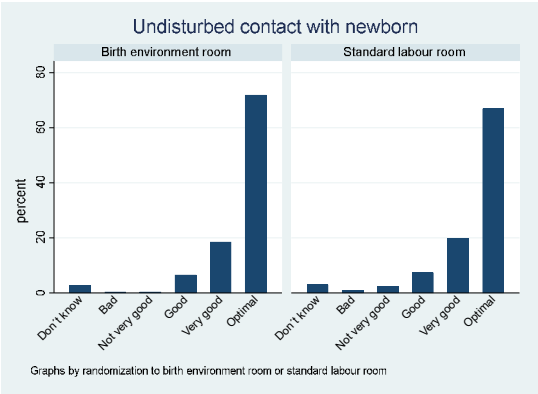
Spørgeskemaet er gemt, og du kan lukke din browser.

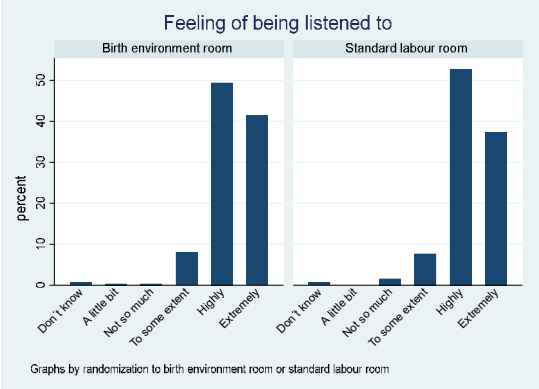
Fortsat held og lykke til jer med den lille!

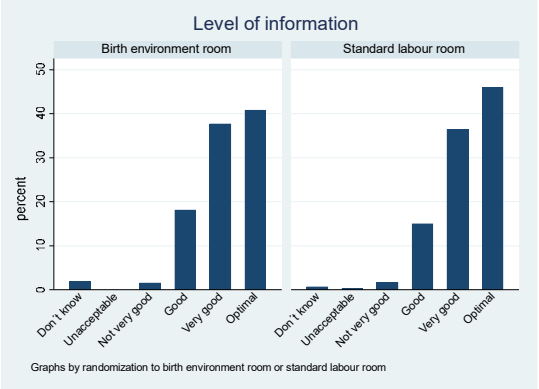
Appendix C: Women´s experience shown in bar charts

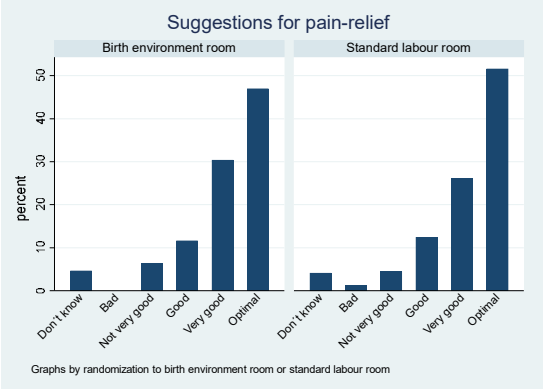
Elements regarding patient-centered care

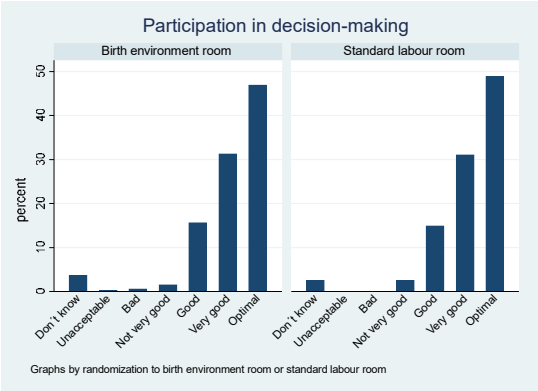


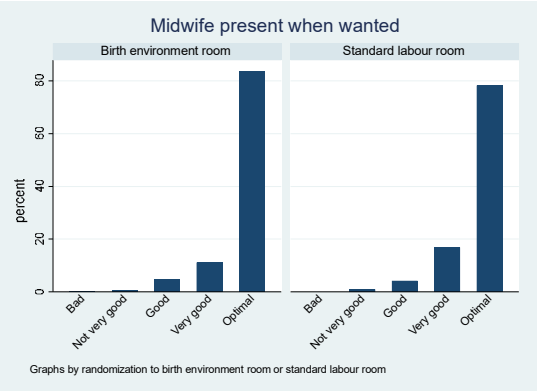


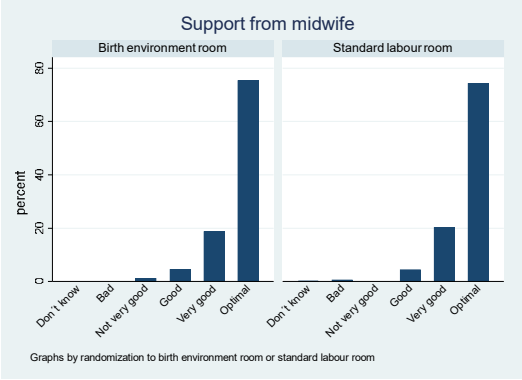


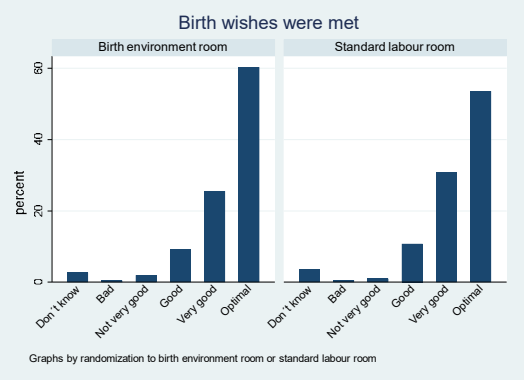




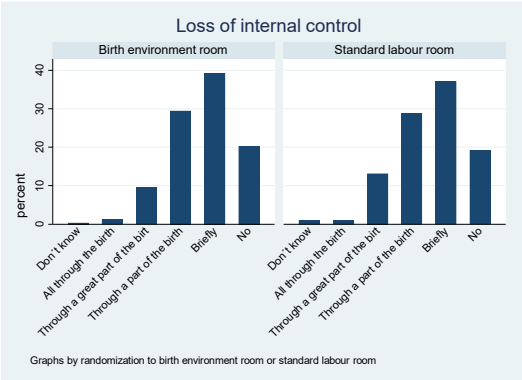


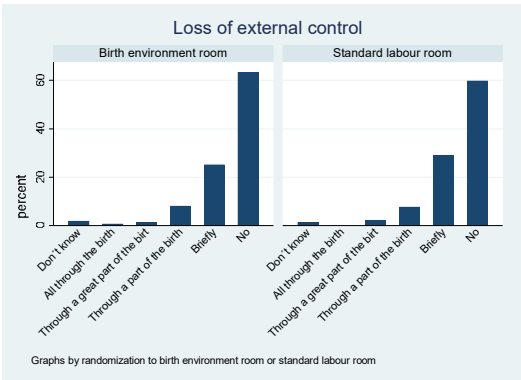


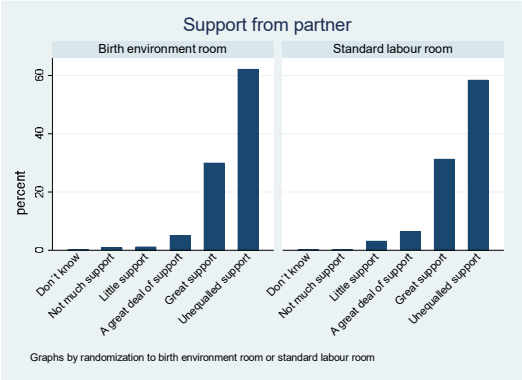




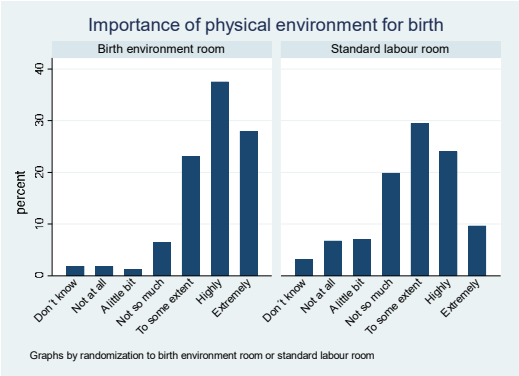
Other elements

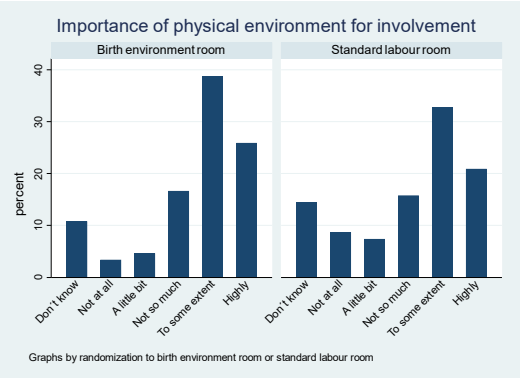






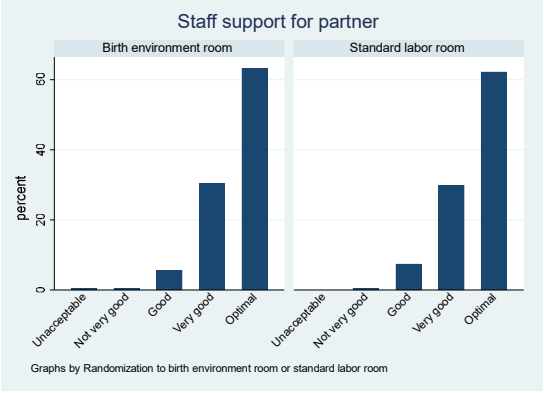
Elements regarding the physical environment

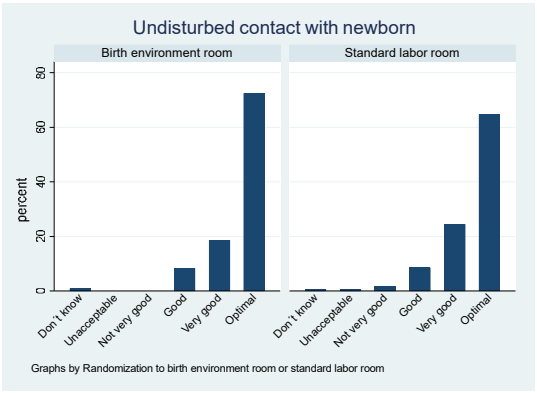


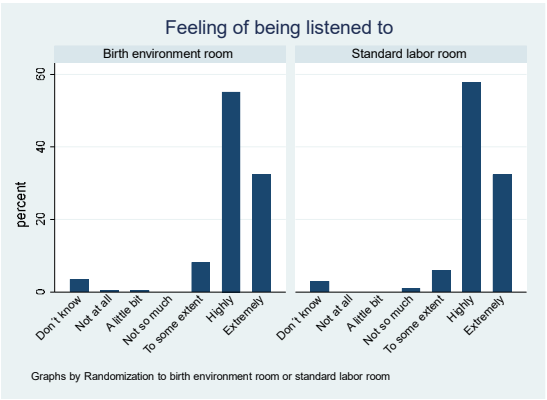


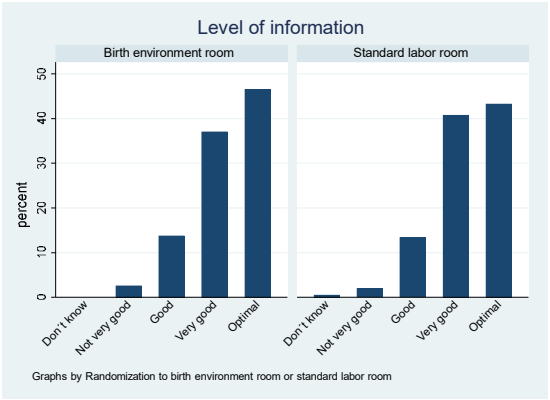
Appendix D: Partners´ experience shown in bar charts

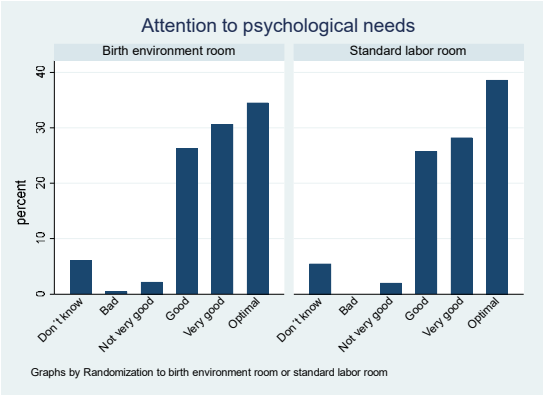
Elements regarding patient-centered care

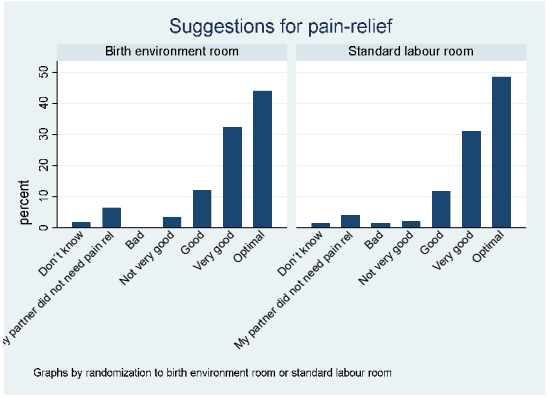


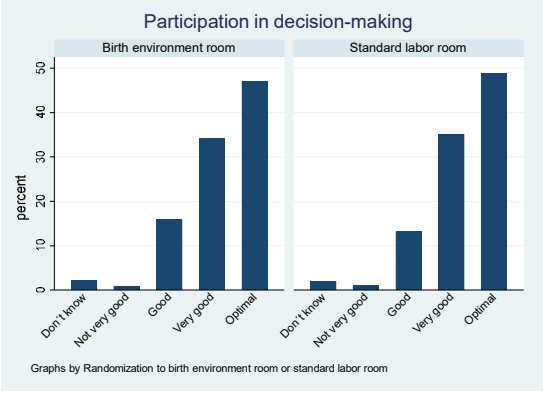


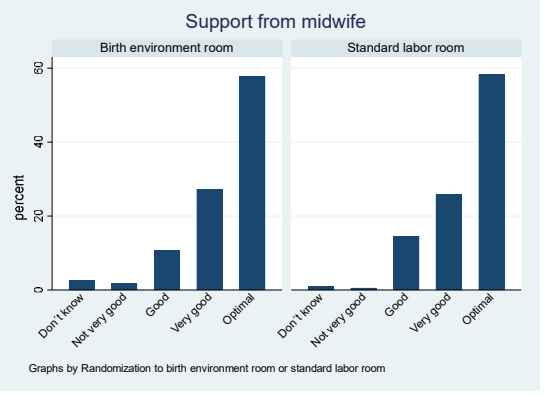


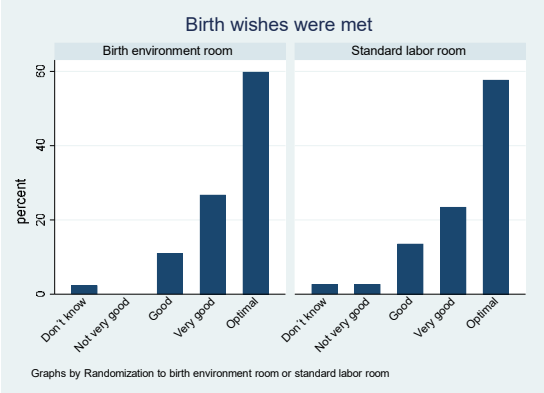












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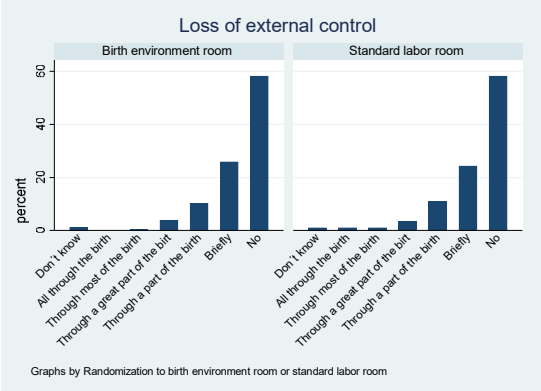

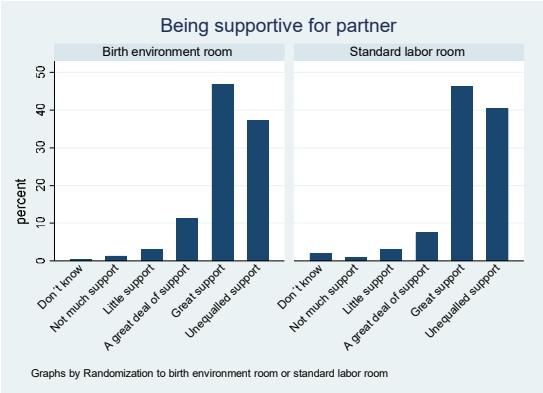

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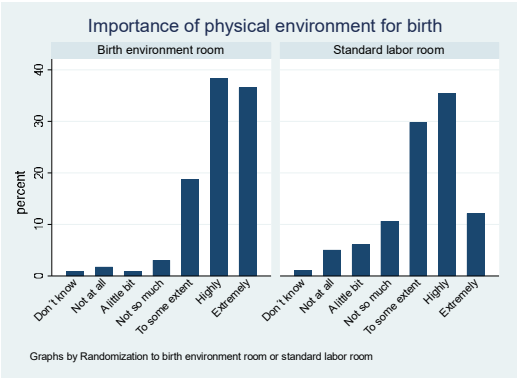

Appendix E: Søgestrategi

Litteratursøgningen var baseret på følgende søgespørgsmål:

Hvordan oplever kvinder og deres partnere fødslen, når de føder på en fødemiljøstue i forhold til når de føder på en almindelig fødestue?

Som hjælp til at strukturere søgningen blev konceptualiseringsmodellen PICO anvendt. PICO er et akronym, der beskriver 4 elementer af et klinisk spørgsmål: Patient, intervention, comparison og outcome (32)[4]. Nedenfor ses modellen med nærværende søgespørgsmål.

Patient: Den fødende

Intervention: Fødsel på fødemiljøstue

Comparison: Fødsel på standard fødestue

Outcome: Fødselsoplevelse

Med afsæt i denne model blev der udarbejdet en fokusliste, der er bygget op om de centrale begreber i søgespørgsmålet således, at det begreb som er mest centralt for søgespørgsmålet, blev fokus 1. Den overordnede søgestrategi var bloksøgning, hvor de 4 fokus fra fokuslisten blev kombineret ved at sætte den boolske operator "AND" mellem fokusområderne. Derudover blev der tilføjet søgefilter, så kun artikler skrevet på engelsk, dansk, svensk og norsk blev inkluderet i søgningen, mens studier fra Afrika og Asien blev ekskluderet under udvælgelsen af de relevante artikler. Søgningen blev foretaget d. 14. februar 2020 og gentaget d. 25. juni 2020 for at sikre, at eventuelle nye artikler blev inkluderet. Der blev søgt i tre søgemaskine som beskrevet nedenfor.

Pubmed:

Pubmed er en stor database med mere end 30 millioner referencer og abstracts hovedsageligt indenfor det biomedicinske og sundhedsvidenskabelige område (33). Søgningen med kombination af alle 4 fokus resulterede i 250 hits, som blev gennemgået og sorteret i 3 grupper: En relevant, en måske relevant og en ikke-relevant gruppe. De måske relevante artikler blev herefter gennemgået på abstract og delt i relevante eller ikke relevante artikler. De relevante blev

[4] Referencer i dette bilag fremgår af referencelisten til "Uddybelse af den videnskabelige artikel".

afslutningsvist læst igennem for at sikre, at de var relevante. Af de 250 hits blev der fundet var 17 relevante artikler.

Tabel 9 Søgeprofil Pubmed

Fokus 1 Fødemiljøstue	Fokus 2 Fødselsoplevelsen	Fokus 3 Den fødende	Fokus 4 Standard fødestue
Birth environment room	Birth experience	Give birth	Standard labour room
Labour environment room	Personal satisfaction (MeSH)	Parturient	Delivery room
Environmental delivery room	Experience of birth	In labour	Delivery rooms (MeSH)
Environmental maternity ward	Feelings about birth	About to give birth	Maternity ward
Multi-sensory room	Birth reflections	Birth	
Multi-sensory environment	Birth satisfaction	During birth	
Snoezelen room	Satisfaction of care	Giving birth	
Snoezelen environment	Experience of care	Labouring women	
Environmental design (MeSH)		Labour	
Built environment (MeSH)		Childbirth	
73097 Hits	253506 Hits	1556001 Hits	19389 Hits

Cinahl:

Cinahl indeholder referencer fra mere end 900 tidsskrifter. En del af disse er ikke registreret i Medline, og og kommer derfor ikke frem ved søgninger i Pubmed (34). Cinahl dækker hovedsageligt det sygeplejevidenskabelige område. I Cinahl blev kun de to vigtigste fokus kombinerede, da dette resulterede i 87 hits. Disse blev gennemgået på samme måde som søgeresultatet i Pubmed blev, og der blev fundet 10 relevante artikler, hvoraf 4 også var i søgningen fra Pubmed.

Tabel 10 Søgeprofil Cinahl

Fokus 1 Fødemiljøstue	Fokus 2 Fødselsoplevelse	Fokus 3 Den fødende	Fokus 4 Standard fødestue
Birth environment room	Birth experience		
Labour environment room	Experience of birth		
Environmental delivery room	Feelings about birth		
Snoezelen environment	Birth reflections		
Snoezelen	Birth satisfaction		
Snoezelen room	Satisfaction of care		
Multi-sensory room	Experience of care		
Multi-sensory environment			
628 Hits	54375 Hits		

Referencelisterne på de 23 relevante artikler blev gennemgået, hvilket resulterede i yderligere 1 relevant artikel (35).

Scopus:

Den 7. maj 2020 blev søgningen suppleret med en søgning i Scopus, som er den største reference og abstract database af peer-reviewed litteratur (36). Den dækker hovedsageligt emner indenfor naturvidenskab, medicin og teknologi og indeholder mange kvalitative studier, hvilket gør den relevant her, da fødselsoplevelsen er et emne, som ofte er blevet belyst med en kvalitativ tilgang. I denne søgning blev kun de 3 første fokus kombineret, og dette resulterede i 160 hits, som bidrog med yderligere en relevant artikel (7).

Tabel 11 Søgeprofil Scopus

Fokus 1 Fødemiljøstue	Fokus 2 Fødselsoplevelse	Fokus 3 Den fødende	Fokus 4 Standard fødestue
”Birth environment room”	Birth experience	”Obstetric Labor”	
”Labour environment room”	Personal satisfaction (MeSH)	Parturient	
”Environmental delivery room”	Experience	”In labour”	
”Environmental maternity ward”	Feelings	Childbirth	
Snoezelen	Reflections	Birth	
”Birth settings”	Satisfaction	Parturitions	
”birthplace settings”	Emotions	Giving birth	
”Alternative birth centers”	Stress	”Labouring women”	
	Perception	Childbirth	
602 Hits	6.104.454 Hits	560.977 Hits	

I alt resulterede søgningen dermed i 25 relevante artikler, som blev læst igennem som baggrundsviden. Da søgningen blev gentaget d. 25. juni 2020, blev der fundet yderligere 1 relevant artikel (37), som dog ikke ledte til nye konklusioner.

Aims and scope

BMC Pregnancy & Childbirth is an open access, peer-reviewed journal that considers articles on all aspects of pregnancy and childbirth. The journal welcomes submissions on the biomedical aspects of pregnancy, breastfeeding, labor, maternal health, maternity care, trends and sociological aspects of pregnancy and childbirth.

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    - or for non-clinical or non-research studies a description of what the article reports
- list the full names and institutional addresses for all authors
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- **Methods:** how the study was performed and statistical tests used
- **Results:** the main findings
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The Background section should explain the background to the study, its aims, a summary of the existing literature and why this study was necessary or its contribution to the field.

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The methods section should include:

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- a clear description of all processes, interventions and comparisons. Generic drug names should generally be used. When proprietary brands are used in research, include the brand names in parentheses
- the type of statistical analysis used, including a power calculation if appropriate

Results

This should include the findings of the study including, if appropriate, results of statistical analysis which must be included either in the text or as tables and figures.

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Conclusions

This should state clearly the main conclusions and provide an explanation of the importance and relevance of the study reported.

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If abbreviations are used in the text they should be defined in the text at first use, and a list of abbreviations should be provided.

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- Consent for publication
- Availability of data and materials
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- Authors' contributions
- Acknowledgements
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- All data generated or analysed during this study are included in this published article [and its supplementary information files].
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Online database

Healthwise Knowledgebase. US Pharmacopeia, Rockville. 1998. http://www.healthwise.org. Accessed 21 Sept 1998.

Supplementary material/private homepage

Doe J. Title of supplementary material. 2000. http://www.privatehomepage.com. Accessed 22 Feb 2000.

University site

Doe, J: Title of preprint. http://www.uni-heidelberg.de/mydata.html (1999). Accessed 25 Dec 1999.

FTP site

Doe, J: Trivial HTTP, RFC2169. ftp://ftp.isi.edu/in-notes/rfc2169.txt (1999). Accessed 12 Nov 1999.

Organization site

ISSN International Centre: The ISSN register. http://www.issn.org (2006). Accessed 20 Feb 2007.

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"The dataset(s) supporting the conclusions of this article is(are) available in the [repository name] repository, [unique persistent identifier and hyperlink to dataset(s) in http:// format]."

The following format is required when data are included as additional files:

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- Archived version: DOI or unique identifier of archived software or code in repository (e.g. enodo)
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References

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Please check the submission guidelines for the relevant journal and article type.

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Preparing tables

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- Tables should be numbered and cited in the text in sequence using Arabic numerals (i.e. Table 1, Table 2 etc.).
- Tables less than one A4 or Letter page in length can be placed in the appropriate location within the manuscript.
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- Larger datasets, or tables too wide for A4 or Letter landscape page can be uploaded as additional files. Please see [below] for more information.
- Tabular data provided as additional files can be uploaded as an Excel spreadsheet (.xls) or comma separated values (.csv). Please use the standard file extensions.
- Table titles (max 15 words) should be included above the table, and legends (max 300 words) should be included underneath the table.
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Preparing additional files

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