Birth Centre Care in the Netherlands: added value?!

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Chapter 08

Experiences of women who planned birth in a birth centre compared to alternative planned places of birth.

Results of the Dutch Birth Centre Study

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Abstract

Objective To assess the experiences with maternity care of women who planned birth in a birth centre and to compare them to alternative planned places of birth, by using the responsiveness concept of the World Health Organization.

Design This study is a cross-sectional study using the ReproQ questionnaire filled out eight to ten weeks after birth. The primary outcome was responsiveness of birth care. Secondary outcomes included overall grades for birth care and experiences with the birth centre services. Regression analyses were performed to compare experiences among the planned places of birth. The study is part of the Dutch Birth Centre Study.

Setting The women were recruited by 82 midwifery practices in the Netherlands, within the study period 1 August 2013 and 31 December 2013.

Participants A total of 2162 women gave written consent to receive the questionnaire and 1181 (54.6%) women completed the questionnaire.

Measurements and findings Women who planned to give birth in a birth centre:

1) had similar experiences as the women who planned to give birth in a hospital receiving care of a community midwife.
2) had significantly less favourable experiences than the women who planned to give birth at home. Differences during birth were seen on the domains dignity (OR=1.58, 95% CI=1.09-2.27) and autonomy (OR=1.77, 95% CI=1.25-2.51), during the postpartum period on the domains social considerations (OR=1.54, 95% CI=1.06-2.25) and choice and continuity (OR=1.43, 95% CI=1.00-2.03).
3) had significantly better experiences than the women who planned to give birth in a hospital under supervision of an obstetrician. Differences during birth were seen on the domains dignity (OR=0.51, 95% CI=0.31-0.81), autonomy (OR=0.59, 95% CI=0.35-1.00), confidentiality (OR=0.57, 95% CI=0.36-0.92) and social considerations (OR=0.47, 95% CI=0.28-0.79). During the postpartum period differences were seen on the domains dignity (OR=0.61, 95% CI=0.38-0.98), autonomy (OR=0.52, 95% CI=0.31-0.85) and basic amenities (OR=0.52, 95% CI=0.30-0.88). More than 80% of the women who received care in a birth centre rated the facilities, the moment of arrival/departure and the continuity in the birth centre as good.

Key conclusions and implications for practice In the last decades, many birth centres have been established in different countries, including the United Kingdom, Australia, Sweden and the Netherlands. For women who do not want to give birth at home a birth centre is a good choice: it leads to similar experiences as a planned hospital birth. Emphasis should be placed on ways to improve autonomy and prompt attention for women who plan to give birth in a birth centre as well as on the improvement of care in case of a referral.

Introduction

Traditionally, the quality of maternity care is described in terms of perinatal morbidity and mortality outcomes. Currently, other aspects of health care, such as client experiences, are important as well, also in terms of their potential to affect clinical outcomes (1-4). The Dutch maternity care system is often set as an example to learn from, because of its high home birth rate, its low number of obstetric interventions and a consequence, low cost and yet high assumed health outcomes (5-9). In the Netherlands, the quality of care experienced by women during the maternity care process in general is high (10).

The Dutch maternity care system is based on primary care provided by independent community midwives caring for women with a 'normal', uncomplicated, or low-risk pregnancy. Obstetricians provide in-hospital secondary care for women with a complicated, or high-risk pregnancy or birth. When a complication occurs or the risk of a complication increases substantially during pregnancy or during labour, or when pharmacological pain relief is requested, a woman will be referred from primary to secondary care. For women who were referred to secondary care before the 36th week of pregnancy, their planned place of birth will by necessity be in a hospital, under supervision of an obstetrician. Low-risk women can choose where they want to give birth: in a birth centre, in hospital or at home, all receiving care from a community midwife. Dutch birth centres have been established in the last decade to accommodate the growing number of low-risk women who do not want to give birth at home. A birth centre is a setting where women with uncomplicated pregnancies can give birth in a home-like environment (11).

Several international studies have explored the influences of the birth settings on the experience of women. A randomized, controlled trial in Sweden showed that lowrisk women giving birth in a birth centre expressed greater satisfaction with care than women who gave birth in a hospital (12). A study in Australia showed that a birth centre setting ensured that women received personalised, genuine care that transcended the entire childbearing continuum (13). Differences in philosophy between hospital and birth centre settings is seen as an important component of care experiences (14). It is also known that women who have given birth in a specific birth centre were less satisfied than those who have given birth at home (15). In Australia, women giving birth at home rated their midwives higher than women giving birth at a hospital, with women giving birth in a birth centre generally scoring between the other two groups (16).

Currently we know very little of how women who planned to give birth in a birth centre experienced their care in the Netherlands. There is no study available that compares the experiences in birth centres with other birth settings in the Netherlands. Therefore, the aim of this study was to assess the experiences with maternity care of women who

planned birth in a birth centre and to compare them to alternative planned places of birth, by using the responsiveness concept of the World Health Organization. The World Health Organization introduced the concept of responsiveness as one of the available approaches to address service quality in an internationally comparable way (17). The concept offers the opportunity to capture client's experiences on eight predefined domains. Responsiveness is defined as aspects of the way individuals are treated and the environment in which they are treated during health system interactions (18, 19). The concept has been applied in the Dutch maternity care a few times before (20, 21).

This research is part of the Dutch Birth Centre Study (22). This national project evaluates the effect of Dutch birth centres on aspects such as client and partner experiences, process and outcome variables, costs and professional experiences.

Methods

Setting

The study was designed as a cross-sectional study. A minimum of three midwifery practices working in the area of each of the 23 birth centres included in the Dutch Birth Centre Study, were randomly recruited. This resulted in the participation of 82 midwifery practices. During the study period from 1 August to 31 December 2013 these 82 midwifery practices recruited women for participation. The midwifery practices varied in size and were located all over the country.

Data collection

Almost all women in the Netherlands, including women who gave birth under responsibility of an obstetrician, receive postpartum care from community midwives. During the data collection period, the community midwives of the 82 practices asked the women who received postpartum care for permission to send them a questionnaire. In this way, data were obtained from women with different planned places of birth: in a birth centre, in a hospital, or at home and under care of a midwife or an obstetrician. Excluded were women who could not read or speak Dutch and women with no specific preference for a place of birth. A total of 2162 women gave written consent either to receive the questionnaire through e-mail, as a hard-copy or to have an interview by phone. We explicitly tried to include women from different backgrounds, by giving the choice of an interview by phone. The women completed the questionnaire around eight to ten weeks after birth. A reminder was sent two weeks later, when needed.

Questionnaire

The ReproQ is a two-part questionnaire (part 1 prenatal, part 2 postnatal) and was developed to assess the responsiveness of the maternity care system in the Netherlands by evaluating client experiences. Responsiveness is defined as 'aspects of the way individuals are treated and the environment in which they are treated during health system interactions' (21). The postnatal part of the ReproQ was used in this study and includes two reference periods: the event of labour and birth and the subsequent postpartum week. The questionnaire consists of the following components: 1) questions about the process of care, including referral or emergency situations, 2) a question about the grade of overall experience during birth and the postpartum period, 3) questions about the eight domains of the WHO concept of responsiveness, 4) questions including experienced health outcomes, 5) the individual ranking of the various domains of responsiveness according to their importance and 6) the respondent's socio-demographic characteristics. For this study, questions about facilities (e.g. homelike environment, hotel service and bath) and transfers (e.g. change of caregiver and change of room) were included for women who received care in a birth centre.

The responsiveness concept is described to consist of eight domains: 1) dignity, 2) autonomy, 3) confidentiality, 4) communication, 5) prompt attention), 6) social consideration, 7) basic amenities and 8) choice and continuity. Each domain consists of several items, see Table 1.

The questions could be answered on a four-point scale with the values: always (4), mostly (3), sometimes (2) and never (1) (17). An average score per domain was computed this way. The questionnaire avoids any implicit or explicit preference towards the providers or the organizational structures, leaving room to compare different organizational structures and different levels of care (21).

Data handling

Questionnaires were excluded if more than 50% of the answers were missing in two or more domains. The client experiences were compared according to the women's planned place of birth. The information was based on the place of birth as it was planned one month before the birth, as recorded in the questionnaire. Subgroup analyses were performed for women referred to secondary care during birth and women who were not referred.

Data analysis

The basic characteristics of our respondents were compared with the characteristics of all the women receiving postpartum care of a participating midwife, the reference group. Therefore, data of all births occurring in the midwifery practices that participated in our study between August 2013 and December 2013 were derived from the

Table 1 • Items covered by the eight responsiveness domains

Domain	Item
Dignity	Respecting privacy
	Treating with respect
	Giving personal attention
	Treating with kindness
	Considering personal wishes regarding birth
	Trustworthy as health professional
Autonomy	Involving client in decision-making
	Acceptance of treatment refusal
	Involving client in decision-making on pain relief
	Involving client in decision-making on setting of birth
Confidentiality	Provision of medical information to family members after consent
	Discussing the medical situation without others hearing it
	Secured provision of medical information to others
Communication	Responsive to client questions
	Consistency of advice across professionals
	Comprehensibility of explanation
	Provision of information while treated
Prompt attention	Access for contact in urgent situations
	Access for contact without urgency
	Waiting time for service
	Availability of maternity care assistance
	Physical accessibility of setting
	Prompt phone response of health professional
Social consideration	Involvement of the partner or family in care provision
	Attention for family and household
	Support from partner or family
Basic amenities	Comfort of setting
	Hygiene of setting
	Physical accessibility of places (e.g. room and bathroom)
Choice and continuity	Continuity of care provision when change of individual professional (same discipline)
	Continuity of care provision when change professional (across disciplines)
	Allowance for selecting a preferred type of health professional
	Being explicit on which health professional is actual in charge

Netherlands Perinatal Registry (PRN-foundation). This PRN-foundation is a joint effort of four professions (midwives, general practitioners, obstetricians and paediatricians) that provide perinatal care in the Netherlands. All these professions have their own volunteer-based medical registries, which are linked to one combined PRN-registry (23).

Univariate analyses were carried out using the chi-square test and the Fisher's exact test for categorical factors and a one-way analysis of variance was carried out for continuous-characteristics. The mean and median grade (on a 10-point scale), including the 25th and 75th percentile, of the experience of overall care were calculated according to the planned place of birth.

Logistic regression analyses were performed with the responsiveness outcomes as dependent variables (optimal=4 and non-optimal<4) and with the planned place of birth as independent variable. We adjusted for the basic characteristics that differed among the groups: parity, education and ethnicity. The birth centre group was used as

reference. P values less than 0.05 (two-sided) were considered statistically significant.

Descriptive analyses were performed on the additional questions about the birth centre services. The questions were filled out only by women who received care in a birth centre. The analyses were performed with SPSS 21.0 (24).

Ethical considerations

The design and planning of the study were presented to the Medical Ethics Committee of the University Medical Centre Utrecht. They confirmed that this study agrees with the Dutch legal regulations in terms of the methods used in this study and, therefore, an official ethical approval is not required (25). To invite the clients for participation in this study, permission from the midwifery practices was obtained. Informative letters to the clients were given by the midwifery practices directly. The letter clearly explained that if a client did not want to participate, she was not obligated to do so and this would not affect her care process. By signing the letter, clients consented either to receive the questionnaire digitally, as a hard-copy or to have an interview by phone.

Results

Study population

A total of 2162 women gave permission to receive the questionnaire; 1654 (76.5%) by e-mail, 464 (21.5%) by post and 44 (2.0%) women wanted to be interviewed by phone. We received 1181 completed questionnaires (including interviews by phone), with a total response rate of 54.6%. Forty-seven questionnaires were excluded, leading to 1134 questionnaires available for the analysis: 263 with a planned birth centre birth, 350 with

a planned home birth, 262 with a planned hospital birth under care of a community midwife and 115 with a planned hospital birth under supervision of an obstetrician.

Table 2 shows the characteristics of the participants and the reference group. No differences were found in parity and referral during birth between the respondents and the total group of women who gave birth in one of the participating midwifery practices. However, the respondents were significantly older, had a higher SES score, were more often of Dutch origin, were more often under supervision of the midwife at the start of labour and the respondents received less often an intervention during birth, compared to the reference group.

Table 2 • Characteristics of the respondents and the reference group

Characteristics	Participants (n = 1081) No. (%)	Reference group (n = 61169) No. (%)
Age*		
≤ 25	56 (5.6)	9204 (15.1)
26 - 35	736 (73.2)	42516 (69.6)
≥ 36	213 (21.2)	9322 (15.3)
Parity		
primiparous	490 (47.9)	28160 (46.1)
multiparous	532 (52.1)	32971 (53.9)
SES*		
low	70 (6.5)	10342 (16.9)
middle	807 (74.7)	41395 (67.7)
high	204 (18.9)	9432 (15.4)
Ethnicity*		
Dutch	921 (91.7)	46280 (78.1)
non-Dutch	83 (8.3)	12981 (21.9)
Start birth*		
midwife supervision	880 (82.1)	35288 (57.7)
obstetrician supervision	192 (17.9)	25881 (42.3)
Referral during birth		
no	815 (76.6)	46258 (75.6)
yes	249 (23.4)	14903 (24.4)
Interventions*		
no vacuum/forceps or section caesarean	928 (86.0)	47144 (77.1)
vacuum extraction/forceps	98 (9.1)	4852 (7.9)
section caesarean	53 (4.9)	9173 (15.0)

* p-value <0.05 (chi-square test)

Table 3 • Respondent's characteristics according to planned place of birth

	Community midwife			Obstetrician	
	Birth centre (n = 263)¥ No. (%)	**Hospital** (n = 262)¥ No. (%)	**Home** (n = 350)¥ No. (%)	**Hospital** (n = 115)¥ No. (%)	**Total** (n = 990)¥ No. (%)
Age					
≤ 25	12 (4.6)	14 (5.8)	21 (6.5)	3 (2.7)	50 (5.3)
26 - 35	195 (75.0)	174 (72.5)	238 (73.2)	76 (69.1)	683 (73.1)
≥ 36	53 (20.4)	52 (21.7)	66 (20.3)	31 (28.2)	202 (21.6)
Parity*					
primiparous	154 (58.8)	113 (46.5)	126 (38.0)	47 (42.3)	440 (46.4)
multiparous	108 (41.2)	130 (53.5)	206 (62.0)	64 (57.7)	508 (53.6)
Education*					
low	16 (6.1)	14 (6.0)	26 (8.0)	10 (9.4)	66 (7.1)
middle	64 (24.4)	72 (30.9)	120 (36.9)	35 (33.0)	291 (31.4)
high	182 (69.5)	147 (63.1)	179 (55.1)	61 (57.5)	569 (61.4)
Ethnicity*					
Dutch	247 (93.9)	203 (84.6)	312 (96.3)	93 (85.3)	855 (91.3)
non-Dutch	16 (6.1)	37 (15.4)	12 (3.7)	16 (14.7)	81 (8.7)
Actual place of birth**					
birth centre	128 (48.7)	6 (2.3)	4 (1.1)	0 (0.0)	138 (13.9)
home	18 (6.8)	26 (9.9)	232 (66.3)	0 (0.0)	276 (27.9)
hospital, under care of a midwife	7 (2.7)	137 (52.3)	20 (5.7)	0 (0.0)	164 (16.6)
hospital, under supervision of an obstetrician	107 (40.7)	91 (34.7)	90 (25.7)	114 (99.1)	402 (40.7)
unknown	3 (1.1)	2 (0.8)	4 (1.1)	1 (0.9)	10 (1.0)

Table 3 • Continued Respondent's characteristics according to planned place of birth

	Community midwife			Obstetrician	
	Birth centre (n = 263)¥ No. (%)	**Hospital** (n = 262)¥ No. (%)	**Home** (n = 350)¥ No. (%)	**Hospital** (n = 115)¥ No. (%)	**Total** (n = 990)¥ No. (%)
Experienced health mother in general					
poor/moderate	9 (3.4)	6 (2.5)	6 (1.8)	8 (7.2)	29 (3.1)
good	76 (28.9)	67 (27.5)	84 (25.5)	42 (37.8)	269 (28.4)
very good	100 (38.0)	101 (41.4)	138 (41.8)	35 (31.5)	374 (39.5)
excellent	78 (29.7)	70 (28.7)	102 (30.9)	26 (23.4)	276 (29.1)
Experienced health mother after birth					
healthy	172 (65.4)	182 (69.7)	254 (72.8)	67 (58.3)	675 (68.3)
small problems	77 (29.3)	67 (25.7)	82 (23.5)	39 (33.9)	265 (26.8)
big problems/problems, impact unclear	14 (5.3)	12 (4.5)	13 (3.8)	9 (7.8)	48 (4.9)
Experienced health baby after birth					
healthy	**229 (87.4)**	**229 (87.4)**	**318 (91.4)**	**93 (80.9)**	**869 (88.0)**
small problems	29 (11.1)	25 (9.5)	22 (6.3)	20 (17.4)	96 (9.7)
big problems/problems, impact unclear	4 (1.6)	8 (3.1)	8 (2.3)	2 (1.8)	22 (2.2)
Hospital admission of the child after birth*					
no	188 (72.3)	196 (74.8)	304 (87.4)	58 (50.9)	746 (75.8)
yes, at the maternity ward	63 (24.2)	58 (22.1)	38 (10.9)	41 (36.0)	200 (20.3)
yes, high care	9 (3.5)	8 (3.1)	6 (1.7)	15 (13.2)	38 (3.9)

* p-value <0.05 (chi-square test/Fisher's test)
** p-value <0.05 (statistical test are performed on expected place is equal to the final place of birth; hospital births under supervision of an obstetrician and unknown groups are excluded)
¥ numbers are varying between characteristics due to missing data

Table 3 shows the characteristics of the respondents according to their planned place of birth. The women who planned to give birth in a birth centre were more often primiparous and highly educated compared to the women who planned to give birth under care of a community midwife in a hospital, at home or under supervision of an obstetrician in a hospital. The women who planned to give birth in a birth centre or at home were more often of Dutch origin compared to the women who planned to give birth in a hospital (under care of a community midwife or of an obstetrician).

Grades for experiences during birth and the postpartum period

In general, the mean and median grades of experiences during birth and the postpartum period (adjusted for parity, education and ethnicity) were quite similar within each planned places of birth. The mean grades for the planned place of birth were 8.4 (SD=1.3) in a birth centre, 8.4 (SD=1.3) i a hospital under care of a community midwife, 8.7 (SD=1.3) at home and 8.0 (SD=1.6) in a hospital under supervision of an obstetrician. The mean grade for the planned place of birth in a birth centre was significantly ($p<0.05$) higher than the mean grade for the planned place of birth in a hospital under supervision of an obstetrician. The median grades were respectively 9, 8, 9 and 8.

Responsiveness outcomes

Table 4 shows the crude and adjusted odds ratios (ORs) for each domain of responsiveness during birth and the postpartum period, according to the planned place of birth. We adjusted for parity, education and ethnicity, with the birth centre group as reference.

Among all the domains, the domains 'social considerations' and 'basic amenities' performed the best, followed by the domains 'dignity', 'confidentiality' and 'choice and continuity'. The last domains were the domains 'autonomy', 'communication' and 'prompt attention'.

No significant differences were found between the birth centre group and the hospital group under care of a community midwife.

The women who planned to give birth in a birth centre scored significantly lower on responsiveness than the women who planned to give birth at home.

A significantly higher score on the domains 'dignity' ($p<0.05$) and 'autonomy' ($p<0.001$) during birth was found for the women who planned to give birth at home. They also reported a significantly higher score on the domains 'social consideration' ($p<0.05$) and 'choice and continuity' ($p<0.05$) during the postpartum period, compared to the birth centre group.

The women who planned to give birth in a birth centre reported a significantly higher score on 'dignity' ($p<0.01$), 'autonomy' ($p<0.05$), 'confidentiality' ($p<0.05$) and 'social considerations' ($p<0.01$) during birth compared to the hospital group under

supervision of an obstetrician. They also reported a significantly higher score on 'dignity' ($p<0.05$), 'autonomy' ($p<0.01$) and 'basic amenities' ($p<0.05$) in the postpartum period.

Referrals

Table 5 shows the adjusted odds ratios of the referred and non-referred group for each domain of responsiveness during birth and the postpartum period. The reported scores were higher for the women who were not referred. The women who planned to give birth in a birth centre and who were not referred reported a significantly higher score during birth on all the domains except for 'confidentiality', compared to the referred women in this group. The non-referred women reported also a significantly higher score on 'dignity' ($p<0.05$), 'prompt attention' ($p<0.001$) and 'basic amenities' ($p<0.05$) in the postpartum period.

The women who planned to give birth under care of a community midwife in a hospital and were not referred reported a significantly higher score on all domains during birth except 'basic amenities', compared to the referred women in this group. Their score during the postpartum period was also significantly higher on the domains 'autonomy' ($p<0.01$) and 'basic amenities' ($p<0.05$) compared to the referred women in this group.The women who planned to give birth at home and were not referred reported a significantly higher score on all the domains except 'basic amenities' during birth and only on 'dignity' ($p<0.05$) in the postpartum period, compared to the referred women.

For the women who planned to give birth in a hospital under supervision of an obstetrician no distinction between referred or not referred can be made, because they all have been referred during pregnancy

Birth centre services

Table 6 shows the experiences of the respondents with the birth centre services. Most of the women who received care in a birth centre assessed the homelike environment (81.3%), hotel service (84.2%) and bath (94.8%) as good. More than 40% of the women reported that they did not use wireless internet although it was available.

Almost all the women (93.0%) reported that the birth centre experiences met their expectations. 84.9% of the women arrived and 84.7% of the women left the birth centre on their preferred time. However, 13.6% of the women preferred to arrive earlier. Most of the women who were referred from a birth centre to the obstetric unit did not evaluate the change of room (81.5%) or caregiver (81.8%) as a problem. None of the women who stayed postpartum in the same room as during birth found it a problem. As few as 8.6% of the women evaluated the postpartum stay in a different room as a small problem.

Table 4 • Responsiveness outcomes according to planned place of birth

	Under care of a community midwife						
	Birth centre (REF) (n = 263) No. (%)		**Hospital** (n = 262) No. (%)				
Responsiveness during birth	**optimal**	**non-optimal**	**optimal**	**non-optimal**	**CRUDE OR**	**Adj OR**	**95% CI**
Dignity	163 (62.0)	100 (38.0)	165 (63.0)	97 (37.0)	1.04	0.94	0.65-1.37
Autonomy	92 (36.2)	162 (63.8)	104 (41.3)	148 (58.7)	1.24	1.11	0.76-1.61
Confidentiality	180 (69.8)	78 (30.2)	170 (67.7)	81 (32.3)	0.91	0.84	0.57-1.25
Communication	145 (55.3)	117 (44.7)	131 (52.0)	121 (48.0)	0.87	0.79	0.55-1.14
Prompt attention	145 (55.1)	118 (44.9)	139 (55.4)	112 (44.6)	1.01	0.99	0.69-1.42
Social considerations	212 (80.6)	51 (19.4)	187 (74.8)	63 (25.2)	0.71	0.70	0.45-1.08
Basic Amenities	215 (82.1)	47 (17.9)	189 (76.2)	59 (23.8)	0.70	0.68	0.44-1.07
Choice and Continuity	159 (60.7)	103 (39.3)	157 (64.1)	88 (35.9)	1.16	1.08	0.74-1.57
Responsiveness postpartum	**optimal**	**non-optimal**	**optimal**	**non-optimal**	**CRUDE OR**	**Adj OR**	**95% CI**
Dignity	169 (64.3)	94 (35.7)	165 (63.0)	97 (37.0)	0.95	0.93	0.64-1.35
Autonomy	196 (76.6)	60 (23.4)	176 (70.4)	74 (29.6)	0.73	0.71	0.47-1.07
Confidentiality	174 (67.4)	84 (32.6)	154 (61.1)	98 (38.9)	0.76	0.76	0.53-1.11
Communication	96 (36.6)	166 (63.4)	108 (42.9)	144 (57.1)	1.30	1.19	0.83-1.73
Prompt attention	158 (60.1)	105 (39.9)	137 (54.6)	114 (45.4)	0.80	0.81	0.56-1.16
Social considerations	179 (68.1)	84 (31.9)	162 (65.1)	87 (34.9)	0.87	0.83	0.57-1.22
Basic Amenities	208 (80.6)	50 (19.4)	197 (81.1)	46 (18.9)	1.03	1.02	0.65-1.63
Choice and Continuity	156 (59.5)	106 (40.5)	156 (63.7)	89 (36.3)	1.19	1.19	0.82-1.72

Birth centre as reference and adjusted for parity, education and ethnicity
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Under care of a community midwife					Under supervision of an obstetrician				
Home (n = 350) No. (%)					**Hospital** (n = 115) No. (%)				
optimal	**non-optimal**	**CRUDE OR**	**Adj OR**	**95% CI**	**optimal**	**non-optimal**	**CRUDE OR**	**Adj OR**	**95% CI**
265 (75.7)	85 (24.3)	1.91	1.58*	1.09-2.27	56 (48.7)	59 (51.3)	0.58	0.51**	0.32-0.81
182 (53.5)	158 (46.5)	2.03	1.77***	1.25-2.51	30 (28.6)	75 (71.4)	0.70	0.59*	0.35-1.00
244 (71.3)	98 (28.7)	1.08	1.08	0.75-1.57	65 (58.6)	46 (41.4)	0.61	0.57*	0.36-0.92
200 (58.8)	140 (41.2)	1.15	1.05	0.75-1.48	55 (49.1)	57 (50.9)	0.78	0.71	0.45-1.13
218 (65.1)	117 (34.9)	1.52	1.37	0.97-1.93	55 (49.1)	57 (50.9)	0.79	0.70	0.44-1.11
276 (82.9)	57 (17.1)	1.17	1.16	0.76-1.79	76 (67.3)	37 (32.7)	0.49	0.47**	0.28-0.79
278 (84.5)	51 (15.5)	1.19	1.21	0.77-1.90	83 (73.5)	30 (26.5)	0.61	0.60	0.35-1.04
221 (67.8)	105 (32.2)	1.36	1.16	0.81-1.64	59 (52.7)	53 (47.3)	0.72	0.65	0.41-1.04
optimal	**non-optimal**	**CRUDE OR**	**Adj OR**	**95% CI**	**optimal**	**non-optimal**	**CRUDE OR**	**Adj OR**	**95% CI**
254 (73.0)	94 (27.0)	1.50	1.37	0.95-1.97	61 (53.0)	54 (47.0)	0.63	0.61*	0.38-0.98
270 (80.6)	65 (19.4)	1.27	1.20	0.80-1.82	72 (64.3)	40 (35.7)	0.55	0.52**	0.31-0.85
239 (69.3)	106 (30.7)	1.09	1.09	0.76-1.56	71 (63.4)	41 (36.6)	0.84	0.82	0.51-1.32
155 (45.5)	186 (54.5)	1.44	1.28	0.91-1.80	49 (43.4)	64 (56.6)	1.32	1.24	0.78-1.98
223 (66.6)	112 (33.4)	1.32	1.22	0.86-1.73	57 (50.4)	56 (49.6)	0.68	0.65	0.41-1.03
253 (76.0)	80 (24.0)	1.48	1.54*	1.06-2.25	73 (64.6)	40 (35.4)	0.86	0.88	0.54-1.43
267 (81.9)	59 (18.1)	1.09	1.02	0.66-1.58	78 (69.6)	34 (30.4)	0.55	0.52*	0.30-0.88
226 (69.3)	100 (30.7)	1.54	1.43*	1.00-2.03	57 (50.9)	55 (49.1)	0.70	0.72	0.46-1.15

Table 5 • Responsiveness outcomes according to planned place of birth for referred and non-referred women

	Under care of a community midwife **Birth centre**					
	non-referral (REF) (n = 177) No. (%)		referral (n = 83) No. (%)			
Responsiveness during birth	**optimal**	**non-optimal**	**optimal**	**non-optimal**	**Adj OR**	**95% CI**
Dignity	125 (70.6)	52 (29.4)	132 (67.3)	64 (32.7)	0.33***	0.19-0.58
Autonomy	74 (43.8)	95 (56.2)	86 (45.7)	102 (54.3)	0.38**	0.20-0.71
Confidentiality	126 (72.8)	47 (27.2)	138 (73.4)	50 (26.6)	0.66	0.37-1.17
Communication	108 (61.4)	68 (38.6)	108 (56.8)	82 (43.2)	0.52*	0.30-0.91
Prompt attention	108 (61.0)	69 (39.0)	117 (61.9)	72 (38.1)	0.51*	0.29-0.88
Social considerations	151 (85.3)	26 (14.7)	145 (77.1)	43 (22.9)	0.39**	0.20-0.75
Basic Amenities	152 (86.4)	24 (13.6)	142 (76.3)	44 (23.7)	0.44*	0.22-0.86
Choice and Continuity	125 (71.0)	51 (29.0)	132 (71.7)	52 (28.3)	0.26***	0.15-0.45
Responsiveness postpartum	**optimal**	**non-optimal**	**optimal**	**non-optimal**	**Adj OR**	**95% CI**
Dignity	122 (68.9)	55 (31.1)	131 (66.8)	65 (33.2)	0.48*	0.28-0.84
Autonomy	133 (78.2)	37 (21.8)	141 (75.0)	47 (25.0)	0.78	0.42-1.46
Confidentiality	119 (68.8)	54 (31.2)	121 (64.0)	68 (36.0)	0.80	0.45-1.41
Communication	70 (39.8)	106 (60.2)	82 (43.2)	108 (56.8)	0.73	0.41-1.30
Prompt attention	118 (66.7)	59 (33.3)	111 (58.7)	78 (41.3)	0.39***	0.22-0.68
Social considerations	119 (67.2)	58 (32.8)	123 (65.8)	64 (34.2)	0.88	0.49-1.58
Basic Amenities	144 (83.7)	28 (16.3)	154 (84.2)	29 (15.8)	0.49*	0.25-0.95
Choice and Continuity	108 (61.4)	68 (38.6)	123 (66.8)	61 (33.2)	0.80	0.46-1.39

Non-referral as reference and adjusted for parity, education and ethnicity
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5 • Continued Responsiveness outcomes according to planned place of birth for referred and non-referred women

	Under care of a community midwife **Hospital**					
	non-referral (REF) (n = 196) No. (%)		referral (n = 60) No. (%)			
Responsiveness during birth	**optimal**	**non-optimal**	**optimal**	**non-optimal**	**Adj OR**	**95% CI**
Dignity	132 (67.3)	64 (32.7)	29 (48.3)	31 (51.7)	0.51*	0.27-0.97
Autonomy	86 (45.7)	102 (54.3)	15 (25.9)	43 (74.1)	0.45*	0.22-0.94
Confidentiality	138 (73.4)	50 (26.6)	28 (49.1)	29 (50.9)	0.41**	0.21-0.78
Communication	108 (56.8)	82 (43.2)	19 (33.9)	37 (66.1)	0.48*	0.25-0.93
Prompt attention	117 (61.9)	72 (38.1)	19 (33.9)	37 (66.1)	0.32***	0.16-0.62
Social considerations	145 (77.1)	43 (22.9)	36 (64.3)	20 (35.7)	0.49*	0.25-0.97
Basic Amenities	142 (76.3)	44 (23.7)	43 (76.8)	13 (23.2)	0.90	0.43-1.87
Choice and Continuity	132 (71.7)	52 (28.3)	21 (38.2)	34 (61.8)	0.25***	0.13-0.48
Responsiveness postpartum	**optimal**	**non-optimal**	**optimal**	**non-optimal**	**Adj OR**	**95% CI**
Dignity	131 (66.8)	65 (33.2)	32 (53.3)	28 (46.7)	0.71	0.37-1.35
Autonomy	141 (75.0)	47 (25.0)	31 (55.4)	25 (44.6)	0.40**	0.20-0.80
Confidentiality	121 (64.0)	68 (36.0)	28 (49.1)	29 (50.9)	0.56	0.29-1.06
Communication	82 (43.2)	108 (56.8)	22 (39.3)	34 (60.7)	0.92	0.48-1.77
Prompt attention	111 (58.7)	78 (41.3)	23 (41.1)	33 (58.9)	0.54	0.28-1.02
Social considerations	123 (65.8)	64 (34.2)	35 (62.5)	21 (37.5)	0.83	0.43-1.60
Basic Amenities	154 (84.2)	29 (15.8)	39 (72.2)	15 (27.8)	0.42*	0.20-0.90
Choice and Continuity	123 (66.8)	61 (33.2)	29 (52.7)	26 (47.3)	0.56	0.30-1.07

Non-referral as reference and adjusted for parity, education and ethnicity
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5 • Continued Responsiveness outcomes according to planned place of birth and (non-)referral

	Under care of a community midwife **Home**					
	non-referral (REF) (n = 196) No. (%)		referral (n = 60) No. (%)			
Responsiveness during birth	**optimal**	**non-optimal**	**optimal**	**non-optimal**	**Adj OR**	**95% CI**
Dignity	230 (81.6)	52 (18.4)	31 (49.2)	32 (50.8)	0.20***	0.11-0.38
Autonomy	158 (57.2)	118 (42.8)	22 (36.7)	38 (63.3)	0.48*	0.26-0.90
Confidentiality	207 (74.5)	71 (25.5)	35 (57.4)	26 (42.6)	0.43**	0.23-0.79
Communication	176 (63.8)	100 (36.2)	22 (36.1)	39 (63.9)	0.34***	0.19-0.63
Prompt attention	189 (69.7)	82 (30.3)	26 (43.3)	34 (56.7)	0.32***	0.17-0.58
Social considerations	232 (85.9)	38 (14.1)	40 (67.8)	19 (32.2)	0.30***	0.15-0.58
Basic Amenities	229 (86.4)	36 (13.6)	46 (78.0)	13 (22.0)	0.55	0.26-1.16
Choice and Continuity	195 (73.9)	69 (26.1)	23 (39.0)	36 (61.0)	0.23***	0.12-0.42
Responsiveness postpartum	**optimal**	**non-optimal**	**optimal**	**non-optimal**	**Adj OR**	**95% CI**
Dignity	212 (75.4)	69 (24.6)	38 (61.3)	24 (38.7)	0.51*	0.28-0.95
Autonomy	220 (81.2)	51 (18.8)	47 (79.7)	12 (20.3)	0.97	0.46-2.06
Confidentiality	200 (71.7)	79 (28.3)	36 (59.0)	25 (41.0)	0.59	0.32-1.08
Communication	132 (47.8)	144 (52.2)	22 (36.7)	38 (63.3)	0.79	0.43-1.45
Prompt attention	186 (68.6)	85 (31.4)	34 (57.6)	25 (42.4)	0.63	0.34-1.15
Social considerations	207 (76.7)	63 (23.3)	42 (72.4)	16 (27.6)	0.62	0.32-1.20
Basic Amenities	214 (81.4)	49 (18.6)	49 (84.5)	9 (15.5)	1.29	0.56-2.96
Choice and Continuity	186 (70.7)	77 (29.3)	35 (60.3)	23 (39.7)	0.70	0.38-1.28

Non-referral as reference and adjusted for parity, education and ethnicity
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6 • Experiences with birth centre services

Facilities	**good**	**sufficient**	**insufficient**
Homelike environment	156 (81.3)	32 (16.7)	4 (2.1)
Hotel service	123 (84.2)	20 (13.7)	3 (2.1)
Bath	91 (94.8)	4 (4.2)	1 (1.0)
Expectations	**good**	**sufficient**	**insufficient**
Met	185 (93.0)	13 (6.5)	1 (0.5)
Moment	**on time**	**too late**	**too early**
Arrival	169 (84.9)	27 (13.6)	3 (1.5)
Departure	166 (84.7)	13 (8.7)	17 (6.6)
Continuity	**no problem**	**small problem**	**big problem**
Change of room in case of referral	44 (81.5)	9 (16.7)	1 (1.9)
Change of caregiver in case of referral	18 (81.8)	4 (18.2)	0 (0.0)
Postpartum stay in the same room as birth	32 (100.0)	0 (0.0)	0 (0.0)
Postpartum stay in different room as birth	32 (91.4)	3 (8.6)	0 (0.0)

Discussion

The aim of this study was to assess the experiences with maternity care of the women who planned birth in a birth centre compared to alternative planned places for child-birth, by using the responsiveness concept of the World Health Organization.

The women had, in general, good experiences during birth and the postpartum period. Women who planned to give birth in a birth centre reported similar experiences as those who planned to give birth at a hospital under care of a community midwife. Women who planned to give birth at home were most positive about their experiences and scored highest on the domains autonomy and prompt attention. A referral to secondary care had a negative effect on the experiences of women in all settings. Women who received care in a birth centre highly valued the facilities, moment of arrival/departure and continuity in a birth centre. In case of referral, the physical travel from the birth centre to the obstetric unit was not a problem for most of the women.

Strengths and limitations

This is the first study comparing the experiences of women who planned to give birth in a birth centre with that of women who planned to give birth in the three other settings in the Netherlands: under care of a community midwife in a hospital, at home and under supervision of an obstetrician in a hospital. The used questionnaire avoids any implicit

or explicit preference towards the providers or organizational structures, captures the client's actual experience and is unique in the coverage of the eight responsiveness domains. Therefore, we were able to evaluate the maternity care as a whole, with its different services, professionals and time windows. The experiences (positive and negative) are allocated to the entire maternity chain and not to a specific profession or person. In addition, the present study includes a nationwide approach and high coverage of Dutch birth centres.

The analyses were performed according to the women's planned place of birth. Our information was based on the place of birth which was planned one month before the birth. For women who were referred to secondary care before the 36th week of pregnancy, their planned place of birth will by necessity be in a hospital, under supervision of an obstetrician. In general, around 15% of the women are referred during pregnancy to the second echelon after the 36th week (23). In addition, some women are referred immediately at the onset of labour from home to the second echelon. Therefore, some of the women who planned to give birth under care of a community midwife in a birth centre or in a hospital have not actually been in these places or experienced these conditions. According to the 'intention to treat'-principle however, they should not be excluded from the analyses.

The women were asked to participate in the study by their own community midwife. Although we asked the midwife to invite every woman receiving postpartum care for participation, we have no information if this was done. Our response rate was 54.6%, which is a good response in itself but a selection bias might have occurred. We, therefore, compared the characteristics of the respondents with those of all the women who received postpartum care from the included midwifery practices. It appeared that the respondents have characteristics (older, higher educated, more often of Dutch origin and having less interventions during birth) that are associated with a more optimal birth experience, which may have positively influenced the results (20, 26, 27).

Interpreting the results

The women have, in general, good experiences during birth and the postpartum period. Another Dutch study showed that the quality of care experienced by low-risk women during the entire maternity care process is high (10). The few significant differences between the settings during birth are especially associated with the personal related domains (dignity, autonomy and confidentiality). In the postpartum period, the differences are more related to the setting related domains (social consideration, basic amenities and choice and continuity). Although most differences were not significant, the women in the birth centre group have on most of the domains slightly better experiences compared to the women in the hospital group under care of a community midwife. More than 80%

of the women who received care in a birth centre highly valued the facilities, the moment (on time) of arrival and departure and the continuity in the birth centre. This is in line with what several other international studies have found (12-14).

The women who planned to give birth at home have significantly better experiences than the group of women who planned to give birth in a birth centre. This is in line with what other international studies have found and can possibly be explained by the positive influence of the familiar environment at home (16, 28). Another study which compared the experiences of women giving birth in a birth centre and at home, did not find differences on overall satisfaction (15). That study included only one specific birth centre. We found that the women in the birth centre group have significantly better experiences than the group of women who planned to give birth under supervision of an obstetrician in a hospital. This is not surprising, since it is known that women who perceive no health problems for themselves or their baby have better experiences. The women giving birth in a hospital under supervision of an obstetrician are high-risk women and, therefore, probably more anxious or worried about their own or their baby's health (21).

Being referred during labour/birth has a negative influence on the experiences. This is in line with a study that found a significantly negative association between referral and the birth experience 10 days postpartum (29). Another study found referral as a significant risk factor for a negative recall of birth experience in women 3 years postpartum (30). And a cross-national study showed the negative influence of a referral as well (31). However, there is also a Dutch study which found no association between the referral and the experience of birth three weeks postpartum (32). Moreover, a physical transfer from the birth centre to the obstetric unit has shown not to be a problem for most of the women in this study.

Implications for practice

In the last decades, many birth centres have been established in different countries, including the United Kingdom, Australia, Sweden and the Netherlands. Although no significant differences were found between the experiences of women in the birth centre group and those in the hospital group under care of a community midwife, the following trend can be seen: the women in the birth centre group have on some domains slightly better experiences. Additionally, women highly valued the birth centre services. This should be considered in the further development of birth centres in the different countries. Given the result that the women who planned to give birth at home have better experiences than the women who planned to give birth in a birth centre, more emphasis may be put on the homelike environment in the birth centres. Being referred to secondary care has a negative effect on the experiences in all settings. Referrals cannot

always be prevented, but one possible solution might be that the community midwife or her colleague, who are familiar with the woman, continues accompanying the client. In general, priority must be given to 1) autonomy (more specific: including the client in decision-making on pain-relief/setting of birth, acceptance of treatment refusal) and 2) prompt attention (more specific: access for contact in all situations, waiting time for service, physical accessibility of the setting, prompt phone response).

Conclusions

The women had, in general, good experiences during birth and the postpartum period. The domains 'social considerations' and 'basic amenities' performed the best. The domains 'autonomy', 'communication' and 'prompt attention' scored relatively lower. So, one should focus more on the latter domains.

Although no significant differences were found between the birth centre group and the hospital group under care of a community midwife, the following trend can be seen: the birth centre group report on some domains slightly better experiences. The women who planned to give birth in a birth centre reported less positive experiences than the women who planned to give birth at home. Most of the women who received care in a birth centre highly valued the services. For women who do not want to give birth at home a birth centre is a good choice, it leads to slightly better, but not significantly, experiences as a planned hospital birth.

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