Home births in the Netherlands: midwifery-related factors of influence

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Objective: **identification of midwifery-related factors influencing the varied percentage of home births in the practices of Dutch midwives.**

Design: **cross-sectional study.**

Setting: **independent midwifery practices in the Netherlands.**

Participants: **115 independent midwives.**

Measurements: **recordings of time spent on professional activities over three weeks. Questionnaires were completed on practice characteristics and opinion regarding the place and risks of birth.**

Findings: **attending home births is no more time consuming for midwives than assisting at short-stay hospital births. The percentage of home births in a practice is not related to the average number of hours worked per week, nor to the size or type of practice. The percentage of home births is lowest in major cities. Midwives who think more positively about home births and do not consider these to involve greater risks assist at more home births.**

Implications for practice: **the assumption that a heavy workload will interfere with the policy of de-medicalising birth is found to be false. The opinion of a midwife about the desirability and safety of home confinement has a slight positive effect on the percentage of home births in her practice. Those attempting to promote an increase in births at home must take these factors into account.**

INTRODUCTION

The role of the midwife in the provision of maternity care in the Netherlands differs from other Western countries. Pregnant women are not completely free to choose their care provider. Dutch midwives are considered the appropriate person to provide care during a normal pregnancy, birth and the postnatal period. If there is no midwife in an area, a general practitioner provides care. Women with an uncomplicated pregnancy can choose a home birth or a 'polyclinic birth' (a short-stay hospital delivery), attended by the primary care practitioner, in most cases a midwife. Postnatal care is provided at home by the midwife and a maternity home care assistant. In 1992, midwives attended 45% of all births in the Netherlands (Centraal Bureau voor de Statistiek 1994); 64% of these births took place in the woman's home (SIG Zorginformatie 1992).

Only women with an existing or expected complication during pregnancy or delivery are treated by an obstetrician and midwives are gatekeepers with respect to secondary health care. Following a standardised, national protocol (*Verloskundige Indicatielijst*, the Medical Indications List (Ziekenfondsraad 1987)) midwives diagnose complications and decide which women require transfer to a gynaecologist/obstetrician. Thus, a woman with a normal pregnancy is not free to receive specialist care in a hospital for her birth and postpartum period; only women with medical indications are cared for in a clinical setting. For more information on the Dutch maternity care system see Torres & Reich (1989), Oppenheimer (1993), Abraham-van der Mark (1993) and Hingstman (1994).

The organisation of maternity care in the Netherlands is in keeping with government policy (Dees 1989). The overall policy aim is to prevent unnecessary medicalisation by shifting a percentage of secondary obstetric care to primary midwife professionals. This is reinforced by the health insurance system which requires a pregnant woman to seek the

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Manuscript accepted 13 March 1996

services of a midwife. The promotion of home deliveries corresponds well with this effort at de-medicalisation, although it is pointed out that women with a low risk pregnancy should keep their right to choose where to give birth: at home or in the 'polyclinic'. Studies of the Dutch maternity system show that with the right antenatal care and in the absence of medical contraindications, home confinement is a wholly responsible decision (Damstra-Wijmenga 1984, Van Alten et al 1989, Treffers et al 1990, Tew & Damstra-Wijmenga 1991).

In recent years midwives have expressed concern over the increase in their workload caused by changes in the demand for care and a shortage of midwives. In 1992, both the Ministry of Welfare, Public Health and Culture (WVC) and the Dutch Organization of Midwives (NOV) verbalised a fear that the midwives' increased workload would interfere with efforts to de-medicalise birth (Ministerie van WVC & the NOV, 1992). These authorities suggested that as the workloads become heavier, midwives might encourage more of their clients to choose a polyclinic birth, where nursing assistance is available. This is in line with both Walmsley (1991) and Allison (1992) who suggest that the reduction in home births in the UK had occurred as the midwives' response to overwork. It is interesting to note that the number of home births in the Netherlands has declined significantly over the last 30 years from 68% in 1965 to 31% in 1991 (Central Bureau voor de Statisteik 1993). This shift was attended by a rise, from 4% of all deliveries in 1972 to 37% in 1985, in the popularity of short-stay hospital deliveries (Geneeskundige Hoofdinspectie 1987).

In a recent survey Van der Hulst (1993) discovered that midwives report greater 'job intensity' at home births than at polyclinic births. Although van der Hulst did not measure the actual time spent by midwives at different types of births, her findings are important. The way midwives experience birth (in this case as more or less intense) influences behaviour and, hence, the creation of policy.

The research reported here was carried out in order to gain further insight into the factors influencing the number of home births assisted by midwives. The focus of the research was on midwife related variables, i.e. the work and attitudes of midwives. We began by investigating whether home confinement demands more of the midwife's time compared to polyclinic births. We then investigated several variables which might influence the number of home births in a midwife practice, including:

1. Practice type and location (measured by level of urbanisation);
2. Workload, measured in terms of the number of hours worked per week and the size of the practice;
3. Midwives' opinions about the desirability and safety of birth at home.

METHODS

The research reported here is part of a large scale investigation of the work of independent midwives, i.e. those not associated with a hospital or maternity clinic (see Jabaaij et al 1994 for more details). In this section we limit ourselves to these methods relevant to the study presented here.

Participants

The sample was made up of independent midwives, stratified according to the degree of urbanisation (rural, suburban, urban and major cities) and type of practice (solo, duo or group practice). The sample was drawn at random from a database with information on all independent midwives practising in the Netherlands (Hingstman & Pool 1993). Eighty-two per cent of those selected agreed to participate. Midwives refusing to participate were on average five years older but their practices did not differ in size or number of attended deliveries. One hundred and twenty-seven midwives agreed to participate but during the course of data collection, 12 midwives (10%) dropped out leaving 115 midwives in our sample.

Workload

The following indicators of work load were used:

1. The average time worked per week per midwife, calculated on the basis of time recorded data;
2. Practice size, determined by the number of births attended by the midwife per year.

Time recording

In order to calculate the number of hours worked per week, participating midwives recorded how much time they spent on professional activities over a period of three weeks. Data collection forms were designed for calculation of the time spent on the different activities. These forms had standard categories and included office hours, home visits, attending births, travelling time, administrative work, consultation with practice colleagues and 'other professional activities'. The beginning and ending time of these activities had to be recorded on the forms. The total time spent on the several activities was calculated. Time spent on less frequently occurring activities – such as conferences, meetings with regional colleagues, compiling annual reports, supervising trainees, etc. – was estimated by a questionnaire. On the basis of these data, the average number of hours the midwives worked per week was established. Solo working midwives spent more hours per week on work activities (Table 1).

Practice size and the place of birth

Data were collected on the number of births attended and the percentage of home births. These data are

Table 1 Overview of indicators for workload per midwife per year subdivided according to type of practice, 95% CI in brackets

	Solo practice	Duo practice	Group practice	All
Number of hours worked per working week[1]	50 (44–56)	41 (38–45)	39 (37–41)	43 (41–45)
Number of births attended per midwife per year[2]	152 (56–248)	111 (56–191)	99 (62–172)	117 (56–248)

[1] Analysis of variance F(2, 113) = 8.4, $P<0.01$.
[2] Analysis of variance F(2, 113) = 20.2, $P<0.01$.

available from the annual overview of the *Landelijke Verloskunde Registratie* – Dutch Obstetrics Registry (LVR). The LVR is a continuous registration of medical data about mother and child during pregnancy and parturition. In 1991, 72% of all midwifery practices in the Netherlands participated, together registering 84% of the births attended by midwives in the primary health care setting. Midwives participating in the LVR are provided yearly with an overview of the data of their own practice. Midwives not participating in the LVR provided data from their own practice files. In Table 1 it is shown that midwives working solo attended more births per person than do their colleagues working in duo and group practices.

Opinion on the place of birth

Two scales were used to asses the opinions of midwives with regard to place of birth. One scale measured attitudes about confinement place, the other measured attitudes about the riskiness of birth related to place (Chatab & Berghs 1990). Both scales exhibited adequate internal consistency as measured with Cronbach's α (0.76 and 0.83 respectively). The scores run along a continuum from –2 to +2, a score of –2 indicating a preference for short-stay hospital births and a score of +2 indicating a preference for home confinements. A total score was calculated by adding up the scores of the various items. The lowest score on the attitude scale was –14 and the highest was +14. The range for the risk-assessment scale extended from –16 to +16. On both scales, higher scores mean more positive opinion of home birth.

FINDINGS

Time spent on delivery assistance

A midwife was not continuously present but saw a client a number of times in the course of parturition. The average number of visits to clients giving birth at home was slightly less than the average for those delivering in a polyclinic (Table 2), but the amount of time spent with the client per visit (excluding travelling time) takes, on average, 30 minutes longer. However, this does not result in more total time being spent per delivery. Including travelling time, a home birth took on average nine minutes longer than a polyclinic delivery, but this difference is not significant. There were no significant differences between the types of practices with regard to the time spent on delivery attendance (F(2, 112) = 1.57, $P = 0.21$, data not presented). Also, degree of urbanisation did not influence the time spent with labouring women (F(3, 110) <1, data not presented).

Percentage of home births by practice type and degree of urbanisation

An overview of the percentage of home births subdivided according to type of practice and degree of urbanisation is shown in Table 3. There are no significant differences in the percentages of home births between the various types of practices, but there are differences between the practices situated in the different regions. Midwives in the four major cities attended significantly fewer home births as compared to midwives elsewhere in the Netherlands. An overview of the distance, and the time spent on travel, between the midwife's home and the nearest hospital is also shown in Table 3. Average distances and travelling times are longest in rural areas, and because of poor traffic conditions, travelling times in the four major cities are longer than in suburban and other urban areas.

Connection between workload and place of birth

As noted above, workload was operationalised as: (1) the time worked per week; and (2) the number of births attended per midwife per year. The correlations with the percentage of home deliveries are 0.04 and –0.17 respectively, but neither is significant.

Place of birth and opinions about place of birth

The average scores on the scales measuring the opinions regarding place of birth, the attitude scale

Table 2 Average time (min.) per birth (including travelling time to place of delivery)

	Home	Short-stay hospital
Number of visits during parturition[1]	1.8	2.2
Attendance time per visit[2]	137.3	107.3
Total attendance time, including travelling time[3]	210.0	201.1

[1] $t(812,0)=-4.98$, $P<0.001$.
[2] $t(813)=5.86$, $P<0.001$.
[3] $t(806.53)=1.31$, $P=0.19$.

Table 3 Home births percentage (with 95% confidence interval), distance and travelling time from midwife's home to nearest hospital

	% home births (95% CI)	Distance (km)	Travelling time day (min.)	Travelling time night (min.)
Type of practice				
Solo practices	59 (49–68)			
Duo practices	63 (56–69)			
Group practices	58 (51–64)			
Degree of urbanization	[1]	[2]	[3]	[4]
Rural	70 (64–76)	11.4	17.8	12.0
Suburban	63 (55–71)	7.6	12.7	8.6
Urban	62 (56–68)	4.0	9.5	6.1
Major cities	37 (27–46)	7.0	13.2	8.6
Average	60 (56–64)			

[1] Analysis of variance $F(3, 105)=14.6$, $P<0.01$.
[2] Analysis of variance $F(3, 101)=11.2$, $P<0.01$.
[3] Analysis of variance $F(3, 103)=8.7$, $P<0.01$.
[4] Analysis of variance $F(3, 106)=8.5$, $P<0.01$.

and the risk-assessment scale are shown in Table 4. Midwives prefered home births in almost every case. There was only one case eliciting a slight average preference for short-stay hospital births: midwives considered a short-stay hospital birth safer when complications are likely to occur.

Using the total score on the scales shows that midwives in solo practices had less confidence in home births than did their colleagues in duo and group practices (Table 5). There were no differences between midwives working in the various regions in the Netherlands, subdivided by degree of urbanisation. This is remarkable as the percentage of home births differed by level of urbanisation, but not by type of practice (see Table 3). Hence, the opinions of midwives in different types of practices and different regions about the place of birth were not reflected in the numbers of home confinements attended.

We then calculated the extent to which figures concerning percentage of home births and workload were related to opinions about the places of birth (Table 6). The correlations indicate that midwives with a more positive attitude regarding home births attended a higher percentage of these. The same applies to the risk-assessment scale. Midwives who had a preference for home births, as measured by their response to the items on the risk-assessment scale, participated in more home births.

Practice size, operationalised as the number of births attended per midwife in the practice, was also related to the measures mentioned. The fewer births attended per midwife per year, the more often the midwife's response indicated that she prefered home births. The number of hours worked per week was not related to the midwife's opinion regarding the place of birth.

Summarising analysis on percentage of home births

The analyses performed until now make it clear that some of the variables correlated with the percentage of home births were intercorrelated. Multiple regression analyses were carried out in order to establish which of the variables ultimately influenced the percentage of home births most strongly. To check for linearity of the predictor variables, variables were squared or log-transformed before entering the model. None of the variables was found to be non-linear, so it was decided to enter them untransformed. Furthermore, assumptions of linearity and homogeneity were confirmed by plotting: (1) the

Table 4 Opinions on place of birth

	Average score
Attitude	
Please indicate to which place of birth the items listed below are the most applicable in your opinion	
– midwife–friendly	0.49
– client-friendly	1.32
– child-friendly	1.36
– safe when complications occur	–0.29
– efficient care	0.47
– appropriate place for giving birth	1.13
– hygienic	1.22
Risk-assessment	
Considering the following conditions, where would you advise a woman to deliver?	
– primiparity	1.67
– housing, fourth floor, no elevator	0.50
– no running water in direct vicinity of bedroom	1.37
– language barrier	1.25
– too many people living in one home	0.51
– expectant mother very anxious about delivery	0.49
– expectant mother has little self-confidence	0.93
– no maternity home care assistant available	0.01

Range of the scores –2 to +2.
Score > 0: indicates preference for home delivery.
Score < 0: indicates preference for short-stay hospital birth.
Score 0: no preference for either home or short-stay hospital birth.

Table 5 Scores on the attitude and risk-assessment scales, subdivided according to type of practice and degree of urbanisation

	Attitude	Risk-assessment
Type of practice		
Solo practices	3.8	2.6
Duo practices	6.8	8.8
Group practices	6.0 [1]	7.6 [2]
Degree of urbanisation		
Rural	6.5	7.6
Suburban	5.7	6.6
Urban	4.5	5.8
Major cities	6.6	7.7
Average	5.6	6.7

[1] Analysis of variance $F(2, 102)=4.2$, $P<0.05$.
[2] Analysis of variance $F(2, 102)=7.1$, $P<0.01$.

Table 6 Correlations between opinion on place of birth, percentage of home births, and size of practice

	Attitude	Risk-assessment
% home births in the practice	0.39 [1]	0.26 [1]
Number of hours worked per week	0.01	–0.18
Number of bookings per midwife	–0.18	–0.29 [1]
Number of parturitions per midwife	–0.30 [1]	–0.29 [1]

[1] $P<0.01$.

residuals against the predicted values; and (2) the dependent against the predictor variables.

Two dummy variables were entered for practice type, P1 (duo practice = 1, else = 0) and P2 (group practice = 1, else = 0). Based on the results of the analysis of variance (see Table 3) it was decided to enter only one dummy variable for degree of urbanisation, with the value 0 for rural, suburban, and urban areas and value 1 for major cities.

In the first multiple regression analysis a complete model was used: all possibly relevant variables were entered into the model simultaneously. Degree of urbanisation and risk-assessment were found to add significantly to the explained variance which is 44% for this model (see Table 7). In the second multiple regression analysis, predictor variables were removed one by one. Three variables remained in this parsimonious model: degree of urbanisation, risk-assessment and attitude. Together they explain 41% of the variance, with degree of urbanisation adding the most to the explained variance.

Table 7 Multiple regression analyses with the number of home births as the variable to be explained. Standardised regression weights are used

Predictors	Complete model beta	Parsimonious model beta
Practice size[1]		
P1	0.00	–
P2	–0.08	–
Degree of urbanisation[2]	–0.49**	–0.51**
Number of births per midwife	–0.22	–
Hours worked per week	0.13	–
Attitude	0.16	0.22*
Risk-assessment	0.21*	0.22*
R	0.66**	0.64**
R^2	0.44**	0.41**

* $P < 0.05$.
** $P < 0.01$.
[1] Dummy variable for practice type:
P1: duo practice = 1, else = 0.
P2: group practice = 1, else = 0.
[2] Dummy variable for degree of urbanization: major cities = 1, else = 0.

DISCUSSION

In this article we examined whether factors related to midwives and their practices have an effect on the percentage of home births attended. The total time spent by midwives on birth assistance was not affected by the place of the delivery, either home or short-stay hospital. A midwife visited a woman giving birth at home less often, but these visits lasted longer on average. These findings do not correspond with the midwives' own impression concerning this matter. Van der Hulst (1993) investigated midwives' attitudes in relation to place of birth and reported that midwives said they spend more time with a client giving birth at home. The midwives also reported seeing these clients more frequently during the first stage of labour. These conflicting findings might be explained by the nature of the measurement instruments: questionnaires instead of time recording. The emotional context of the situation might have coloured the assessments: in the same survey the midwives stated that though they derived more job satisfaction from a home birth, the job intensity was greater as well (Van der Hulst 1993).

The midwives who participated in the workload investigation attended almost 60% of their births at home. Even though this is a little less than the percentage found by the LVR (SIG Zorginformatie 1992) the difference is not significant. There are no differences in the percentages between the midwives in the three types of practices, but there are differences when the practices are subdivided according to degree of urbanisation. The percentage of home births in the major cities is significantly lower than elsewhere in the Netherlands. Distance and travelling time to the hospital did not seem to have a negative effect, as the percentage of home births was highest in rural areas, where the travelling distances were greater.

Although there were no differences in the percentages of home confinements attended by midwives in the three types of practices, there were differences, not related to practice type, between the practices. These differences were not related to the number of hours worked, the numbers of clients booked or births attended in the practice. This has been found by other researchers as well (Wiegers et al 1993).

As part of the investigation the midwives were also asked their opinion about the place of birth. A difficulty in such research is that attitudes are not always expressed in actual behaviour. In this study the interpretation is also complicated. Midwives with high scores on the attitude and risk-assessment scales, that is to say who are more in favour of home births, did indeed attend more home births. However, although midwives in solo practices were less in favour of home births they did not attend fewer home births than did their colleagues in duo or group practices. Also, there was no difference in attitude with respect to home births between

midwives practising in the various regions in the Netherlands, but midwives in the major cities attended significantly fewer home births than did their colleagues elsewhere. In order to establish which among the many variables have the strongest influence, we carried out an analysis which determines the effect of each of these variables in combination with one another. This analysis made it clear that the percentage of home births is best predicted by taking into account the degree of urbanisation, the attitude with respect to home birth and the risk-assessment scale. The percentage of home births dropped in major cities, and midwives who were more in favour of home births did in fact attend more home births. In this model the type and size of the practice and the number of hours worked per week appeared to be of no influence.

These findings make it tempting to conclude that it is the midwife who decides where the birth is to take place. Of course the midwife does have an influence in this respect, but in normal situations it is the woman who has the final say. This then explains why the model we decided to use explained only 41% of the difference between midwives with regard to the percentage of home births attended. A study which focused on the client-related factors influencing place of birth was executed by Wiegers & Berghs (1994). Bad hospital experiences, a negative attitude towards the hospital, little fear of pain or complications, few complaints during the pregnancy, confidence of partner, family and/or friends in home births, and knowing many women who gave birth at home are all factors influencing a woman's choice for home birth. Fifty per cent of the women said that the midwife's opinion had not influenced the decision, whereas 40% reported (very) strong influence. Also Kleiverda et al (1990) studied the decision-making process regarding the preferred site of confinement. They found that women preferring home deliveries were better educated, had higher occupational levels, had fewer traditional attitudes towards female social roles, evaluated a home confinement as safer, and had a more internally oriented locus of control.

Because of the unique Dutch situation of maternity care provision comparison with other countries is difficult. For example, Floyd (1995) found that positive feelings about home births were influenced by midwives' confidence in their own role, belief that home births are good for both women and midwives, and the quality of actual experiences with home deliveries. Negative feelings were related to doctors' behaviours and attitudes, poor provision of emergency cover, and lack of skills. Comparison problems arise for several reasons. The Dutch maternity care system is differently organised. Midwives are educated and trained extensively to provide home deliveries and obstetricians support the system. Furthermore, midwives outside the Netherlands have limited experience with home births, which, in addition, is often restricted to unplanned home deliveries. In Floyds' study, the mean number of home deliveries attended by the midwives in the previous year (1991) was only two, with 32% of the midwives having not undertaken any! This is very low compared with Dutch midwives, who in this study attended a mean of 70 home births per year.

In this study differences in workload which were found *between* midwives cannot serve as an explanation for the differences noted with regard to the actual place of birth. Midwives did not reduce their workload by changing from home deliveries to short-stay hospital births and more home births did not increase workload. In this cross-sectional research, no justification was found for the concern that an increase in the workload would interfere with the government policy to de-medicalise pregnancy and childbirth. It is possible, however, that individual midwives change their own policy because of a steadily increasing workload. For us to show that such changes take place we would have to embark on a longitudinal investigation, following the same group of midwives over a number of years.

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