Swedish women's interest in models of midwifery care – Time to consider the system? A prospective longitudinal survey

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ABSTRACT

Background: Sweden has an international reputation for offering high quality maternity care, although models that provide continuity of care are rare. The aim was to explore women's interest in models of care such as continuity with the same midwife, homebirth and birth center care.

Methods: A prospective longitudinal survey where 758 women's interest in models such as having the same midwife throughout antenatal, intrapartum and postpartum care, homebirth with a known midwife, and birth center care were investigated.

Results: Approximately 50% wanted continuity of care with the same midwife throughout pregnancy, birth and the postpartum period. Few participants were interested in birth center care or home birth. Fear of giving birth was associated with a preference for continuity with midwife.

Conclusions: Continuity with the same midwife could be of certain importance to women with childbirth fears. Models that offer continuity of care with one or two midwives are safe, cost-effective and enhance the chance of having a normal birth, a positive birth experience and possibly reduce fear of birth. The evidence is now overwhelming that all women should have maternity care delivered in this way.

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Background

In Sweden there are few alternatives to highly medicalized hospital births. Options such as continuity of midwife caregiver, homebirth and birth center care are not offered by the health services. A previous national survey conducted more than 10 years ago showed that, when asked in early pregnancy, a majority of women (52%) preferred continuity in terms of having a known midwife at birth, 23% were interested in birth center care and 5% in homebirth [1].

Continuity with the same midwife during all episodes of care from pregnancy to labor and birth, and the postpartum period is uncommon in Sweden. In some parts of the Western world such continuity is provided by teams of midwives or in caseload models [2]. A recent Cochrane review comprising 15 studies with more than 17,000 women, with and without increased risk for complications, concluded that most women should be offered midwife-led continuity models of care. The result of the review clearly demonstrated a lower use of interventions, a higher rate of spontaneous vaginal births and higher satisfaction with care [2].

The difference between team midwifery and caseload midwifery is the number of midwives taking care of the woman and the level of continuity of carer the woman can expect to receive. Team midwifery usually consists of 6–10 midwives who work on a rostered system to care of larger numbers of women than occurs in caseload models. Caseload midwifery is usually one midwife being responsible for a small number of women (3 to 4 per fulltime midwife per month) who provides all care during pregnancy, birth and postpartum [3]. The caseload midwife usually has one or two partners who cover the caseload midwife's free time and holiday leave [4,5]. The likelihood for meeting a known midwife at birth is 87–89% in these models [4,5]. Usually such models of care are offered only to women of low risk for complications [4,6], but a recent trial included women of any risk [5].

Homebirths are rare in Sweden. In a national survey of homebirths conducted 1992–2005 only 1 in 1000 births occurred at home [7], although the national survey showed an interest 10 times higher [1]. If a woman wants to have a homebirth in Sweden she has to arrange it herself by finding a midwife willing to assist. The women have to pay for the homebirths themselves, as most midwives work in other places and assisting at homebirth occurs outside

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their regular working schedule. In the capital area of Sweden multiparous women with a previous uncomplicated birth could have a homebirth subsidized from the county council, if they fulfill the criteria and can find two midwives willing to assist [7]. Women who actually gave birth at home in Sweden during the same period were characterized by being older than 35 years, multiparas, born in a European country outside Sweden and were mostly living in the capital area [8].

Birth center care was introduced in the US around 1970 as an alternative to home birth and hospital birth [9]. This trend followed on in many countries such as UK and Australia the following decades [10,11]. In Sweden the first birth center opened in 1989 in Stockholm and was evaluated in a randomized controlled trial showing increased maternal satisfaction [12]. During the same period a modified birth center was opened in Gothenburg, but closed down after some years. In the Stockholm birth center a home like atmosphere was offered, and medical technology usually limited. Parents were actively involved in the care [13]. The birth center has however, been modified due to the increase in perinatal mortality for babies born by first time mothers found in the previous trial [13]. This led to restricted inclusion criteria of women of low medical risk only, electronic fetal monitoring at admission and intermittent during labor, and application of the same guidelines as in standard intrapartum care [14].

Problem area

There is strong evidence that midwifery-led models of care could benefit women in terms of lower rates of interventions and higher satisfaction. Women’s interest in such models of care in Sweden is fairly under investigated. The aim of this study was to explore prospective and new mothers’ interest in continuity with the same midwife, homebirth and birth center care, in a region where these models are not offered. An additional aim was to explore if the interest in these models of care changed over time.

Methods

Design

A Swedish prospective longitudinal survey in which women were recruited in mid pregnancy and followed up at three points in time (late pregnancy, 2 months, and 1 year after birth). For the purpose of this study, we identified women who completed all three follow up questionnaires. The study was approved by the regional ethical committee (dnr 05–134). The purpose of the regional study was to address questions relevant to the childbearing population in the region, in order to improve the maternity services. A detailed description of the project is found elsewhere [15].

Recruitment

Participants came from a one-year cohort of pregnant women who were booked for routine ultrasound screening offered to all pregnant women in gestational weeks 17–19. The recruitment took place during the whole year 2007 at three hospitals in the mid-north part of Sweden. The region covers both rural parts and middle-sized cities and the annual birth rates in the three regional hospitals were 1600, 550, and 350 respectively. All participants had to be able to communicate in Swedish and were invited by the midwife who carried out the ultrasound examination. Participating women signed a consent form and was given the first questionnaire at the ultrasound ward. These could be filled out on site or taken home and returned in a pre-paid envelope. Two letters of reminder were sent to non-responders after two and four weeks respectively. The follow-up questionnaires were sent to the participants’ home address, in gestational weeks 32–34 (questionnaire II), at two months (questionnaire III) and at one year (questionnaire IV) after the birth. Similar reminder procedures were performed on all questionnaires. The two month post birth questionnaire was sent out to all women who completed any of the questionnaires delivered during pregnancy. The one year follow up questionnaire however was only sent to those who had completed all three previous study packages.

Measures

Outcome variables

Questions about women’s interest in alternative models of midwifery care were worded “Which of the following models of care would you be interested in?” with the response alternatives:

- The same midwife throughout antenatal, intrapartum and postpartum care
- Homebirth with a known midwife
- Birth center care (which included the description: “antenatal and intrapartum care in a homelike environment with a team of midwives and where natural birth is promoted and medical technology is limited”).

There was no rating of the options and the respondents could choose several options by ticking the alternatives of interest. There was also one option labeled “hospital birth”. In the analysis the preferred options were coded =1 and if not preferred = 0.

Explanatory variables

Background data were collected in mid-pregnancy and included information about age, number of children, marital status, country of birth, and level of education. In addition, birth preference (vaginal birth or caesarean section) and fear of childbirth, using the cut of point of 60 on the FOBs-scale [16] were used as explanatory variables. Two months and one year after birth the relationship between birth related data (mode of birth, birth complications, birth experience) and care related data (satisfaction with antenatal and intrapartum care) and interest in the alternative models of care were also investigated. The birth experiences as well as the satisfaction variables were assessed on a five point Likert scale ranging from 1 (very positive/very satisfied) to 5 (very negative/very dissatisfied), and for the analysis dichotomized into positive/satisfied (1 + 2) versus less than positive/less than satisfied (3–5).

Analysis

Descriptive statistics were used in presenting the data. To assess changes in interest in models of care over time, Friedman’s test was applied [17]. Differences between participants who had an interest in a certain model of care versus those without such interest were calculated by χ² test and Risk Ratios (RR) with 95% Confidence Intervals (CI) were estimated using Mantel–Haenszel’s method [18]. SPSS version 21 was used for the statistical analysis.

Results

The sample consisted of 758 women who completed all four questionnaires in the longitudinal cohort study. The majority of the women were 25–35 years old, cohabiting, and born in Sweden. Just under half of the sample was expecting the first baby and the majority had at least high school level of education (Table 1).
Interest in alternative models

Table 2 shows the numbers and percentages as well as mean ranks for the birth options listed. Hospital birth was chosen as an option for 71–78% on the four time points (Table 2). Hereafter we focus only on the alternative models of care.

In mid pregnancy, more than half of women reported an interest in having continuity with the same midwives in all episodes of care (Table 2), Friedman’s test showed a statistically significant decrease over time in the interest of continuity of midwife care. However, after one year the interest increased in women.

Table 2 also shows that around 2–2.5% of the women wanted a homebirth when asked during pregnancy, but the interest was lower after birth with only 1.4–1.6%. The low interest in homebirth was fairly stable over time and did not reach any statistically significant difference. Interest in birth center care was around 5–6% in women and there was no difference over time according to Friedman’s test.

Background factors in relation to interest in midwifery models of care

The women’s socio-demographic and birth related data were investigated in relation to interest in the midwifery models of care.

Table 3 shows that, when asked in mid pregnancy, continuity with the same midwife throughout pregnancy and birth was preferred to a higher extent by younger women, primiparas and women not living with the partner, as well as in women with fear of birth. There were no differences in background characteristics and interest in homebirth or birth center care among the women.

All background characteristics listed in Table 3 were also tested in late pregnancy, two months and one year after birth for differences. In late pregnancy the only significant difference found was that women with high level of education were less likely to prefer the same midwife compared to women with high school education (RR 0.7; 0.6–0.9, p 0.006).

Two months after birth continuity with the same midwife was more important to women with childbirth fear (RR 1.4; 1.2–1.7, p 0.000). Similar to the measure in late pregnancy women with university education were less likely to prefer the same midwife (RR 0.8; 0.7–0.9, p 0.006). An interest for birth center care was doubled in women with previous children two months after birth (RR 2.0; 1.1–4.1, p 0.003). In addition to the socio-demographic differences, women who had a positive birth experience were more likely to prefer birth center care, when asked two months after birth (RR 2.3; 1.1–5.0, p 0.002). Women who were less than satisfied with their antenatal care were more likely to prefer continuity of midwife (RR 1.3; 1.1–1.5, p 0.04) and women that rated their intrapartum care less than good were more likely to be interested in homebirth (RR 3.9; 1.1–4.4, p 0.02), when asked two months after birth. There were no associations between mode of birth or birth complications and interest in alternative models.

Finally one year after birth, there were no socio-demographic differences between women interested in the alternative birth options or those who were not interested. The interest in homebirth in women with a less positive experience of their intrapartum care remained one year after birth (RR 5.2; 1.6–16.5, P 0.002).

Discussion

The main finding of this study was approximately 50% of women wanted continuity of care with the same midwife throughout pregnancy, birth and the postpartum period. We identified certain groups of women for whom continuity of midwifery caregiver seems to be more important.

Contrary to the high interest in having the same midwife, the interest in homebirth and birth center care was not that prominent. These findings could be explained by the lack of availability of that kind of service or that expectant parents tend to prefer options they have previously experienced, or what they believe is possible to achieve rather than what might be best [19]. Already in 1984 Porter and Maclntyre [20] presented the “what is must be best-attitude”:

“Women tend to assume that whatever system of care is provided has been well thought out and it is therefore the best one.
Some of the women change their interest over time. This was most obvious regarding continuity and interest in hospital birth. This is probably related to the well-known fact that people tend to be loyal to what they have experienced, and the circumstances around birth [19].

### Interest in birth center care

Birth center care was of interest to around 5% of the women in the present study. This is a much lower figure than previously found in the national survey a decade ago [1], where 23%, 26% and 27% of women in the national sample were interested in this model of care, when asked in early pregnancy, two months after birth and then after one year. The lack of availability of such models of care in the region under study is probably one explanation for this low interest. Another explanation could be the issue of safety described by Gottvall et al. [14]. The Swedish birth center trial [12] found a worse neonatal outcome in babies born to first time mothers. This finding created got a lot of media attention in Sweden and people may still be a bit distrustful of birth center care. In the study from the modified birth center in Stockholm [6], women showed a higher satisfaction when receiving this model of care, compared to women in standard care. The factors most likely to be associated with high satisfaction were the support from midwife throughout all episodes of care. The calm environment and atmosphere was important during labor and birth and so was the possibility for fathers to stay overnight. Women with previous children were more likely to be satisfied, probably due to their previous experiences of having a baby in standard care [6]. Tingstigs et al.’s study [6] could not, however, find any association between number of midwives met or having a known midwife during birth and overall satisfaction.

### Interest in homebirth

Only a small proportion of women reported an interest in homebirth with the lowest figures presented two months after birth.
(1.4%). There was a slight increase in interest in homebirth after one year. A similar pattern was shown in the national survey where the interest dropped from 5% in early pregnancy to 2% two months after birth and then again rose to 3% after one year [1]. Despite the low figures reported, the interest is much higher than the number of homebirths occurring in this region (approximately one homebirth of the annual birth rate of 2500). It could be difficult for parents who wish to give birth at home to find a midwife willing to assist. This is probably one of the reasons for the low interest in homebirth, as it is not an option presented, and women are not offered this choice by the health care providers. In other Nordic countries homebirth is included in the health system. The proportions of planned homebirths are between 1 and 2% in Denmark and Iceland, while Norway is fairly similar to Sweden (0.1%) [24]. One reason for the non-existing offer of homebirth is the issue of safety [7], which clearly contrasts the recently published NICE-guidelines suggesting that homebirth is a safe option for healthy women and all women should be informed about the option [25].

The importance of continuity of midwifery care

The present study highlights the importance of models providing continuity of care, regardless of the organization of care. The crucial element is that the model should be led by midwives and allows the opportunity for the woman to meet only one or two midwives from pregnancy to birth and the postpartum period. The Cochrane review from 2015 including 15 scientific studies with more than 17,000 women, clearly advocates healthy women’s right to have access to midwife-led continuity models of care as these models are associated with less medicalized birth outcome and higher satisfaction [2]. Higher continuity of caregiver will result in good medical outcomes and a known midwife during birth seems to affect satisfaction to a high degree [4,5,11,26].

All midwifery-led models that offer continuity of care seem to create higher satisfaction than standard care, at least in countries where medical dominance in childbirth is high. In the Australian study by Homer and co-workers [26] results from a randomized controlled trial including 658 women with varied obstetric risk and where half belonged to a non-English speaking community, women exposed to team midwifery reported a significantly higher quality in communication with their midwives. Around 80% received intrapartum care from a team midwife. Women who received team care reported more often that they knew their midwife and this was related to a higher sense of control and a more positive birth experience. Another study, from the UK, examined 24 women from a deprived and multi-ethnic community. Half the women received case-load midwifery care with these women highlighting that the close relationship they developed with midwives enabled them to more readily discuss their concerns [27]. The findings indicate that case-load midwifery is even more important to women where access to choice in models of care could be limited.

The present study pointed out an association between childbirth fear among women with the preference of continuity midwife caregiver throughout all episodes of care. In a previous study it was shown that women who received the modified birth center care were less likely to have had counseling due to childbirth fear [6]. This could be due to self-selection of women booked for this model of care being less fearful, or the fact that knowing the midwife beforehand could provide some feelings of control which is another characteristic of women with childbirth fear [28]. Fearful women may see continuity of care as being offered the support they need, which have been shown as lacking in previous studies [29].

Given the benefits of models providing continuity of midwife caregiver and the apparent interest in this as chosen by the participants in this study one is left wondering why the Swedish health care system does not routinely offer such a model of care. In Sweden the only opportunity for women to experience some form of continuity is if they live in the capital city of Stockholm. In the Stockholm area there are some hospitals with midwife-led labor wards and in one [6] the midwives work with antenatal as well as intrapartum and postpartum care, which could enhance the chances of having a known midwife at birth. This is an issue of equity for Swedish women who live outside of the Stockholm area. There is, however, no doubt that case-load models could work regardless of hospital size, as the midwife follows the parents into hospital when giving birth. One important issue though, is the relationship between the caseload midwives and the hospital staff. The caseload midwife must be integrated as a natural part of the care, viewed in a respectful way as a resource and not somebody who “takes the women” from the labor ward staff.

In Sweden, antenatal and intrapartum care is usually organized within the county councils health system, although some antenatal clinics are privately run. The health care sector is further divided into primary health care where most antenatal care is offered, while intrapartum and postpartum care usually take place within the hospitals, which belong to the acute care sector. This means that there is seldom rotation of midwives between the two sectors, which could make it difficult to offer women continuity. However, if the health system wants to prioritize the woman as the center of the care then the concept of dividing care into primary care and acute care becomes an artificial construct. The focus in modern health systems is recognition and promotion of the continuum of care, ensuring that people move seamlessly through a system [30]. In some hospitals in Sweden initiatives which facilitate midwives working in both antenatal care and labor wards have been initiated, which is promising.

Like many industrialized countries there are declining numbers of midwives in Sweden [31]. The health and professional satisfaction of the midwives must therefore be a major consideration in any system of maternity care. Burnout is a worrisome problem in Sweden [31]. The higher risk of burnout in midwives’ working in caseload models or similar compared to those working in standard care, has been raised [32]. Contrary to this, it has been shown that working in such models, even if it implies being on call, reduces the risk of burnout and strengthens midwives’ work satisfaction and client interaction [33].

The cost of alternative models of care must be taken into consideration when changing a system. Based on data from a randomized controlled trial in Norway, Bernitz and co-workers [34] showed that care in alongside-midwifery units (comparable to birth center) reduced the cost with nearly 300 Euros/birth. The costs were calculated by cost per day multiplied with length of stay and added costs for procedures. In another study from the UK Schroeder et al. [35], calculated incremental cost per adverse perinatal and maternal outcome avoided, and additional normal birth, using a non-parametric bootstrap to construct cost effectiveness of different models of care. Compared to obstetric units, planned homebirths generated a saving of 675 Euros, for free standing and alongside birth units the savings was 235 and 200 Euros respectively. Similarly, Tracy et al. [5] showed that case-load midwifery for women at any risk reduced the median hospital cost by 378 Euros.

Methodological considerations

This study is compromised by its observational design and the regional context and the inclusion criteria of mastering the Swedish language. The hypothetical nature of the questions asked must also be considered a limitation, as some of these options were not available, which could have affected the responses. Nevertheless, the strength is the longitudinal design, the fairly large sample and the one-year recruitment period covering all three hospitals in the region. The recruitment process started in 2007 and was finalized in 2009,
making the data a bit old. However, no major changes in the maternity provision and the social and cultural contexts around birth have occurred since then in the region under study.

**Conclusion**

Continuity with the same midwife throughout all episodes of care is important to pregnant women and could be of certain importance to women with childbirth fear. Models of care that offer continuity should be developed as it promotes normal birth and increases satisfaction. The evidence is now overwhelming that all women should have maternity care delivered in this way.

Models that offer continuity of care with one or two midwives are safe, cost-effective and enhance the chance of having a normal birth and a positive birth experience and possibly reduce fear of birth in women and burnout in midwives.

**Conflict of interest**

The authors declare that they have no competing interests.

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[25] National Institute for Health and Care Excellence (NICE). Intrapartum care: care provision and the social and cultural contexts around birth – making the data a bit old. However, no major changes in the maternity provision and the social and cultural contexts around birth have occurred since then in the region under study.


