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Antenatal fear of childbirth and its association with subsequent caesarean section and experience of childbirth

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Objective To investigate the prevalence of fear of childbirth in a nationwide sample and its association with subsequent rates of caesarean section and overall experience of childbirth.

Design A prospective study using between-group comparisons.

Setting About 600 antenatal clinics in Sweden.

Sample A total of 2662 women recruited at their first visit to an antenatal clinic during three predetermined weeks spread over 1 year.

Methods Postal questionnaires at 16 weeks of gestation (mean) and 2 months postpartum. Women with fear of childbirth, defined as 'very negative' feelings when thinking about the delivery in second trimester and/or having undergone counselling because of fear of childbirth later in pregnancy, were compared with those in the reference group without these characteristics.

Main outcome measures Elective and emergency caesarean section and overall childbirth experience.

Results In total 97 women (3.6%) had very negative feelings and about half of them subsequently underwent counselling. In addition, 193 women (7.2%) who initially had more positive feelings underwent counselling later in pregnancy. In women who underwent counselling, fear of childbirth was associated with a three to six times higher rate of elective caesarean sections but not with higher rates of emergency caesarean section or negative childbirth experience. Very negative feelings without counselling were not associated with an increased caesarean section rate but were associated with a negative birth experience.

Conclusions At least 10% of pregnant women in Sweden suffer from fear of childbirth. Fear of childbirth in combination with counselling may increase the rate of elective caesarean sections, whereas fear without treatment may have a negative impact on the subsequent experience of childbirth.

Keywords Caesarean section, counselling, fear of childbirth.

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Introduction

Fear of childbirth has been reported as a common reason for requesting an elective caesarean section.[1–7] However, research has been inconclusive as to whether it really predicts mode of delivery or not. A Swedish study reported an association between fear of childbirth in late pregnancy and subsequent emergency caesarean section,[8] whereas a British study found no association with mode of delivery, neither elective nor emergency caesarean section.[9] Fear of childbirth has also been associated with a negative experience of the subsequent birth.[10–12]

The prevalence of antenatal fear of childbirth may vary from one study to another, and this may depend on the definition of the concept, the timing of measurement and the cultural context. A Swedish study based on data from 1979 reported that 6% of women suffered from an intense fear of childbirth around gestational week 32,[13] and a Swiss study reported that 5.3% of women were fearful.[14] A British study in 1992[9] found that nulliparous women in the UK seemed to be more frightened of childbirth compared with the women in Sweden.[8]

Fear of childbirth has gained growing attention in Sweden, and today, nearly all obstetric departments have established qualified teams, often named Aurora clinics, in order to support women who suffer from such fear.[15–17] These teams include experienced midwives, supported by an obstetrician, psychologist, social worker and sometimes also a psychiatrist.[18]

Women are usually referred to these services by the midwife or the doctor at the antenatal clinics, at any time during pregnancy, but mostly during the third trimester. The first visit includes assessment of the problem and planning of the counselling to follow. The number of visits vary, but two to four visits are common, and the expectant father is usually present on one or more of these occasions. Most counselling is provided by a midwife, who, in serious cases, can refer the woman to a person with psychotherapeutic training. Relaxation techniques are taught and practised in some clinics. A visit to the local delivery ward is an important part of the counselling. A birth plan is often made in order to guide the delivery ward staff. An obstetrician is always involved when a caesarean section or other obstetric interventions are considered.

The Aurora clinics in Sweden were implemented without evaluation by randomised controlled trials since randomisation was regarded as unethical when dealing with women who express fear of childbirth. One Swedish study compared 53 women who underwent counselling with 53 controls who had not expressed fear of childbirth and who were matched for parity and mode of delivery.[5] The women in the first group had a rather more frightening experience of the delivery compared with those in the control group, but they were more satisfied with antenatal care. Another study did not find any difference in childbirth experience between 100 women who were treated and 100 controls who were not anxious.[2] Other observational Nordic studies have reported that women who initially wished to be delivered by caesarean section were less inclined to ask for it after treatment.[1,2,4,19,20] Only one randomised controlled trial of treatment for fear of childbirth was found, but this Finish study evaluated one method of treatment (cognitive psychotherapy) with another (counselling)[4] rather than having an untreated control group.

The aim of this study was to investigate

- the prevalence of antenatal fear of childbirth in a national Swedish sample
- the characteristics of women with antenatal fear of childbirth
- the association between antenatal fear of childbirth and subsequent caesarean section
- the association between antenatal fear of childbirth and experience of the subsequent birth.

Methods

Participants

This study is part of a longitudinal cohort study of women's experiences of childbirth. All women who paid their first visit to any of the 608 antenatal clinics in Sweden, during three predetermined weeks within 12 months (in May and September 1999 and in January 2000), were invited to participate. Women received verbal and printed information about the study, and those who agreed to participate were asked to sign a consent form, which also included their personal contact details. The only exclusion criterion was an insufficient command of the Swedish language to complete a questionnaire. After each recruitment week, the form was sent to the research team and the first questionnaire was then mailed to the women on the list. A second questionnaire was mailed 2 months after the birth. To study whether the sample was representative of childbearing women in Sweden in general, responders were compared with all women who gave birth in Sweden in 1999 according to the Swedish Medical Birth Register.[21] Besides obstetric and infant data, the register includes information on parity, maternal age, civil status, country of birth and smoking habits. The total number of women booked at all antenatal clinics in Sweden during the three recruitment weeks was approximately 5500, an estimate based on data from the national Medical Birth Register and from the antenatal care midwives. Of these women, around 4600 were eligible for the study after excluding women with miscarriages (275), women who were booked at nonparticipating clinics (75) and non-Swedish-speaking women (550). We cannot exclude the possibility that some in the latter group were in fact Swedish speaking but were not approached by the midwife for other unknown reasons. Altogether, 3293 women (72%) consented to participate in the study.

Definitions

Fear of childbirth in this study was defined as follows:

- All women who ticked the response alternative 'very negative' following the question: 'How do you feel when thinking about labour and birth', which was asked in the first questionnaire in the second trimester. The response alternatives were very positive, fairly positive, mixed feelings, rather negative and very negative.
- All women who ticked 'yes' following the question: 'Did you undergo counselling with a midwife because of fear of childbirth? (Aurora group or similar)'. This question was asked in the second questionnaire postpartum.

Data collection

The first questionnaire was, on average, completed in gestational week 16. Besides the question above, it also asked about women's socio-demographic background (age, civil status, education, residential area, unemployment, sick leave, and native language), parity, smoking habits, pregnancy being welcomed or not, support by partner and preference regarding mode of delivery. Parous women were asked about mode of delivery at any preceding birth and how they experienced their most recent birth. Maternal worry was measured by the Swedish version of the Cambridge Worry Scale, which includes 16 items of common concerns during pregnancy.[22] Responses were expressed on a 6-point scale ranging from 0 (no worry) to 5 (major worry). Depressive symptoms were

measured by the Edinburgh Postnatal Depression Scale (EPDS), a 10-item self-report scale designed to screen for postpartum depression in community samples.[23] The EPDS has been validated for antenatal use in the UK, where EPDS scores were compared with the results of psychiatric interviews in gestational week 24–38. The authors suggested 15 or more as the cutoff for the diagnosis of major depression.[24] In Sweden, the EPDS has been validated for postnatal use only.[25]

Besides the question about counselling, the postpartum questionnaire included questions about labour and birth, such as mode of delivery and how the women had experienced labour and birth overall. The five response alternatives to the last question were the following: very positive, positive, both positive and negative, negative and very negative.

Analyses

Three different groups of women were defined as having experienced antenatal fear of childbirth (group A: women with very negative feelings in early pregnancy who underwent counselling; group B: women with very negative feelings in early pregnancy but did not undergo counselling; and group C: women who did not express very negative feelings in early pregnancy but underwent counselling). These groups were compared with a reference group (women who did not express very negative feelings and who did not undergo counselling) by means of chi-square test and test of proportions. The association between antenatal fear of childbirth and women's overall experience of childbirth (response alternatives dichotomised as follows: very negative + negative versus very positive + positive + both positive and negative) was tested by logistic regression analysis, and the findings were presented as odds ratios with 95% CI.

The study was approved by the Regional Research and Ethics Committee at Karolinska Institutet, Sweden (Dnr 98-358).

Results

Participants

The first questionnaire was completed by 3061 women, which was 93% of those who consented to participate in the study and 67% of all eligible women. Eleven percent of the responders to the pregnancy questionnaire did not complete the second questionnaire after the birth; women failing to answer this questionnaire were excluded from the analysis. Women who had very negative feelings about the approaching birth were over-represented among the nonresponders to the postpartum follow up (7.8 versus 4.1%; $P = 0.002$). The sample available for analysis was 2662 women who answered both of the two questions defined as measuring fear of childbirth (one of which was asked in the first and the other in the second questionnaire).

When comparing the final sample with the 84 729 women who gave birth in Sweden in 1999, we found that fewer women were younger than 25 years (15 versus 16%), older than 35 years (10 versus 12%), parous (56 versus 58%), smokers (10 versus 12%) and of non-Swedish-speaking background (8 versus 17%).

Prevalence

Figure 1 shows that women who had negative feelings about the birth during the second trimester were more likely to be referred to an Aurora clinic later in pregnancy. Of the 97 women (3.6%) who said that they had very negative feelings (which in this study was defined as 'fear of childbirth'), 47

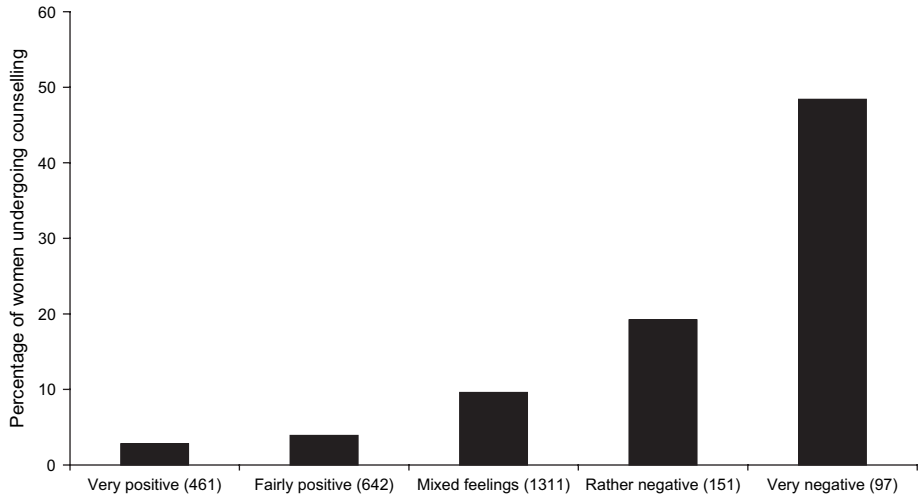

Figure 1. Antenatal counselling because of fear of childbirth in five groups of women who earlier in pregnancy expressed different feelings about the approaching birth.

underwent antenatal counselling (group A) and 50 did not (group B). In addition, 193 women (7.2%)(group C) who did not express similar negative feelings in the second trimester subsequently underwent counselling. In total, 290 women (10.9%) were defined as having experienced fear of childbirth, and 240 women (9.0%) had antenatal counselling.

Maternal characteristics

Compared with the women in the reference group, women in the *combined A and B group*, who were very negative about the birth, were to a larger extent unemployed, on sick leave, smokers and of non-Swedish-speaking background (Table 1). Their pregnancy was less welcome, and a larger proportion of these women experienced little or no support from their partner. They were more worried and had more antenatal depressive symptoms. A larger proportion of the parous women in the A + B group had previously had an emergency caesarean section and a negative experience of their most recent birth. Almost half of the women in A + B group wished to have a caesarean section this time, compared with only 6% of women in the reference group.

In order to gain some understanding of why only half of the women who had strong negative feelings about the birth subsequently underwent counselling, women in these two groups were compared. Table 1 shows that women in group A were more worried, had more depressive symptoms and were more often on sick leave compared with those in group B, but no other statistically significant differences was found.

Women in group C, who had counselling but did not express very negative feelings about the birth during the second trimester, had many similarities with the combined A and B group. They were more often of non-Swedish-speaking background compared with those in the reference group. Their pregnancy was less well planned, and worry and depressive symptoms in early pregnancy were more common. A larger proportion of the parous women had previously undergone an emergency caesarean section, and they had a more negative experience of their most recent birth than parous women in the reference group. Also, more women in group C wished to be delivered by caesarean section this time. In addition, the differences in parity and civil status were statistically significant, with more parous and single women in group C. However, no statistically significant differences in unemployment, sick leave, smoking habits and experience of support from the woman's partner was found between group C and the reference group.

Fear of childbirth and caesarean section

Table 2 shows that the rate of elective caesarean sections was several times higher in women who had undergone counselling (A and C) due to fear of childbirth than in women in the reference group, and women in group A had the highest rate (30%). No statistical differences was found in emergency caesarean section rates between the reference group and groups A, B, and C. The total caesarean section rate was highest in group A (38%).

Fear of childbirth and subsequent experience of the birth

Table 3 shows that the overall childbirth experience in groups A and C, which included women who underwent counselling, did not differ statistically from those in the reference group, whereas women in group B had a more negative experience. In order to better understand if counselling as such, or the higher rate of elective caesarean section which was associated with counselling, affected women's overall experience of childbirth, we conducted a logistic regression analysis including the four groups and the mode of delivery. Separate models were calculated for primiparous and multiparous women. Table 4 shows the risk of assessing childbirth as a very negative or negative experience in the four groups. Besides the adjustment for mode of delivery, the models also controlled for differences in maternal age, education, civil status, smoking habits, native language and in multiparas also for a previous caesarean section. The table shows that group B, which had very negative feelings about the birth in second trimester but did not subsequently undergo counselling, was strongly associated with a negative assessment of the childbirth experience irrespective of whether the women had an operative delivery or not and women in groups A and C who underwent antenatal counselling because of fear of childbirth did not differ statistically from the women in the reference group D.

Discussion

Prevalence of fear of childbirth

In this study, 11% of the women were defined as having antenatal fear of childbirth, and most of these women (9%) underwent counselling for this. The prevalence of antenatal fear of childbirth in the total population of pregnant women in Sweden may be slightly higher than that suggested by this study, for two reasons. First, women who expressed very negative feelings about the birth in the pregnancy questionnaire were over-represented among the nonresponders to the follow-up questionnaire after the birth and were not included in the study. Second, a native language other than Swedish was associated with fear of childbirth, and it is therefore likely that this problem was more common in women who did not participate in the study because of language problems.

Different rates of antenatal fear of childbirth have previously been reported, suggesting that this emotional state is difficult to define. Nevertheless, our study shows that at least 9% of a reasonably representative sample of Swedish-speaking women were affected by their anxiety to a degree that made them seek professional support. These women, who attended the special services organised for women with antenatal fear

Table 1. Background characteristics of women in three different groups characterised by feelings about the approaching birth

Characteristics (data collected in early pregnancy)	Very negative feelings in second trimester				Not very negative feelings in second trimester				χ^2 test, *P* values		
	A (counselling)		B (no counselling)		C (counselling)		D (reference group, no counselling)				
	n = 47	%	*n* = 50	%	*n* = 193	%	*n* = 2372	%	A + B vs D	A vs B	C vs D
Parity									0.36	0.44	<0.001
Nulliparous	17	36.2	22	44.0	56	29.0	1066	44.9			
Parous	30	63.8	28	56.0	137	71.0	1306	55.1			
Age (years)									0.40	0.98	0.19
<25	9	19.1	10	20.0	27	14.0	348	14.7			
25–35	34	72.3	36	72.0	140	72.5	1800	75.9			
>35	4	8.5	4	8.0	26	13.5	224	9.4			
Not married or cohabiting	4	8.5	2	4.0	16	8.3	106	4.5	0.44	0.36	0.02
Married or cohabiting	43	91.5	48	96.0	177	91.7	2256	95.5			
Education									0.10	0.61	0.16
9 years of compulsory schooling	3	6.4	6	12.2	17	8.8	139	5.9			
Upper secondary school	29	61.7	29	59.2	108	56.3	1283	54.5			
College or university	15	31.9	14	28.6	67	34.9	934	39.6			
Residential area									0.28	0.29	0.91
Large city	8	17.0	13	26.5	55	28.8	634	27.0			
Middle-sized city	11	23.4	13	26.5	36	18.8	434	18.5			
Town	7	14.9	10	20.4	42	22.0	509	21.7			
Rural area	21	44.7	13	26.5	58	30.4	770	32.8			
Unemployed	9	19.1	11	22.0	25	13.0	251	10.6	0.002	0.73	0.31
Employed	38	80.9	39	78.0	168	87.0	2121	89.4			
On sick leave	6	12.8	1	2.0	5	2.6	58	2.4	0.004	0.04	0.87
Not on sick leave	41	87.2	49	98.0	188	97.4	2314	97.6			
Smoking in early pregnancy	8	17.4	13	26.0	21	10.9	218	9.2	<0.001	0.31	0.45
Not smoking	38	82.6	37	74.0	171	89.1	2139	90.8			
Native language other than Swedish	5	10.9	7	14.0	47	24.4	163	6.9	0.04	0.65	<0.001
Swedish as native language	41	89.1	43	86.0	146	75.6	2190	93.1			
Inconvenient timing of pregnancy	6	12.8	6	12.0	15	7.8	115	4.9	0.001	0.87	0.007
Pregnancy planned or not planned but welcome	41	87.2	44	88.0	178	92.2	2255	95.1			
No or only little support from partner	4	8.5	5	10.0	11	5.7	117	4.9	0.05	0.79	0.64
All or almost all support needed	43	91.5	45	90.0	181	94.3	2251	95.1			
Worries during pregnancy (sum of SCWS scores)									<0.001	0.01	<0.001
0–10	1	2.1	3	6.0	30	15.5	844	35.6			
11–20	18	38.3	22	44.0	82	42.5	965	40.6			
21–30	9	19.1	18	36.0	51	26.4	425	17.9			
>30	19	40.4	7	14.0	30	15.5	139	5.9			
Depressive symptoms									<0.001	0.03	<0.001
EPDS score >14	14	29.8	6	12.0	31	16.1	139	5.9			
EPDS score ≤14	33	70.2	44	88.0	162	83.9	2233	94.1			
Mode of delivery at any previous birth											
Vaginal delivery	21	70.0	22	78.6	111	81.0	1170	89.6	<0.001	0.66	0.005
Elective caesarean section	2	6.7	1	3.6	8	5.8	63	4.8	0.84	0.95	0.74
Emergency caesarean section	7	23.3	6	21.4	26	19.0	120	9.2	0.002	0.89	<0.001
Experience of latest birth									<0.001	0.28	<0.001
Positive (very + fairly)	2	6.9	3	10.7	47	34.6	847	65.1			
Mixed feelings	2	6.9	4	14.3	42	30.9	310	23.8			
Negative (very + rather)	25	86.2	21	75.0	47	34.6	144	11.1			
Preference regarding mode of delivery									<0.001	0.18	<0.001
Vaginal birth	19	44.2	29	58.0	156	82.5	2208	94.4			
Caesarean section	24	55.8	21	42.0	33	17.5	131	5.6			

A, women who expressed very negative feelings about the birth in early pregnancy and who underwent counselling; B, women who expressed very negative feelings about the birth in early pregnancy and who did not undergo counselling; C, women who did not express very negative feelings in early pregnancy but who later underwent counselling; D, a reference group of women who did not express very negative feelings in early pregnancy and who did not undergo counselling.
SCWS, Swedish version of Cambridge Worry Scale.

Table 2. Caesarean section in relation to fear of childbirth

Caesarean section	Very negative feelings in second trimester				Not very negative feelings in second trimester				χ^2 test, *P* values		
	A (counselling)		B (no counselling)		C (counselling)		D (reference group, no counselling)				
	n = 47	%	*n* = 50	%	*n* = 193	%	*n* = 2365	%	A vs D	B vs D	C vs D
Elective	14	29.8	2	4.0	27	14.0	116	4.9	<0.001	0.97	<0.001
Emergency	4	8.5	8	16.0	14	7.2	188	7.9	0.89	0.07	0.85
Total	18	38.3	10	20.0	41	21.2	304	12.8	<0.001	0.20	0.001

of childbirth in Sweden, were also likely to have been considered by a midwife or a doctor as suffering from fear of childbirth since a referral is usually necessary for admission to these services. One could, however, question if the additional 2%, who expressed very negative feelings during the second trimester but did not undergo counselling, should be defined as suffering from fear of childbirth. Having strong negative feelings about the birth does not necessarily mean fear. Our choice to include these women in our definition was based on an interest to explore if women with fear of childbirth could be identified by a simple question, which in itself is nonfrightening and could be asked by the antenatal care midwife in early pregnancy. Our choice to define the 97 women who expressed very negative feelings about the birth as suffering from fear of childbirth seems reasonable when considering that about half of them subsequently had counselling, and those who did not receive counselling had a more negative experience of the birth. However, our findings also show that for most women who suffer from fear of childbirth, the problem is not identified in early pregnancy. Only 20% of those who underwent counselling expressed very negative feelings during the second trimester; the majority (53%) had mixed feelings.

Sweden is one of the few countries where antenatal fear of childbirth has been recognised as an important problem and where counselling services are available for the majority of pregnant women. This may have affected pregnant women and the midwives at the antenatal clinics by facilitating talking about the problem and seeking more qualified support and counselling. However, the higher prevalence of fear of childbirth in this study compared with that in the Swedish study from 1979[13] may also be explained by different ways of defining the concept and may also have been affected by changes in attitudes in the childbearing population. Green *et al.*[26] in England found that women in the year 2000 were more likely to be anxious about pain in labour and more willing to accept obstetric interventions compared with women in 1987, and the clinical impression by many midwives is that a similar development may have taken place also in Sweden.

Selection of women

The characteristics of women with fear of childbirth in this study were similar to those reported by others. Worries and depressive symptoms were more common in these women, and other studies have found associations between fear of childbirth and depression,[27,28] anxiety disorders[29,30] and symptoms

Table 3. Overall experience of childbirth in relation to antenatal fear of childbirth

Birth experience	Very negative feelings in second trimester				Not very negative feelings in second trimester				χ^2 test, *P* values		
	A (counselling)		B (no counselling)		C (counselling)		D (reference group, no counselling)				
	n = 47	%	*n* = 50	%	*n* = 189	%	*n* = 2342	%	A vs D	B vs D	C vs D
Very positive + positive	24	51.1	19	38.0	123	65.1	1409	60.2	0.25	<0.001	0.23
Both positive and negative	18	38.3	16	32.0	53	28.0	798	34.1			
Very negative + negative	5	10.6	15	30.0	13	6.9	135	5.7			

Table 4. Risk of assessing childbirth overall as a negative experience when asked 2 months postpartum in three groups of primiparous and multiparous women (A, B and C) defined as having suffered from antenatal fear of childbirth, compared with a reference group (D) and when controlling for mode of delivery and maternal background characteristics

	Primiparous women (n = 1127)*			Parous women (n = 1470)**		
	OR	**95% CI**	***P***	**OR**	**95% CI**	***P***
Group D: No antenatal fear of childbirth	1.0	Reference		1.0	Reference	
Group A: Very negative feelings in second trimester + counselling	1.6	0.3–7.9	0.60	1.5	0.3–7.3	0.62
Group B: Very negative feelings in second trimester, no counselling	7.5	2.8–19.7	<0.001	5.2	1.9–14.6	0.002
Group C: Not very negative feelings in second trimester + counselling	0.9	0.3–2.8	0.86	1.7	0.8–3.6	0.20
Vaginal delivery	1.0	Reference			Reference	
Elective caesarean section	1.5	0.4–5.3	0.53	0.2	0.0–1.6	0.13
Emergency caesarean section	5.5	3.1–9.7	<0.001	6.8	3.2–14.6	<0.001
Instrumental vaginal delivery	6.2	3.6–10.7	<0.001	3.3	1.2–9.5	0.03

*Primiparous women adjusted for age, education, civil status, smoking and native language.
**Parous women adjusted for age, education, civil status, smoking, native language and previous caesarean section.

of traumatic stress.[31] Experiencing little or no support from their partner was more common in women who had very negative feelings about the birth (group A and B), and this finding is supported by others who found an association between fear of childbirth and social factors, such as dissatisfaction with the relationship with their partner, and lack of social support.[28] Also, the association between fear of childbirth and a previous emergency caesarean section or a negative birth experience, has been reported earlier.[32,33]

Fear of childbirth and outcome of delivery

This observational study could not confirm the finding of a previous Swedish study,[8] which reported an association between untreated antenatal fear of childbirth and subsequent *emergency* caesarean section. However, this discrepancy may be related to the definition of fear of childbirth, which in the majority of cases in our study was based on whether the woman had had counselling or not. Fifty women in group B expressed very negative feelings about the birth without seeking professional help. In this smaller group, 16% had an emergency caesarean section compared with 8% in the reference group (Table 2). This difference was not statistically significant, but we cannot exclude the possibility that this was due to lack of statistical power.

Women who had counselling (groups A and C) had a higher rate of *elective* caesarean sections and this affected the total caesarean section rate, which was higher in these women than in those in the reference group. Women in group B, who did not seek counselling, had about the same rate of elective caesarean sections as those in the reference group. These women expressed less general anxiety and were less often on sick leave compared with women in group A (Table 1), which may have made the antenatal care midwives less attentive to their fear of childbirth and also to their wishes to have a caesarean section. Less educated women and smokers also tended to be over-represented in group B, compared with women in all the other groups, suggesting that they were socially more disadvantaged, and this may have made them less inclined to raise the issue of having an elective caesarean section or counselling.

Similarly to other observational studies reporting that women who initially wished to be delivered by caesarean section were less inclined to ask for it after treatment,[1,2,4,19,20] the rates of elective caesarean sections in our study were lower in groups A and C compared with these women's wishes in early pregnancy. However, since the rate was even lower in group B, where no treatment was given, our findings suggest that a more important effect of the counselling was to facilitate the implementation of women's wishes to have an elective caesarean section rather than to reduce the caesarean section rate.

From the perspective of the pregnant woman who fears the approaching birth, her subsequent experience of childbirth should be considered more important than the mode of delivery. This study showed that women who had counselling made about the same assessment of their overall birth experience as women in the reference group at 2 months after

the birth, a finding in line with a previous Swedish study.[2] Women in group B who were not treated had a more negative experience, regardless of the caesarean section rate. These findings suggest that treatment by an Aurora team may help women with antenatal fear to have a more 'acceptable' experience of childbirth.

Limitations of the study

Although this study was prospective, and also unique by studying a nationwide sample of pregnant women, it has several limitations. First, the study is observational and definite conclusions about the effects of fear of childbirth, or of counselling, cannot be drawn. Second, the definition of antenatal fear of childbirth was not based on an established instrument, such as the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ).[3,4] A single item, such as the question about women's feelings about the approaching birth in the first questionnaire, may not have captured all the dimensions of fear of childbirth. A factor analysis of the W-DEQ identified four dimensions that may reflect more aspects of fear of childbirth, such as *fear, lack of positive anticipation, isolation* and *riskiness*.[9] Third, although the sample was relatively large, the subgroups A and B were small, and clinically important differences may have been masked by lack of statistical power. Finally, we did not have any information about how the counselling was given in the individual cases. The practices of the Aurora groups may vary to some extent over the country.

Conclusions

This study showed that fear of childbirth is a common problem in Sweden, affecting about one of ten pregnant women. These women may also have other psychosocial problems, which may have facilitated their identification by the antenatal care midwives. However, about 2% of the total population who had very negative feelings about the birth, but without being anxious in general, did not undergo counselling, suggesting that they were not identified by the midwives. These women may have been less outspoken about their fear of childbirth. Our findings suggest that these women could be identified easily by a simple question concerning their feelings about the birth in early pregnancy, and hopefully, this could help create a better experience of the subsequent birth. However, we cannot exclude the possibility that these women may have been identified by the midwives but declined an offer to undergo counselling.

Fear of childbirth was associated with an increased rate of elective caesarean sections and with an 'acceptable' birth experience in women who underwent counselling. Fear of childbirth without counselling did not seem to affect the caesarean section rate but was associated with a negative birth experience. The risk of having a negative birth experience increased in this group, regardless of whether the women had a caesarean section or not. These findings suggest that counselling is an effective method to help women experience birth in way that they find acceptable, but to confirm this, a randomised controlled trial is required. Such trials should be encouraged in places where the introduction of special services offering counselling for fear of childbirth is being considered. ■

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