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Childbirth experiences among women with fear of birth randomized to internet-based cognitive therapy or midwife counseling

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ABSTRACT

Background: Although women with fear of birth often report negative birth experiences, few studies have focused on their experiences in the long term. The aim of this study was to compare birth experiences a year after childbirth in two groups of women receiving treatment for experiencing fear of birth during pregnancy.

Methods: As part of the U-CARE: Pregnancy Trial, a prospective multicenter randomized controlled trial comparing the effects of internet-based cognitive behavioral therapy (iCBT) and standard care among pregnant women with fear of birth. Women were recruited at three Swedish hospitals following a screening procedure that assessed their fear of birth. Data were collected online with the Childbirth Experience Questionnaire (CEQ), one question about the overall birth experience, and questions about personal background, collected before randomization.

Results: A total of 181 women responded to the follow-up questionnaire a year after childbirth. Approximately half of participants reported a less positive birth experience. Preferred mode of birth, actual mode of birth, marital status and psychiatric history were associated with the domains of the CEQ. However, no statistically significant differences emerged between the treatment groups.

Conclusions: Being randomized to receive iCBT or counseling with midwives for fear of birth was not associated with perceptions of the birth experience assessed a year after birth. Most participants reported less-than-positive birth experiences and scored low on the domain of the CEQ reflecting Own capacity. In response, additional research remains necessary to identify the best model of care that might facilitate positive experiences with giving birth among women with fear of birth.

Introduction

Women’s perceptions of their experiences with giving birth result from a complex process and pose long-term effects for women’s and their children’s health [1–3] and are related to a multitude of factors. Some of the contributing factors to the birth experience that have been studied are personal background (e.g. sociodemographic characteristics, own capacity and strength) [4,5], a trustful relationship with midwife, support and sense of control, mode of birth [6,7], models of midwifery care [4] and fear of birth [7–12].

However, most studies on women’s birth experiences have involved fairly brief postpartum follow-up periods, and few have focused on the long-term impacts of their experiences. A notable exception is Simkin’s study [1], which revealed that women have clear memories of giving birth 15–20 years after the event. Studies about the stability of the perception of the birth experience are somewhat inconclusive. Waldenström found in a Swedish population based study that around 60% of the women reported stable assessments of the birth experience, 24% became more negative after one year and 16% more positive [13]. Those findings were somewhat confirmed in a regional cohort study with 763 women approached 2 months and a year after they had given birth, where 22% of the women scored more positively after one year, and 15% more negative [14]. In addition, a Danish 5-year follow up of women included in a randomized controlled trial, showed that 51% scored identical 6 weeks
postpartum and 5 years later, 40% reported a less positive experience and 9% a more positive experience 5 years later [15].

On the contrary, studies focusing on women with fear of birth showed no significant change in the birth experience from mid pregnancy to one year after birth [9] and fear of birth has been associated with negative birth experiences in several studies [7,10,11,16] in which primiparity, negative feelings about the upcoming birth and preference for cesarean section were associated with negative birth experiences [14].

Expectations about birth represent another factor associated with birth experiences. In a study conducted in Denmark, Christiaens and Bracke revealed that women with high expectations for birth had better birth experiences and that having their expectations met increased their satisfaction with birth [17]. In Sweden, another regional cohort study showed that women younger than 25 years, primiparous women and women with fear of childbirth had higher expectations for birth regarding the presence and support of midwives, participation in decision making and being in control than other women [18]. Its results also showed a strong association between fulfilled expectations and overall birth experiences [18].

A recent longitudinal study of 330 first-time mothers in Israel examined the role of expectations on the birth experience and the mediation of control, emotions and satisfaction with support. The authors concluded that discussing expectations before birth could be a means to help women achieve satisfying birth [19].

In Scandinavia, researchers have long focused on fear of birth, the prevalence of which has been estimated to be 20% in Sweden [20], 11% in Europe [21] and 24% in Australia [22]. Such differences in prevalence stem from a lack of consensus on definitions and measurements, divergent study settings and the variety of participants. In ever-expanding international research on fear of birth, by comparison, a recent review of 29 studies involving 853,988 women in 18 countries estimated the prevalence of severe fear of childbirth to be approximately 14% [23].

Sweden has a long tradition of treating fear of birth. All 45 maternity clinics in the country offer counseling with midwives for women experiencing such fear [24]; but the time allocated to and the content of such counseling differ from hospital to hospital. Studies evaluating counseling with midwives in Sweden have reported that women are satisfied with the counseling, even if the treatment was ineffective in reducing preference for cesarean section, negative perceptions of the experience of giving birth or level of fear a year after birth [9]. However, a recent experimental study where the counseling midwife also assisted during birth showed the 83% of the women had a positive birth experience and 29% of those who had a known midwife reported that the fear disappeared [25].

In addition to counseling, international approaches to treating fear of birth include crisis-oriented counseling [26], group psychoeducation [12], telephone psychoeducation [27] and cognitive therapy [28]. Some studies on treatments for fear of birth have reported the positive results of the treatments in terms of lower rates of preference for cesarean section [26], less fear [27] and improved birth experiences [12]. On the other hand, other studies have found no reduction in fear of birth [9,10,29] suggesting that fear of birth is not easily treated.

In recent years, treatments available online have been increasing such as internet-based cognitive behavioral therapy (iCBT) which has been used to treat various psychological conditions and proven effective in lowering symptoms of anxiety and mood disorders [30,31]. To our knowledge, only in one study, women with fear of birth have been treated with iCBT. The participants were 28 self-recruited first-time mothers, who received 8 weeks of iCBT treatment for fear of birth. The result of that feasibility study showed a statistically significant reduction in fear among the 15 women who actually fulfilled the treatment. The study was, however, limited by the lack of control group [32]. In addition, a randomized controlled trial of 258 women with fear of birth who either received iCBT or standard care (counseling with midwives) [33,34] found similar decrease in fear of birth over time. As fear of birth could be viewed as a domain of anxiety disorders [35,36] it is likely to believe that internet-based cognitive therapy could be helpful for women with fear of birth and in turn create a positive birth experience.

**Problem area**

Because women’s memories of giving birth are often clear many years after the event, their perceptions of the birth experience can affect their entire lives and their reproductive health. However, few studies have focused on women’s birth experiences in the long term after they have received treatment for fear of birth. In response, the aim of the study was to compare birth experiences a year after childbirth in two groups of women receiving treatment for experiencing fear of birth during pregnancy.
Materials and methods

Design

The study was a secondary analysis of the U-CARE: Pregnancy Trial, a prospective randomized controlled trial comparing iCBT with standard care (i.e. counseling with midwives) among pregnant women with fear of birth, in which the primary outcome is self-assessed fear of birth. Details of the primary outcome are available elsewhere [33], and the protocol for the U-CARE: Pregnancy Trial has been published (ClinicalTrials.gov, NCT02306434, registered December 1, 2014) [34].

Setting

The study was conducted in Sweden, at a university hospital with an annual rate of 4000 births and two referral hospitals with annual rates of 2800 and 1600 births, respectively. The time period of recruitment was from February 2014 to February 2015.

Recruitment of participants

In the stepwise recruitment process, all women attending routine ultrasound examinations at the hospitals during weeks 17–19 of gestation were invited by the midwife administering the examinations to participate in a screening procedure aimed at identifying women with fear of birth. Ultimately, 4502 women completed the screening procedure and a short questionnaire soliciting personal background information (i.e. age, parity, gestational week, access to computer and contact information). Fear of birth was assessed on the Fear of Birth scale, which measures women’s worries and fear when thinking about their upcoming births [20,37]. Criteria for inclusion in the screening procedure were ability to communicate in Swedish and normal results of the ultrasound examination, and scoring 60 or more on the Fear of Birth Scale. The 864 (19.2%) women who scored 60 points or more on the Fear of Birth scale were contacted by telephone to be given information about the randomized controlled trial; of those women, 712 who met the inclusion criteria answered the phone and were invited to participate in the trial after being given information about the two treatment methods. Each woman who consented to participate received a letter with information about the study and a consent form. Upon returning the consent forms, the women were given details for logging in to the U-CARE portal, where they completed the baseline questionnaire. Last, the participants were randomized by the portal to receive iCBT (n=127) or counseling with midwives (n=131). A total of 258 women consented to participate in the trial after the screening procedure during their pregnancy. A year after birth, 181 women (70% of the original sample) completed the follow-up questionnaire; of them, 95 women had been randomized to counseling with midwives and 86 to iCBT.

Intervention

Participants randomized to receive iCBT were introduced to the program by two psychologists and gained access to eight treatment modules with text-based material and exercises for managing fear of birth. After every session, one of the psychologists provided participants with feedback on their progress, and upon completing each module participants were instructed to advance to the next module.

Standard care

In Sweden, standard care for women with fear of birth is counseling with midwives, which aims to reduce their fear of birth and make birth experiences as positive as possible, regardless of mode of birth. Although the content of the counseling sessions can differ among hospitals due to women’s needs and the competence of midwives, women receiving such care typically participate in 2–4 sessions with a midwife. Ideally, by receiving support, information and advice on preparing for birth, women’s self-confidence in their ability to give birth improves [38].

Data collection

Data were collected from an online questionnaire on the U-CARE portal and from questionnaires mailed to women who did not respond to the online questionnaire. Two reminders were sent to women who did not initially respond. Women were asked to complete the questionnaire at baseline, at 30 and 36 weeks of gestation, 2 months after birth and a year after birth. Only data from the baseline and follow-up questionnaires a year after birth were used in this study.

Personal background

Before randomization, data were collected on women’s personal background (e.g. age, civil status, number of children, country of birth, level of education, previous mental health problems and previous negative encounters with healthcare).
The Hospital Anxiety and Depression Scale (HADS), with a cutoff of eight points, was used to measure symptoms of anxiety and depression [39].

**Obstetric factors and birth-related data**

Onset of labor, mode of birth and overall birth experience a year after the event were examined. The question about the overall birth experience was answered on a 5-point Likert scale ranging from 1=very positive to 5=very negative. In the analysis, very positive and positive responses were grouped as positive responses. The response alternative neither positive nor negative was solo, and finally the responses negative and very negative were grouped as negative responses.

**Birth experience**

Women’s birth experiences were also investigated by using the Childbirth Experience Questionnaire (CEQ) [40], developed by Dencker et al. to study women’s perceptions of their first experiences with labor and birth. The CEQ contains 22 items in 4 domains related to the birth experience: personal capacity, professional support, perceived safety and participation. Most items are rated on 4-point Likert scales (1=totally disagree and 4=totally agree), although three items are assessed with visual analog scales, which were later transformed to categorical variables following the instructions of the CEQ’s creators [40]. Appendix 1 presents an overview of the CEQ’s domains and their respective items.

Regarding the domains and items used in the study, with eight items (e.g. “I felt strong during labour” and “I was tired during labour and birth”), the domain personal capacity sought to elicit participants’ feelings, whereas the domain professional support consisted of five items addressing midwifery care received (e.g. “My midwife devoted enough time to me” and “My midwife understood my needs”). Next, with six items, the domain perceived safety included items addressing memories of giving birth and the skills demonstrated by the hospital staff. Last, the domain participation included three items about decision making and choices during labor and birth.

Scores in each domain were totaled, and means scores and standard deviations were calculated for each domain in relation to background factors; higher scores indicated higher satisfaction with birth. Reliability was checked using Cronbach alpha values for each domain, with a range from 0.38 to 0.92. Previous studies have reported good internal consistency for the domains; in Dencker et al.’s study, involving 1177 primiparous women, a principal component analysis (PCA) revealed a four-factor solution with acceptable reliability, with Cronbach alpha values of 0.62–0.88 [40], which have been confirmed in studies in Spain and the United Kingdom [41,42].

**Analysis**

The 22 items of the CEQ were first subjected to a PCA. Prior to performing the PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of 0.3 or above. The Kaiser-Meyer-Olkin value was 0.89, and Bartlett’s test of sphericity reached statistical significance (p<.001), supporting the factorability of the correlation matrix. Oblimin rotation was used to aid the interpretation of the components. Differences in mean scores and standard deviations were thereafter calculated using Student’s t test or analysis of variance (ANOVA) for the domains of the CEQ in terms of women’s background characteristics. All analyses followed an intention-to-treat approach, and calculated scores were analyzed using the Statistical Package for the Social Sciences version 23 (SPSS Inc., Chicago, IL, USA). The study was approved by the Research Ethics Committee at the Regional Ethical Review Board in Uppsala, Sweden (no. 2013/209).

**Results**

This study focuses of 181 of the randomized controlled trial (RCT) participants who completed the follow-up questionnaire a year after birth. The mean age of participants was 30 years, 93% lived with a partner, and 87% were born in Sweden. The majority of them (56.3%) had a university level of education, and 41% had given birth before. Nearly half of the participants had a history of psychiatric illness, and a similar percentage reported having had negative experiences during previous encounters with healthcare. Nearly one in three women preferred cesarean section as the mode of birth. On the HADS, 56.8% of participants earned scores of eight points or more on the Anxiety subscale, while 25.0% earned scores of eight points or more on the Depression subscale. No differences emerged in the personal background between women randomized to iCBT or counseling with midwives (Table 1).

Shown in Table 2, obstetric factors revealed that 19% of participants had had labor induced, most had
vaginal, non-instrumental birth (65%) and 28% had cesarean sections. Of the 50 women who were delivered with cesarean section, 16 (32%) were elective and 34 (68%) were emergent. Nearly half of participants reported a less positive experience with giving birth, although only around 10% had a negative or very negative birth experience. Again, no differences in obstetric factors emerged between the intervention group and the control group.

Table 3 presents results in terms of the internal consistency of the four domains of the CEQ in relation to randomization. The four domains accounted for 42, 10, 8 and 5% of the variance, respectively, for a total of 65% using a PCA. The loadings in each component are presented in Appendix 1. The internal consistency, presented as Cronbach alpha values, deviated from values reported in the original CEQ study, especially regarding the domains Own capacity and Perceived safety. No statistically significant differences surfaced between women who received iCBT or counseling; however, a subgroup analysis (of the whole sample) of the relation between the domains of the CEQ and the

Table 1. Characteristics of the participants in the intervention group and control group.

<table>
<thead>
<tr>
<th>Data collected at baseline before randomization</th>
<th>Intervention (iCBT)</th>
<th>Standard care (counseling)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;25 years</td>
<td>11 (13.4)</td>
<td>8 (8.5)</td>
<td>–</td>
</tr>
<tr>
<td>25–35 years</td>
<td>56 (68.3)</td>
<td>69 (72.4)</td>
<td>–</td>
</tr>
<tr>
<td>&gt;35 years</td>
<td>15 (18.3)</td>
<td>17 (18.1)</td>
<td>.566</td>
</tr>
<tr>
<td>Country of birth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>69 (84.1)</td>
<td>84 (89.4)</td>
<td>–</td>
</tr>
<tr>
<td>Other country</td>
<td>13 (15.9)</td>
<td>10 (10.6)</td>
<td>.372</td>
</tr>
<tr>
<td>Civil status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living with partner</td>
<td>76 (92.7)</td>
<td>88 (93.6)</td>
<td>–</td>
</tr>
<tr>
<td>Not living with partner</td>
<td>6 (7.3)</td>
<td>6 (6.4)</td>
<td>1.000</td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compulsory school/High school</td>
<td>47 (57.3)</td>
<td>52 (55.3)</td>
<td>–</td>
</tr>
<tr>
<td>University education</td>
<td>35 (42.7)</td>
<td>42 (44.7)</td>
<td>.879</td>
</tr>
<tr>
<td>Parity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primipara</td>
<td>51 (62.2)</td>
<td>53 (56.4)</td>
<td>–</td>
</tr>
<tr>
<td>Multipara</td>
<td>31 (37.8)</td>
<td>41 (43.6)</td>
<td>.447</td>
</tr>
<tr>
<td>Previous psychiatric history</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>43 (52.4)</td>
<td>46 (48.9)</td>
<td>–</td>
</tr>
<tr>
<td>Yes</td>
<td>39 (47.6)</td>
<td>48 (51.1)</td>
<td>.654</td>
</tr>
<tr>
<td>Previous negative encounter with health care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>44 (54.3)</td>
<td>45 (47.9)</td>
<td>–</td>
</tr>
<tr>
<td>Yes</td>
<td>37 (45.7)</td>
<td>49 (53.2)</td>
<td>.049</td>
</tr>
<tr>
<td>HADS-depression 8 or more</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>20 (24.4)</td>
<td>24 (25.5)</td>
<td>–</td>
</tr>
<tr>
<td>Yes</td>
<td>62 (75.6)</td>
<td>70 (74.5)</td>
<td>1.000</td>
</tr>
<tr>
<td>HADS-anxiety 8 or more</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>45 (54.9)</td>
<td>55 (58.5)</td>
<td>–</td>
</tr>
<tr>
<td>Yes</td>
<td>37 (45.1)</td>
<td>39 (41.5)</td>
<td>.650</td>
</tr>
<tr>
<td>Preferred mode of birth at baseline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vagal birth</td>
<td>54 (66.7)</td>
<td>69 (74.2)</td>
<td>–</td>
</tr>
<tr>
<td>Cesarean section</td>
<td>27 (33.3)</td>
<td>24 (25.8)</td>
<td>.319</td>
</tr>
</tbody>
</table>

Table 2. Birth data of women randomized to iCBT or standard care.

<table>
<thead>
<tr>
<th>Onset of labor</th>
<th>Intervention (iCBT)</th>
<th>Standard care (counseling)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>63 (77.8)</td>
<td>74 (83.1)</td>
<td>–</td>
</tr>
<tr>
<td>Induction</td>
<td>18 (22.2)</td>
<td>15 (16.9)</td>
<td>.439</td>
</tr>
<tr>
<td>Mode of birth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaginal birth</td>
<td>58 (70.7)</td>
<td>57 (60.6)</td>
<td>–</td>
</tr>
<tr>
<td>Instrumental vaginal</td>
<td>3 (3.7)</td>
<td>8 (8.5)</td>
<td>–</td>
</tr>
<tr>
<td>Elective cesarean section</td>
<td>8 (9.8)</td>
<td>8 (8.5)</td>
<td>–</td>
</tr>
<tr>
<td>Emergency cesarean section</td>
<td>13 (15.9)</td>
<td>21 (22.3)</td>
<td>.339</td>
</tr>
<tr>
<td>Overall birth experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive/very positive</td>
<td>46 (54.8)</td>
<td>47 (50.0)</td>
<td>–</td>
</tr>
<tr>
<td>Neither positive nor negative</td>
<td>29 (34.5)</td>
<td>38 (40.4)</td>
<td>–</td>
</tr>
<tr>
<td>Negative/very negative</td>
<td>9 (10.7)</td>
<td>9 (9.6)</td>
<td>.719</td>
</tr>
</tbody>
</table>
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experience as being less than positive a year after
Roughly half of the women assessed their overall birth
regardless of treatment method for fear of birth.
ference in the perceptions of the birth experience,
In this study, there was no statistically significant dif-

Discussion
background factors presented in Table 1 revealed a
differences. In the domain Own capacity, mode of
birth showed statistically significant mean differences
between the different ways of giving birth (F 3.758
and p .012); women who gave birth vaginally
(n = 118) scored highest (M=2.77 and SD 0.44),
followed by women who had an elective cesarean sec-
tion (n = 15, M=2.71 and SD 0.39), instrumental
vaginal birth (n = 11, M=2.56 and SD 0.55) and last,
emergency cesarean sections (n = 35, M=2.50 and SD
0.43). The effect size calculated using Eta squared was
medium (0.6). Post hoc comparison using the Tukey
honestly significant difference (HSD) test indicated
that the mean score for vaginal birth (mean 2.77 and
SD 0.44) was significantly different from that of emer-
gency cesarean section (mean 2.50 and SD 0.43), while
elective cesarean section and instrumental vaginal
birth did not differ significantly either with vaginal
birth or emergency cesarean section.

Women with a psychiatric history (n = 86) scored
lower in the domain Professional support than women
without (n = 88) such history (M=3.15 and SD 0.87) vs.
(M=3.46 and SD 0.78), t 2.48 (df172) and p .014),
although with a small effect size (Eta square 0.34).

Women not living with a partner (n = 12) reported
lower satisfaction in the domain Participation than
women living with a partner (n = 162, M=2.05 and SD
1.25 vs. M=2.86 and SD 0.95, t 2.77 (df 172), and
p=.006). The effect size was small (0.04). Finally,
women who initially preferred cesarean section
(n = 49) vs. women who preferred a vaginal birth
(n = 123) bordered on statistical significance in the
domain Participation (M =2.57 and SD 1.05) vs.
M=2.89, SD 0.95, t 192 (df 170) and p=.05). The effect
size was 0.02. No differences in terms of personal
background emerged in the domain Perceived safety.

Discussion
In this study, there was no statistically significant dif-
ference in the perceptions of the birth experience,
regardless of treatment method for fear of birth.
Roughly half of the women assessed their overall birth
experience as being less than positive a year after
birth. Another important finding was a deviation from
the results of other studies regarding the internal consis-
tency of the CEQ.

Rates of induced labor and mode of delivery other
than non-instrumental vaginal delivery among partici-
pating women were higher than those on the national
level in Sweden [43]. In particular, the rate of induced
labor in the sample was 20% vs. 16% among Swedish
women overall in 2014–2015 [42]. However, it should
be taken into account that in many hospitals, induced
labor may be offered to women with fear of birth in
order to control the unknown factor of the time of
the onset of labor [24]. Similarly, rate of cesarean
section was also higher (28%) among women with fear of
birth than women nationwide [42], and most cesarean
sections were emergency operations, which might be
partly explained by clinical practices observed in some
Swedish hospitals and counseling organizations. In
birth plans made during counseling, some women
who initially requested cesarean section later agreed
to attempt vaginal birth, presumably as a result of
counseling, after being promised that their plans
could be altered to accommodate cesarean section if
deemed medically safe, especially in the case of over-
whelming fear. That procedure has been common clin-
ical practice in 74% of hospitals in Sweden [24]. In
other studies, researchers have argued that fear of
birth is itself associated with emergency cesarean
sections [44].

Regarding domains of the CEQ, results of the study
somewhat conflicted with findings in other studies
using the instrument. Two domains deviated strongly
compared to Dencker et al.’s study in which the CEQ
was developed [40], as well as in studies in Spain and
the United Kingdom [41–42], namely in terms of lower
Cronbach alpha values. Such divergence could be due
to different samples, for Dencker et al. and the study
in the United Kingdom included primiparous women
only, whereas the study reported here included mul-
tiparous women as well. The study in Spain also
included both primiparous and multiparous women
but indicated strong Cronbach alpha values for both
of its groups in all domains of the CEQ [41]. Although
mean scores in the domains Professional support and

Table 3. Domains of the Childbirth Experience questionnaire (CEQ) in relation to randomization.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Chronbach alpha in the present sample</th>
<th>Chronbach alpha in the original sample of CEQs</th>
<th>Intervention (iCBT) n = 86 mean (SD)</th>
<th>Standard care (counseling) n = 94 mean (SD)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own capacity</td>
<td>0.38</td>
<td>0.82</td>
<td>2.76 (0.42)</td>
<td>2.53 (0.47)</td>
<td>.075</td>
</tr>
<tr>
<td>Professional support</td>
<td>0.92</td>
<td>0.88</td>
<td>3.30 (0.78)</td>
<td>3.31 (0.90)</td>
<td>.928</td>
</tr>
<tr>
<td>Perceived safety</td>
<td>0.41</td>
<td>0.78</td>
<td>2.41 (0.36)</td>
<td>2.50 (0.47)</td>
<td>.134</td>
</tr>
<tr>
<td>Participation</td>
<td>0.78</td>
<td>0.62</td>
<td>2.81 (0.99)</td>
<td>2.82 (1.04)</td>
<td>.942</td>
</tr>
</tbody>
</table>

*Dencker et al. 2010 [40].
Participants quit the study from baseline to follow-up. The study had several limitations. For one, numerous methodological considerations were higher in the study reported here than in Dencker et al., the domains Own capacity and Perceived safety produced far lower Cronbach alpha values. That difference could be attributed to the personal characteristics of the sample, which had a high proportion of women with psychiatric histories, symptoms of anxiety and/or depression and previous negative encounters with healthcare, all of which could be linked to the domains. Previous studies have revealed an association between fear of birth and psychiatric illness [2,45], as well as an association among lack of self-efficacy, and subsequent experience with birth [21].

The other domains (i.e. Professional support and Participation) are more externally oriented and related to midwifery care, and participating women were generally satisfied with those aspects of their experiences with giving birth. It is well known that the midwife–woman relationship is an important aspect of perceiving the birth as positive [3,4,6]. Approximately half of the women in the sample assessed that their overall birth experience was less than positive a year after giving birth. Unsurprisingly, results to the question about overall birth experience pointed in the same direction as results from the CEQ. Although it remains unclear what women were specifically assessing when responding to the overall question, results show that roughly half of them had a less positive birth experience; that percentage was lower than percentages previously reported in national and regional studies with representative samples of women [7,14], although fairly similar to samples of women with fear of birth [10,11].

The results of this study did not indicate any difference between the treatment groups in terms of satisfaction with birth. However, a recent interview-based study of women who received counseling with midwives showed that that treatment was beneficial because it afforded opportunities to be listened to and taken seriously, made women feel empowered and could mitigate the uncertainty of the birth process even amid persistent fear of birth [46]. Taking this further, a recent Swedish study found that if the counseling midwife also assisted the woman during labor and birth, resulted in 83% reporting positive birth experiences [25]. Consequently, additional research remains necessary to investigate the importance of continuity with a known midwife, especially for women with fear of birth.

**Methodological considerations**

The study had several limitations. For one, numerous participants quit the study from baseline to follow-up a year after birth, with the largest dropout rate occurring 2 months after birth and the largest dropout overall among participants in the iCBT group. To increase the response rate, mailing questionnaires was somewhat effective; nevertheless, only 67.7% of participants in the iCBT group and 71.7% in the counseling group completed the questionnaire a year after giving birth. Accordingly, the results should be interpreted with caution. One reason for dropout from the study could have been technical problems with the online portal, which was available only via computers, not smartphones or tablets. Similar findings of internet-based treatments and large dropout rates have also been reported elsewhere [47]. Since the response rate increased when the questionnaires were mailed, receiving a questionnaire by mail should have been an option offered earlier. Having several questionnaires to complete could also have interfered with the busy lives of mothers with infants. Lack of belief in the treatment could have also influenced participation and dropout, since quite a few women declined to participate because they did not accept randomization and likely preferred to receive counseling with midwives in the first place. If participants had a predetermined preference of treatment, then they might have been disappointed by not having their preference met [48]. The chosen time of approaching women with the CEQ a year after birth might have also influenced women’s perceptions of their experiences with giving birth. Previous studies using the CEQ have approached women 1–3 months after birth [40,41], and it is well known that though women’s memories of giving birth are fairly clear long after the event [1,13], their perceptions of their experiences are likely to change over time [14,15]. Another issue could be the assessment of the overall birth experience (one item) did not use a validated measure and the dichotomization might have reduced variance. However, the single question has been used in several studies [7,9–11], in women with and without fear of birth, making comparisons possible.

**Conclusion**

Being randomized to receive iCBT or counseling with midwives for fear of birth was not associated with perceptions of the birth experience assessed a year after birth. Most participants reported less positive birth experiences and scored low on the domain of the CEQ reflecting Own capacity. The deviation from previous studies using CEQ might call for a revised version of the CEQ for women with fear of birth. In response,
additional research remains necessary to identify the best model of care that might facilitate positive experiences with giving birth among women with fear of birth.

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References


Appendix 1. CEQ: domains, included items and loadings.

<table>
<thead>
<tr>
<th>Own capacity (8 items)</th>
<th>0.559</th>
<th>0.808</th>
<th>0.802</th>
<th>0.627</th>
<th>0.578</th>
<th>0.729</th>
<th>0.721</th>
<th>0.730</th>
</tr>
</thead>
<tbody>
<tr>
<td>labor and birth went as I had expected</td>
<td>0.559</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt strong during labor and birth</td>
<td>0.808</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt capable during labor and birth</td>
<td>0.802</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I was tired during labor and birth</td>
<td>0.627</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt happy during labor and birth</td>
<td>0.578</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I felt that I handled the situation well</td>
<td>0.729</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As a whole, how painful did you feel childbirth was?</td>
<td>0.721</td>
<td></td>
<td></td>
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<tr>
<td>As a whole, how much control did you feel you had during childbirth?</td>
<td>0.730</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional support (5 items)</th>
<th>0.877</th>
<th>0.885</th>
<th>0.838</th>
<th>0.852</th>
<th>0.909</th>
</tr>
</thead>
<tbody>
<tr>
<td>My midwife devoted enough time to me</td>
<td>0.877</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My midwife devoted enough time to my partner</td>
<td>0.885</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My midwife kept me informed about what was happening during labor and birth</td>
<td>0.838</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My midwife understood my needs</td>
<td>0.852</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt very well cared for by my midwife</td>
<td>0.909</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived safety (6 items)</th>
<th>0.765</th>
<th>0.607</th>
<th>0.530</th>
<th>0.539</th>
<th>0.583</th>
<th>0.669</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt scared during labor and birth</td>
<td>0.765</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have many positive memories from childbirth</td>
<td>0.607</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I have many negative memories from childbirth</td>
<td>0.530</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Some of my memories from childbirth make me feel depressed</td>
<td>0.539</td>
<td></td>
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</tr>
<tr>
<td>My impression of the team’s medical skills made me feel secure</td>
<td>0.583</td>
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<td></td>
</tr>
<tr>
<td>As a whole, how secure did you feel during childbirth?</td>
<td>0.669</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participation (3 items)</th>
<th>0.737</th>
<th>0.769</th>
<th>0.709</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt I could have a say whether I could be up and about or lie down</td>
<td>0.737</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt I could have a say in deciding my birthing position</td>
<td>0.769</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt I could have a say in the choice of pain relief</td>
<td>0.709</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>