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1 **Partners of nulliparous women with severe fear of childbirth: a longitudinal study**
2 **of psychological well being**

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5 **ABSTRACT: Background:** Little is known about the psychological status of
6 partners of women with severe fear of childbirth (FOC). In this longitudinal study
7 from Helsinki University Central Hospital, we investigated FOC, depression and post-
8 traumatic stress in the partners of women with severe FOC, and possible effects of
9 group psychoeducation and mode of birth. **Methods:** During pregnancy, 250 partners
10 of nulliparous women with severe FOC participated, 93 in the intervention group and
11 157 in the control group. At three months postpartum 52 partners in the intervention
12 group and 93 in the control group participated. Both the partners and the childbearing
13 women filled in the Wijma Delivery Expectancy Questionnaire and the Edinburgh
14 Postnatal Depression Scale mid-pregnancy as well as three months postpartum, when
15 they also filled in the Traumatic Event Scale.

16 **Results:** Partners of women with severe FOC reported less antenatal and postnatal FOC
17 and fewer depressive symptoms than the childbearing women. No partner reached the
18 threshold of severe FOC. No partner reported a possible post-traumatic stress disorder.
19 Group psychoeducation with relaxation was not associated with better or worse
20 psychological well being of the partners. An emergency cesarean section was
21 associated with a more fearful delivery experience in the partners.

22 **Conclusion:** Partners of nulliparous women with severe FOC neither seem to suffer
23 from severe FOC nor reported post-traumatic stress symptoms after childbirth. They
24 reported better psychological well being than the mothers both during pregnancy and

1 after delivery. An unexpected cesarean may be a negative experience even for partners
2 of childbearing women.

3

4 **Keywords:** Fear of childbirth, partners, group psychoeducation, post-traumatic stress
5 disorder

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1 **Introduction**

2

3 Childbirth is a significant event in life. Although joy and positive expectations of the
4 coming birth are common, some people are troubled by fear of childbirth (FOC) during
5 pregnancy. The prevalence of intense FOC in expectant fathers has been reported at 5-
6 13% (1,2,3). In women, about 10% report a fear of getting pregnant or giving birth
7 vaginally, or the fear disturbs her normal life and activities (4-7). FOC in women is
8 associated with depressive symptoms (8,9), and with post-traumatic stress postpartum
9 (10). Women with severe FOC more often want a planned cesarean section (4,5). FOC
10 in fathers has been associated with parental stress and with poor physical and mental
11 health (11). The relationship between pregnant women's FOC and their partners' FOC
12 is not sufficiently known. Hildingsson (1) reported few couples (6/821) with mutual
13 FOC in a non-selected sample. Another study about couples' mental well being showed
14 that pregnant women and their partners seemed to resemble each other concerning
15 depression and dissatisfaction with life (12).

16 The possible effect of treatment in partners of women with a severe FOC has not
17 been evaluated. We do know that treatment of FOC may lower the need for cesarean
18 section and improve the mental health of the women (13,14). In a previously published
19 randomized controlled study of group psychoeducation with relaxation for nulliparous
20 women with very severe FOC, a positive effect was shown on the obstetric outcome
21 (15) as well as on the childbirth experience and maternal adjustment of the women (16).
22 Even so, post-traumatic stress symptoms were common postpartum, especially
23 following emergency cesarean section (16). In the present study, the partners of the
24 participating women are investigated.

1 The aim of this longitudinal study was to examine antenatal and postnatal FOC,
2 and depressive and post-traumatic stress symptoms after childbirth in the partners of
3 nulliparous women with severe FOC, as well as possible effects of the group
4 psychoeducation with relaxation, and the association between mode of birth and
5 postnatal FOC.

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Methods

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10 Between October 2007 and August 2009, 371 nulliparous women participating in
11 routine ultrasound screening at Helsinki University Central Hospital were randomized
12 to group psychoeducation with relaxation for severe fear of childbirth ($n = 131$) or to a
13 control group with conventional care ($n = 240$). Severe FOC in the pregnant women
14 was diagnosed by a score ≥ 100 in the Wijma Delivery Expectancy/Experience
15 Questionnaire A (W-DEQ A), screened at the time of routine ultrasound before mid-
16 pregnancy (mean at 14 ± 4 gestational weeks). The partners in both groups separately
17 received an invitation and gave their informed consent if they wanted to participate in
18 the study. Two questionnaires were posted, one mid-pregnancy (at 20 ± 2 gestational
19 weeks), and another three months after delivery.

20 The intervention method, group psychoeducation followed by relaxation with a
21 mindfulness based guided exercise, is described in detail in a previous publication (17).
22 Six group sessions during pregnancy started at about gestational week 28, and one
23 session was held six to eight weeks postpartum. The leaders were one of two
24 psychologists with specialization in group therapy. Not more than six pregnant
25 nulliparous women participated in each group. The partners were invited to one of the

1 six group sessions during pregnancy. During that session the focus was on the emotions,
2 especially wishes and fears regarding the forthcoming childbirth, parenthood and
3 becoming a family. The participants were supported in sharing their emotions and
4 thoughts within the couple and within the intervention group. Those randomized to the
5 control group had conventional antenatal care, which is community based and free of
6 charge in Finland. Pregnant nulliparous women are scheduled for 10 visits to a district
7 nurse. Partners are welcome to attend. Complications are treated by obstetricians and
8 midwives at a hospital clinic. Virtually all births take place in a hospital with hospital-
9 based staff. The couples in the intervention group also had access to conventional
10 antenatal care.

11 In all, 257 partners (three female) sent in their informed consent form and
12 completed questionnaires during mid-pregnancy. For the purpose of the current
13 analysis, we only used those couples that reported living together ($n = 250$ couples). Of
14 these, 93 were in the intervention group and 157 in the control group. At three months
15 postpartum 145 (only male) partners returned the questionnaire (58%), 52 (56%) in the
16 intervention group and 93 (59%) in the control group. In one case we could not trace
17 mode of birth.

18 Fear of childbirth was assessed using the Wijma Delivery
19 Expectancy/Experience Questionnaire Man (W-DEQ Man), version A (prenatal FOC)
20 and version B (postnatal FOC, describing the degree of fear during the recent
21 childbirth). The W-DEQ is a 6-point, 33-item self-assessment rating scale for a
22 minimum score of 0 and a maximum of 165. It has been used extensively in various
23 countries and demonstrated good validity (18). It has also been used in male subjects
24 (2). In this study, the Cronbach's alpha reliability coefficient was 0.92 for W-DEQ
25 Man A and 0.89 for W-DEQ Man B in the partners. The corresponding Cronbach's

1 alpha reliability coefficients for the childbearing women were 0.75 and 0.95. For the
2 purpose of this study, having a “higher postnatal fear” was defined as having a W-
3 DEQ sum score in the upper quartile (W-DEQ>47).

4 The Edinburgh Postnatal Depression Scale (EPDS), developed to assess
5 postnatal depressive symptoms, was used during pregnancy and three months after
6 childbirth (19). It has been validated for pregnancy (20,21) and for new fathers (22).
7 Each item is rated on a scale of 0 to 3 and all items are added to give an overall score.
8 The chosen cut-off score was ≥ 11 for depression, which has shown a sensitivity of 78.9
9 and a specificity of 84.7 (18). Cronbach’s alpha coefficient was 0.84 and 0.83 for
10 partners and 0.88 and 0.89 for the childbearing women in the two waves.

11 The Traumatic Event Scale (TES) was used to measure post-traumatic stress
12 symptoms related to childbirth, three months after delivery (23). The scale was
13 developed in line with the Diagnostic and Statistical Manual of Mental Disorders,
14 Fourth Edition criteria for post-traumatic stress disorder and comprises the stressor
15 criterion (criterion A) and all symptom criteria for post-traumatic stress disorder
16 including criteria E (time criterion) and F (influence on life). TES includes four
17 statements about criterion A (stressor) and 17 statements concerning post-traumatic
18 stress disorder criteria B, C and D (i.e. intrusive thoughts, avoidance/numbing and
19 arousal). The subjects were asked to report the frequency of each symptom described
20 on a scale of 1 (never/not at all) to 4 (often). A TES F criterion is the reported influence
21 of the symptoms on the person’s life, on a scale of 0–10. For a post-traumatic stress
22 disorder profile (very probable diagnosis, but an interview is always needed) according
23 to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria
24 were fulfilled if items A, B, C, D and E were fulfilled and the degree to which they
25 influenced life was 6–10 for at least one of the symptoms. The TES was only filled in

1 by 86 men (59%) because it was added after the start of the study. Cronbach's alpha
2 coefficient was 0.94 for partners and 0.92 for childbearing women.

3 Obstetrical data were registered in the hospital records. The delivery variables
4 used for the 145 participants three months postpartum were emergency and elective
5 cesarean section, cesarean because of fear of childbirth, instrumental vaginal delivery,
6 and spontaneous vaginal birth.

7 Demographic covariates of age and educational level were used. Age was
8 measured in years. Educational level was measured on a 5-point scale (1 =
9 Comprehensive school, 2 = Vocational school, 3 = Polytechnics, 4 = Lower university
10 degree, 5 = Higher university degree)..

11 This study was approved by the Ethics Committee for Gynaecology and
12 Obstetrics, Otolaryngology, Ophthalmology, Neurology and Neurosurgery at Helsinki
13 University Central Hospital (376/E9/05 from 27 October 2005).

14

15 *Statistical analyses*

16 To quantify the prevalence of FOC and depressive and post-traumatic stress symptoms,
17 mean (standard deviation) was used. The paired samples t-test was used to assess
18 differences between mothers and their partners in the intervention group compared to
19 the control group. Student's t-test was used to assess differences between partners
20 following various modes of birth. Logistic binary regression analysis was used to
21 estimate the odds ratio and 95% confidence interval of the association between an
22 emergency cesarean section and higher postnatal FOC in partners, adjusting for age,
23 education, prenatal FOC and depressive symptoms. All analyses were two-sided at $\alpha =$
24 0.05. The Statistical Package of Social Sciences (SPSS) 22 was used to perform all these
25 analyses.

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Results

The distributions of socio-demographic factors, FOC, depressive symptoms, and post-traumatic stress symptoms are shown in Table 1.

The average ages of the partners and the pregnant women were 31 and 29 years, respectively, at the start of the study. One third of the partners and nearly half of the pregnant women had a university degree. Prenatal FOC was high with low variance in the pregnant women as W-DEQ A ≥ 100 was the criterion for participation. For the partners, prenatal FOC was considerably lower (mean of W-DEQ A was about 45). No partner scored ≥ 100 , the cut-off point for the women to participate in the intervention study. Only one partner scored ≥ 85 , another commonly used cut-off point for severe fear of childbirth (2). Three months postpartum, the W-DEQ B mean score was about 35 for the partners and 65 and 70 for the women in the intervention and control groups.

Depressive symptoms were lower in the partners (mean score of EPDS about 4 before and after the childbirth) compared to the childbearing women (mean score of EPDS about 8 before childbirth and about 7 after the childbirth). Before childbirth, 12 partners (4.9% of the available sample) and after childbirth, six partners (4.1% of the available sample) had an EPDS score ≥ 11 indicating risk of depression.

Three months postpartum, post-traumatic stress symptoms score (TES) was about 19 in the partners and 34 in the childbearing women. No man reported a post-traumatic stress disorder profile as measured by TES. Criterion A (trauma) was fulfilled for seven men. Criterion B (intrusion) was fulfilled for one man. Criterion C

1 (avoidance, numbing) was not fulfilled for any man, and Criterion D (arousal) was
2 fulfilled for seven men.

3 There was no significant difference in any of the postpartum variables between
4 the men whose female partners had been in the intervention group compared to the
5 control group. There was an association between the level of prenatal and postnatal
6 FOC in the partners, $P < 0.001$ (data not shown).

7 Mode of delivery in relation to the partners' postnatal FOC is shown in Table
8 2. Having taken part in an emergency cesarean section was associated with a higher
9 (W-DEQ >47) level of postnatal FOC, OR 5.44, 95% CI 1.84-16.00, when adjusted for
10 age, education, prenatal FOC and depressive symptoms.

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Discussion

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15 In this study the partners of pregnant women with severe FOC were not burdened by
16 the same fear. After birth, these partners seldom reported postnatal fear of childbirth or
17 depression, and no post-traumatic stress disorder profile. An emergency cesarean
18 section was associated with a higher postnatal FOC in the partners.

19 There was no difference in any postnatal measurement between partners in the
20 intervention group and those in the control group. This is not surprising, since the
21 partners had no severe FOC that could be treated. Furthermore those in the intervention
22 group only took part in one of the sessions. The intervention focused on the childbearing
23 women and the family perspective. It has been suggested that male partners with FOC
24 may have other needs than pregnant women (24). Further research around optimizing
25 partner input within this intervention model might be of interest.

1 The partners reported less FOC, fewer depressive symptoms, and fewer post-
2 traumatic stress symptoms than the women with a severe FOC (Table 1). This might be
3 due to different experiences and expectations related to childbirth, but perhaps also to
4 differences in understanding of the questions posed. It is also possible that partners with
5 a severe FOC did not want to take part in the study, even when their wife/girlfriend did.
6 The rate of elective cesarean section in the present study is lower than that in the larger
7 study of all childbearing women (15), which suggests that partners of women who
8 wanted a cesarean might have been less motivated to participate in a longitudinal study.
9 Those partners may have been more frightened of birth and may have wished to avoid
10 filling in questionnaires about feelings and symptoms. It is however evident that the
11 partners who did participate in this study had virtually no severe FOC during
12 pregnancy.

13 Most of the few studies of FOC in men have used other ways of measurement
14 than the W-DEQ (1,25). According to a study that used a modified W-DEQ A, 12% of
15 672 Swedish fathers-to-be reported a serious FOC mid-pregnancy corresponding to a
16 W-DEQ score of ≥ 85 (2). In our study of partners of women with a very serious fear,
17 hardly anyone reported such a high score. It is possible that couples where both partners
18 suffer from severe FOC do not choose to have children. The association between FOC
19 in both parents and elective cesarean section should be investigated in the future. We
20 did find an association between higher levels of FOC during their partner's pregnancy
21 and a higher level of postnatal FOC (or frightening experience of childbirth) just as in
22 the other Swedish study (2).

23 Other studies about new fathers' depressive symptoms have reported various
24 mean EPDS scores, from antenatal and postnatal scores of 5.3 and 6.5 (26) to 2.89 and
25 2.49 (27), compared to our results of 3.5 and 3.9. One study using the same cut-off point

1 for possible paternal depression reported a prevalence of 5.4 and 5.9 percent from birth
2 to six months postpartum (28) compared to our results of 4.1 percent three months
3 postpartum. The partners participating in the present study do not seem more depressed
4 than new fathers with spouses with unknown levels of FOC.

5 The impact of emergency cesarean section on new fathers' frightening
6 experience of childbirth has been shown previously (29). However, no partner in our
7 sample seemed seriously harmed since we found no probable PTSD following birth.
8 The fact that an emergency cesarean may be traumatic for a childbearing woman is well
9 known (30). A previous Finnish study showed that anxiety during pregnancy was a
10 predictor of parental stress in obstetrically low-risk mothers up to three years
11 postpartum, but not in the partners (31).

12 Our study has certain limitations, which must be taken into consideration before
13 generalizing the results. In another cultural context partners of women with severe FOC
14 may report differently about their psychological status. Compared with another model
15 of standard care, the results of the intervention may have been different. The
16 participation rate was under 60% in the postnatal follow-up. Only Finnish and Swedish
17 speaking couples could participate. The measure for depressive symptoms (EPDS) may
18 also be less suitable for new fathers than for new mothers (32). However, the lower
19 level of depressive symptoms in the partners compared to in the childbearing women
20 was to be expected according to previous research (33).

21 Women with severe FOC are vulnerable, and may suffer from post-traumatic
22 stress disorder following childbirth even after treatment during pregnancy (16). It is
23 reassuring that the partners in these families seem to feel well postpartum, which should
24 be beneficial to the early infant-parent interaction (34).

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2 Table 1. Age, educational level and psychological symptoms in women who had severe
3 FOC in pregnancy and their partners (percent or mean \pm SD) by intervention and control
4 group.

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	Partners Intervention group	Partners Control group	Childbearing women Intervention group	Childbearing women Control group
<i>Mid-pregnancy</i>				
Age	32.7 \pm 5.4 (n = 85)	31.1 \pm 5.0 (n = 143)	29.8 \pm 4.4 (n = 93)	29.3 \pm 4.4 (n = 157)
Educational level	(n = 87)	(n = 151)	(n = 93)	(n = 156)
Comprehensive school	11.5	13.9	6.5	6.4
Vocational school	19.5	19.2	10.8	16.0
Polytechnics	17.2	18.5	11.8	11.5
Lower university degree	18.4	15.9	25.8	26.3
Higher university degree	33.3	32.5	45.2	39.7
Prenatal FOC (W-DEQ A)	44.6 \pm 20.5 (n = 88)	45.0 \pm 19.1 (n = 152)	112.5 \pm 12.9 (n = 93)	109.6 \pm 12.3 (n = 157)

Depressive symptoms (EPDS)	4.2 ± 4.1 (n = 89)	3.8 ± 3.7 (n = 152)	7.6 ± 5.3 (n = 93)	8.8 ± 5.2 (n = 157)
<i>Three months after childbirth</i>				
Postnatal FOC (W-DEQ B)	34.2 ± 18.5 (n = 51)	35.2 ± 18.8 (n = 93)	64.9 ± 32.0 (n = 71)	70.4 ± 28.1 (n = 114)
Depressive symptoms (EPDS)	3.5 ± 3.0 (n = 52)	3.9 ± 3.9 (n = 93)	6.3 ± 5.3 (n = 71)	8.0 ± 5.8 (n = 114)
Post-traumatic stress symptoms (TES)	18.2±1.8 (n = 28)	19.5 ± 3.8 (n = 65)	34.1 ± 10.7 (n = 71)	35.3 ± 9.7 (n = 114)

- 1 Note. The paired sample t-tests comparing the age, educational level (continuous),
- 2 prenatal and post-natal FOC and depressive symptoms, and post-traumatic stress
- 3 between the mothers and their partners in intervention and control groups are all
- 4 significant at $p < 0.001$.
- 5
- 6

1 Table 2. Delivery variables and postnatal FOC in 144 partners of women with severe
 2 FOC.

Delivery variable	Number (percent)	Postnatal FOC W-DEQ mean \pm SD	Comparison to spontaneous vaginal birth (P)*
Spontaneous vaginal birth	84 (58.3)	31.6 \pm 17.2	NA
Instrumental vaginal birth	22 (15.3)	36.6 \pm 13.8	0.352
Elective cesarean section	16 (11.1)	33.3 \pm 18.5	0.707
Cesarean section for fear of birth	10 (6.9)	31.1 \pm 13.2	0.971
Emergency cesarean section	22 (15.3)	46.5 \pm 23.9	0.002

3 *Independent samples t-test

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