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Prenatal care in adult women exposed to childhood sexual abuse

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Keywords: Adverse childhood experiences; childhood sexual abuse; consequences; flashbacks; prenatal care; pregnancy.

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Introduction

Based on data from the USA, Australia, Canada and European countries such as the UK, Germany and Sweden, the prevalence of childhood sexual abuse (CSA) experiences is around 20% in unselected women and 13% in parous women [13, 17, 19, 32]. Because abuse experiences often remain undisclosed, the true prevalence of CSA is probably even higher. Between 74% and 96% of these women present physical and emotional consequences resulting from CSA [31, 37]. The consequences of CSA include posttraumatic stress disorder, anxiety, depression, substance abuse, eating disorders and probably some personality disorders or trait abnormalities [31]. During pregnancy, physical as well as psychological changes can trigger memories of CSA, which may negatively influence prenatal care. In addition, CSA is associated with risk factors such as smoking, alcohol and drug abuse, as well as depression during pregnancy [13, 19]. Difficulties with vaginal examinations may interfere with standard obstetrical care [19]. The handling of CSA experiences poses an additional strain on pregnancy. During pregnancy, consequences of CSA may unfortunately involve not only the woman's but also the infant's health. An increasing number of studies indicate that psychological distress during pregnancy is associated with small-for-gestational-age infants and an increased risk for preterm delivery [9, 12, 16, 22, 27, 34, 35].

Scientific data on the relationship of the long-term effects of CSA on prenatal care, however, are scarce. Even if the consequences of CSA on reproductive life are described in clinical or personal reports, little research focuses on it in primary studies. In particular, psychological reactions such as flashbacks or dissociation (a perceived detachment of the mind from the emotional state or from the body) that might be evoked during pregnancy, as well as the effect of social support from

partners or health care providers have, to our knowledge, never been investigated systematically. There exist neither studies comparing pregnant CSA victims with controls nor studies controlling for confounders such as physical abuse experiences and other adverse experiences during childhood. Findings concerning individual consequences of the CSA experience, such as triggers and/or dissociation, are missing as well. As a result, adequate support of future mothers with a history of CSA is currently hampered by a lack of differentiated understanding of potential consequences of CSA on prenatal care. Consequently, many victims of CSA do not obtain pre- and postnatal care that is adapted to their needs.

From the standpoint of primary prevention, effects on the patient and the child during the course of pregnancy are important areas to identify [13] and reliable data are necessary to improve prenatal care in women exposed to CSA. The aim of the present study was to investigate the (i) quantitative as well as (ii) qualitative aspects such as triggers for memories of CSA during pregnancy, experiences with dissociation, individual consequences of CSA on pregnancy and prenatal care, as well as the satisfaction with prenatal care of women exposed to CSA compared to controls. In addition, the investigators intended to (iii) learn from women with CSA experiences how current prenatal care models can be adapted to their needs.

Method

Study design

The study was designed as a cohort study comparing data from 85 women with CSA experiences to those of 170 women without such experiences.

Sample

Exposed women as well as controls had to have a history of at least one pregnancy resulting in a live birth prior to the study period. Women were excluded from both groups in cases where they had a major communication, cognitive or psychiatric disorder that precluded informed consent and/or comprehension of the questionnaire. Inclusion criteria for cases were a history of CSA and provision of psychological support to handle CSA experiences. Unexposed women were only included when there was no history of sexual abuse and when their age and the number of children matched with one of the women with CSA experiences. As CSA may have a negative impact on education, the authors did not match exposed and unexposed women for occupation.

Procedures

Recruitment of study participants was performed in cooperation with the German organization Frauennotruf, a society providing care for sexually abused women. Frauennotruf operates regional support centers in all large cities in Germany, focusing on women exposed to sexual abuse. The investigators developed the project in cooperation with the support center in Aachen, which consisted of five psychologists/social workers experienced in supporting women with CSA, and all other centers were invited to support the study. A staff member explained the aims and methods of the study, and all women presenting with a history of CSA confirmed by interview who asked for support to deal with these experiences at the support centers within an 18-month study period were invited to participate. Whether knowledge of the German language was sufficient for study participation was assessed during initial conversation. The intensive nonstructured interview with a sexual abuse specialist working at the support center, which each woman had to undergo, lasted for at least 3 h and focused on the abuse situation. One hundred and thirty-two women were invited to participate in the study. It was emphasized that participation was voluntary. Among them, 111 women agreed to complete the questionnaire; the remaining 21 cited lack of time as the reason for not participating in the study. After a verbal agreement, a questionnaire with a detailed explanation of the study's objectives and a prepaid envelope were given to each study participant. Questionnaires were returned anonymously. To maintain anonymity, no reminders were sent. A total of 85 women returned a completed questionnaire.

Unexposed women were recruited in cooperation with different local kindergartens. Mothers whose children attended kindergarten were asked to participate in the study. Control women for women with CSA experiences whose eldest child had passed the age of kindergarten were recruited from healthy women presenting for annual routine examination in different gynecological or dental offices. Kindergarten as well as annual routine check-ups were chosen to reduce selection bias due to social status, as nearly all children attend kindergarten in Germany and most women undergo routine dental and/or gynecological examinations. After providing information on the study and obtaining the patient's consent, verification of inclusion/exclusion criteria and matching to one of the exposed women, the questionnaire was handed out. Once the first two completed questionnaires from matched unexposed women and from women from the exposed group had arrived, matching for these women was stopped. A total of 243 control women were approached, of whom 218 (89.7% response rate) returned a completed questionnaire. Women who had been recruited as controls but mentioned CSA experiences as defined below were excluded from the study (19.8%; n=48), leaving 170 women for the control group. The study was conducted according to the Declaration of Helsinki, the Local Ethics Committee approved the study and women gave their informed consent to participate.

Instruments

As all women with CSA experiences who participated in the study had contacted the support centers, abuse experiences were investigated as part of the psychological support the women received. Interviews were used to diagnose CSA and other adverse childhood experiences. CSA experiences were additionally explored using questions modified from a questionnaire developed by Wyatt [38].

After translation and retranslation of the English version by native speakers, eight specific characteristics were used to investigate unintended sexual experiences/sexual abuse experiences: (1) Exposure of genital organs toward the child/adolescent; (2) Masturbation in front of the child/adolescent; (3) Touching or fondling of the child/adolescent's body, including breasts or genitals, in an attempt by someone to arouse the child/adolescent sexually; (4) To have the child/adolescent arouse the perpetrator, to touch the perpetrator's body in a sexual way; (5) Anyone rubbing their genitals against the child/adolescent's body in a sexual way; (6) Attempting to have intercourse with the child/adolescent; (7) Anyone having intercourse with the child/adolescent; and (8) Any other sexual experience involving a relative, family friend or stranger. If any of these characteristics were present, the participant was included independent of the age of the perpetrator. Sexual abuse occurring prior to adulthood, i.e., the 18th birthday, was considered as CSA. Only when the interview as well as the questionnaire confirmed CSA were women considered as suffering from CSA.

Current research literature [19] and the clinical experience of the investigators were the basis for a self-administered questionnaire developed in cooperation with Frauennotruf. It was designed to investigate the consequences of CSA on prenatal care during adulthood and was composed of the general history, adverse childhood experiences and obstetrical data. Several questions focused on details of sexual abuse situations such as the age when the abuse began, duration of abuse situations (six predefined categories; I do not know and free text answer), number of perpetrators, relationships to perpetrators (13 predefined answers; I do not know and free text answer), pregnancy resulting from abuse (yes, no) and outcome of this pregnancy (three predefined answers). Women were also asked whether they had always been able to remember their CSA experiences (yes, no). Further questions explored physical abuse during childhood (yes, no) with a specification of the consequences of physical abuse (pain, bruises, cuts, burns, fractures and/or others in a free text answer). Other adverse experiences during childhood were defined as physical abuse of the mother, substance abuse in family members, mentally handicapped family members, family members with risk for suicide and/or family members in prison.

A question on profession with seven pre-selected categories (Table 1) and a possibility to add the precise profession was used to evaluate educational level. Women working in a factory or a similar situation were classified as laborers; teachers, lawyers or physicians, etc., were classified as executive managers; and professions such as secretary, bank teller or receptionist were classified as employees. To investigate partnership, the authors asked for marital status (four predefined answers), the duration of the current relationship, satisfaction with the current relationship (five-point Likert scale) and whether the partner had changed after the index pregnancy (yes, no). Women were asked to report the number of consultations during pregnancy according to the entries in a booklet (*Mutterpass*), where the obstetrician providing prenatal care documents all prenatal consultations. In Germany, three standard transabdominal ultrasound examinations are performed at gestational weeks 9–12, 19–22 and 29–32. Additional examinations are implemented independent of gestational age when medically indicated. As the total number of consultations depends on gestational age at delivery, a number of ≥4 consultations was considered as adequate for pregnancies at 26–28 gestational weeks at delivery, ≥5 for 29–31, ≥6 for 32–34, ≥7 for 35–36, ≥8 for 37–38 and ≥9 for at least 39 gestational weeks at delivery. According to the entries in the *Mutterpass*, the following pregnancy complications were investigated (yes, no): hyperemesis gravidarum, pregnancy-related bleeding, thrombosis, premature contractions, cervical insufficiency, placental insufficiency, premature rupture of membranes and hypertensive disorders in pregnancy (i.e., gestational hypertension, pre-eclampsia and HELLP syndrome). In addition, hospitalization during the index pregnancy (yes, no), birth weight (g) and gestational age at delivery (completed gestational weeks) were recorded. The questionnaire also included a question on physical abuse during pregnancy (yes, no).

To gain information on how women disclosed their experience of CSA, they were asked whether any health care providers asked for CSA experiences [yes/no answer, four predefined answers and a free text answer to indicate by which professional(s)]. Triggers for memories/flashbacks on abuse situations were investigated with ten predefined answers and the possibility of a free text answer. The intensity of each trigger had to be rated on a three-point Likert scale. Women were asked to report whether they felt adequately prepared for labor (yes, no). In addition, they were asked to describe experiences with memories/flashbacks of CSA during pregnancy, dissociation during pregnancy and suggestions on how to improve prenatal care in free text answers. Satisfaction with prenatal care was explored using a yes/no answer. Fifteen women with abuse experiences tested a preliminary version of the developed questionnaire for aspects of clarity and unambiguousness. The data from the pilot study have not been included in the results presented here.

Table 1 Sociodemographic characteristics in patients and control women.

Variable	CSA (n=85)	Control (n=170)	P-value
Age of mothers at first pregnancy (years)	26.6 (SD 5.2)	27.5 (SD 3.9)	0.12
Average number of children	1.9 (SD 0.9)	1.9 (SD 0.9)	1
Time interval between CSA and index-pregnancy (years)	22.7 (range 0.5–40)	–	
Caucasians, % (n)	98.8% (84)	99.4 (169)	0.8
Professional status, % (n)			0.01
Laborer	12.9% (11)	4.7% (8)	
Employee	42.4% (36)	65.3% (111)	
Executive manager	5.9% (5)	1.2% (2)	
Self-employed	10.6% (9)	6.5% (11)	
Housewife	21.2% (18)	18.8% (32)	
Trainee/student	7.1% (6)	3.5% (6)	
Married/cohabiting, % (n)	62.4% (52)	95.9% (163)	<0.0001

Exposed and unexposed women received the same questionnaire. In both groups, experiences during the index pregnancy, which was defined as the first pregnancy conducted beyond the 24th gestational week, were considered for evaluation. With the questionnaire, women received addresses and phone numbers to seek help. All participants were encouraged to contact a health care provider listed in the accompanying letter if completing the questionnaires provoked any negative emotions.

Statistical analysis

Only women with complete data sets on main outcome measures and potential confounders were included in the study. Data were collected in a Microsoft Access database (Microsoft Corp., Redmond, WA, USA). Participants' free text answers were analyzed using content analysis (conceptual analysis). Two members of the research team (B.L. and E.B.) reviewed the responses to each question systematically for typical aspects. Only when both investigators agreed on the classification of the aspect into one of the pre-coded categories was the mentioned aspect used for analysis. There was agreement on classification in 97.9% of all cases, and the method was successful for all free text answers.

The Student's t-test or Mann-Whitney test was used to compare group differences in continuous variables such as age, number of children, age of children, age at first pregnancy, number of post CSA pregnancies, number of consultations during post CSA pregnancy (means) and number of ultrasound examinations during post CSA pregnancy (means). Differences between proportions such as for nationality, professional status, marital status, obstetrical history, risk factors/behavior during pregnancy and number of consultations during post CSA pregnancy (categories) were analyzed using the χ^2-test and the Fisher's exact test. All tests were two-sided. A P<0.05 was considered as statistically significant. Logistic regression models assessed the association between CSA and the number of prenatal consultations adjusting for confounding variables. The dependent variable was dichotomized as less than adequate or adequate as defined above. We used a forward regression model with P<0.05 as the entry criterion. The likelihood ratio test was used to assess first-order interactions. Consequently, the experience of triggers for memories on original abuse situations during pregnancy, dissociation during pregnancy, physical abuse during childhood and/or pregnancy, other adverse experiences during childhood (physical abuse of mother, substance abuse in family members, mentally handicapped family members, family members with risk for suicide and/or family members in prison), pregnancy complications (premature contractions, cervical insufficiency and premature birth) and professional status, as well as the age and the number of children were included as confounders. Data analysis was performed using IBM SPSS Advanced Statistics v. 4.0 (IBM SPSS, Chicago, IL, USA). With 1 degree of freedom and an effect size of 0.8, the power of the analysis for the comparison of exposed and unexposed women was above 0.90.

Results

Table 1 shows the sociodemographic characteristics of exposed and unexposed women. Three (3.5%) of the pregnancies in women exposed to CSA and two (1.2%) of the pregnancies in control women were completed prior to the 18th birthday. The distribution of professions was different between women with CSA experiences and control women. Women without CSA experiences were also more often married or cohabiting.

Specific features of the original sexual abuse situations are presented in Table 2. The 85 women with sexual abuse experiences during childhood reported a total of 183 perpetrators. Of these women, 12.9% (n=11) mentioned one, 12.9% (n=11) two, 36% (n=31) three, and 12.9% (n=11) more than six perpetrators. For the remaining 25.8% (n=22), no information was available on the total number of perpetrators due to amnesia. A total of 65.8% (n=56) of the women experienced a combination of sexual and physical abuse. Whereas 60.0% (n=51) had conscious memories of the CSA during pregnancy, 40.0% (34) remembered their CSA only later.

The percentage of women with miscarriages/stillbirths was not statistically significant in exposed and unexposed women [25.6% vs. 18.2%, not significant (ns)]. However, an increased number of women with a history

Table 2 Characteristics of the original abuse episode(s) (n=85).

Physical contact during sexual abuse, % (n)	92.9% (79)
Age at the beginning of abuse (years), % (n)	
<6	41.2% (35)
6−8	16.5% (14)
9−11	7.1% (6)
12−14	7.1% (6)
15−18	9.4% (8)
Unknown	3.4% (3)
Duration, % (n)	
Single situation	10.6% (9)
Ongoing situation	
<6 months	4.7% (4)
6 months to 2 years	8.2% (7)
>2 years	47.1% (40)
Unknown duration	18.8% (16)
Unknown	10.6% (9)
Relationship toward perpetrator (n=183), % (n)[a]	
Relative	53%[a] (97)
Acquaintance	37.2%[a] (68)
Stranger	9.8%[a] (18)
Pregnancies resulting from sexual abuse (n=14), % (n)	
Total/prior to 18th birthday	
Carried to term	7.1% (6)/1.2% (1)
Miscarriage/stillbirth	2.4% (2)/2.4% (2)
Induced abortion	7.1% (6)/3.5% (3)

[a]Percentages are calculated in relation to the total number of perpetrators.

of CSA compared to controls had had induced abortions (29.4% vs. 11.8%, P<0.001).

Usage of prenatal care opportunities

Table 3 shows the number of prenatal consultations for women with and without CSA experiences. Perinatal data are presented in Table 4. In multiple logistic regression analysis, CSA experiences and having triggered memories during pregnancy of CSA, physical abuse during pregnancy and a higher number of children proved to be the significant factors for a reduced number of consultations, even after controlling for age at first pregnancy, dissociation during pregnancy, gestational age at birth, physical abuse experiences during childhood, other adverse childhood experiences, complications during pregnancy and the mother's occupation (Table 5).

As reported in a previous study [22], 5.9% (n=5) of women exposed to CSA and 4.1% (n=7) of unexposed women had medical conditions associated with an increased risk of pregnancy complications, such as hypertension, deep vein thrombosis/pulmonary embolism, diabetes mellitus or chronic nephropathy (P=0.7667).

A history of sexual abuse was reported in 9.4% (n=8) of the women who had been exposed to CSA and in 1.2% (n=2) of the control women. Seven women (8.2%) were sent to either a physician specialized in handling the consequences of sexual abuse, a support center for victims of sexual abuse or a psychotherapist. Consequences of CSA experiences on pregnancy were discussed with 2.4% (n=2) of the exposed women.

A total of 72.9% of the women exposed to CSA and 84.1% of the unexposed women attended birth preparation classes (ns). Moreover, 62.4% (n=53) of exposed

Table 3 Prenatal care in women with CSA experiences and control women.

	CSA, % (n)	Controls, % (n)	P-value
Number of consultations	n=85	n=170	<0.0001
<5	25.9% (22)	7.1% (12)	
5–8	17.6% (15)	21.2% (36)	
9–14	37.6% (32)	60.0% (102)	
>14	18.8% (16)	11.8% (20)	
Total number of consultations	Mean: 9.4 Range: 0–25	Mean: 10.4 Range: 0–25	ns
Number of ultrasounds	n=73	n=158	
	Mean: 4.8 Range: 0–18	Mean: 5.5 Range: 0–20	ns

Table 4 Perinatal data in women with CSA experiences and control women.

Variable	CSA	Control	P-value
Gestational age at delivery, GW	n=85	n=170	0.02
<37	18.8% (16)	8.2% (14)	
≥37	81.1% (69)	91.8% (156)	
Birth weight	n=79	n=170	0.02
<2800	20.2% (16)	13.4% (23)	
≥2800 to <3500	31.6% (25)	53% (90)	
>3500	48% (38)	33.6 (57)	
Apgar[a]	n=85	n=170	
≤8	8.2% (7)	7.1% (12)	0.94

GW=Gestational weeks. [a]Score at 5 and/or 10 min after delivery.

women and 75.9% (n=129) of controls felt well prepared for labor (P<0.0001).

Trauma-specific experiences during pregnancy and medical examinations

Different triggers for CSA flashbacks during pregnancy are presented in Table 6. Only 2% of the women with a positive history for CSA did not have any particular memories of their abuse experiences during pregnancy, whereas 21.2% (n=18) had such memories throughout the whole pregnancy without any differences between the trimesters. Another 15.3% (n=13) noted an intensification of such memories during particular periods of their pregnancies [4.7% (n=4) first, 4.7% (n=4) second and 5.9% (n=5) third trimester). Of the 85 women exposed to CSA, 57.6% (n=49) had consciously experienced dissociation (i.e., numbing of body parts or seeing the whole situation from a place outside of the body). Whereas 30.6% (n=15) of them considered dissociation as helpful, 22.4% (n=11) considered it as disturbing and 8.2% (n=4) as sometimes helpful and sometimes disturbing during pregnancy. In the group of women who considered dissociation as helpful, dissociation was used to suppress unpleasant emotions or memories as well as pain and was helpful in maintaining control over the situation. A total of 56.5% (n=48) of the women mentioned particular consequences of CSA on their pregnancy and prenatal care. According to their own estimation, 20% (n=17) of the women felt increased fear regarding pregnancy and delivery, 5.9% (n=5) had difficulties in sensing their own body throughout pregnancy, 7.0% (n=6) could not adequately acknowledge and realize their own needs and 17.6% (n=15) mentioned an impaired confidence toward medical professionals.

Table 5 Impact of CSA on a reduced number of prenatal consultations controlled for the effect of potential confounders.[a]

	With CSA (n=85)	Without CSA (n=170)	P-value (univariate analysis)	Odds ratio (OR)	95% Confidence interval (CI)	P-value (controlled for confounders)
CSA	85 (100%)	0	–	0.214	0.054–0.556	0.003
Experience of triggers for memories of CSA						
During pregnancy[b]	38 (44.7%)	0	–	1.34	1.093–1.764	0.0058
Dissociation during pregnancy[b]	24 (28.2%)	0	–	1.02	0.847–1.317	0.1183
Age (mean)	38.4 (±8.1)	38.9 (±6.5)	0.5899	1.00	0.994–1.022	0.265
Newborn children	1.9 (±0.9)	1.9 (±0.9)	1.0000	0.694	0.485–0.991	0.044
Physical abuse experiences						
During childhood[b]	55 (64.7%)	0	<0.0001	1.883	0.781–8.263	0.121
During pregnancy[b]	16 (18.8%)	0	<0.0001	0.303	0.060–0.945	0.041
Other adverse experiences in						
Childhood[b,c]	47 (55.3%)	18 (10.6%)	<0.0001	1.872	0.614–3.641	0.375
Pregnancy complications[d]	58 (68.2%)	84 (49.4%)	0.0070	1.504	0.739–2.930	0.271
Professional status	See Table 1			0.894	0.739–2.930	0.271

[a]Multiple logistic regression model. [b]Yes or no. [c]Physical abuse of mother, substance abuse in family members, mentally handicapped family members, family members with risk for suicide, family members in prison. [d]Pregnancy complications include those which showed statistically significant differences between women exposed to CSA and control women (Leeners, 2010): premature contractions [38.8%/20%; OR 2.54, 95% confidence interval (CI) 1.43–4.51], cervical insufficiency (25.9%/9.4%; OR 3.36, 95% CI 1.65–6.82) and premature birth (18.8%/7.1%; OR 2.58, 95% CI 1.19–5.59).

Social support

During pregnancy, 62.4% (n=53) of the women exposed to CSA and 97.1% (n=165) of the control women were either married or in a stable relationship (P<0.0001) (Table 1). The average duration of their actual partnership was 12 years (SD 9.7, range 7–41) in women with a history of CSA and 14.8 years (SD 6.6, range 1–34) in control women (P<0.05). Women were satisfied or very satisfied with their current partnership in 64.2% (n=34) of those who had experienced CSA and in 81.8% (n=135) who had not (P<0.0001). Of the

Table 6 Triggers for memories of CSA during pregnancy.

	Percentage of women exposed to CSA rating the specific aspect as a strong trigger, % (n)[a]
Positive pregnancy test	9% (7)
Realization of impending motherhood	15.4% (12)
Physical changes during pregnancy	6.4% (5)
Tiredness, morning sickness	6.4% (5)
General medical examinations	14.1% (11)
Vaginal examinations	19.2% (15)
Communications with health care providers	6.4% (5)
Hospitalization in the index pregnancy	11.5% (9)
Having to rely on the support of others	19.2% (15)
Prenatal classes	6.4% (5)

[a]Percentage is related to the number of women giving a precise answer to the estimated importance of the mentioned trigger (n=78).

women exposed to CSA, 22.4% (n=19) had changed their partner after the index pregnancy compared to 5.3% (n=9) of the women from the control group (P<0.0001).

Satisfaction with prenatal care and demands for improvement

Altogether, 61.2% (n=52) of the women exposed to CSA were satisfied with the medical support they received during pregnancy and 35.4% (n=23) were not. The three main reasons for satisfaction with medical support were attentive obstetrical caregivers (36.5%, n=19), respectfulness (7.7%, n=4) and competence in dealing with the consequences of CSA (9.6%, n=5). Dissatisfaction was mainly attributed to feeling ignored (17.4%, n=4), disrespected (17.4%, n=4) and not being offered the opportunity to discuss CSA (26.1%, n=6).

Within the exposed group, 41 women mentioned specific suggestions as to how to improve prenatal care for women with CSA experiences. A total of 19.5% (n=8) of these women considered adequate care to be an important aspect of obstetric care. Adequate care for these women included emotional support, which was defined as being empathetic, understanding, sensible, confident and not being pressed for time. Improved training of doctors and other health care providers regarding the consequences of CSA specifically in obstetrical situations was suggested by 12.2% (n=5) of the women. Whereas 12.5% (n=5) wanted to

discuss CSA experiences as an integrated part of prenatal care, 2.4% (n=1) of the women did not want to focus on this topic during their prenatal care appointments. Specific support regarding CSA was desired by 9.8% (n=4) and prenatal care adapted to the special needs of women with CSA experiences by 17.1% (n=7) of the women.

Discussion

According to the presented results, CSA experiences may not only influence the frequency but also the quality of prenatal care.

Usage of prenatal care opportunities

Women with a positive history for CSA had significantly more often an inadequately low number of prenatal consultations than control women, even after relevant confounders had been taken into account. Other studies have also shown that abused women often enter prenatal care late [23]. In accordance with these findings, our study contradicts the results of Grimstad and Schei [8], who found more (non-scheduled) contacts with the antenatal care clinic in women exposed to CSA, or those of Jacobs [13], who found an increased number of ultrasound examinations during first pregnancies. Interestingly, a higher number of children was associated with a reduced number of prenatal consultations. On the one hand, experienced mothers might refrain from consultations they do not consider necessary; on the other hand, prenatal consultations for a current pregnancy may be more difficult to organize when small siblings have to be looked after.

As in Germany, nine to 14 routine prenatal appointments in a normal-term pregnancy, as well as any additional consultations because of obstetrical problems, are covered by an obligatory health insurance paid either by the woman or by the government; financial difficulties are excluded as a reason for inadequate prenatal care.

The following trauma-specific experiences might explain the reduced number of prenatal consultations in women with CSA experiences:

1. The physical changes during pregnancy, identification with a future mother role and similarities between original abuse situations and prenatal care can trigger memories of CSA [19]. Women exposed to CSA might avoid prenatal care or refuse examinations in order to prevent triggering memories of original abuse situations. Our data show that the experience of such triggers

is indeed associated with an inadequately low number of prenatal consultations. A total of 36.5% of women showed intense memories of original abuse situations during pregnancy; however, there seems to be no specific time throughout pregnancy that is associated with particular triggers.

2. As a consequence of CSA experiences, women may become totally unaware of their bodies [11, 30], which might lead to overseeing the first signs of obstetrical complications [35]. Therefore, the consequences of CSA may prevent a victimized obstetric patient from seeking optimal obstetric care in the presence of particular risk situations, even when she has no difficulties with routine prenatal care [35].

3. In contrast to memories and triggers, the conscient experience of dissociation was not associated with an abnormally low number of prenatal consultations in the presented study, probably due to the fact that women described the effects of dissociation as positive and negative, and that the number of women experiencing negative effects might have been too small to reach statistical significance. Interestingly, during pregnancy, dissociation was considered more often helpful than disturbing. According to our results, women used dissociation to protect themselves from unpleasant emotions or memories as well as against pain.

Birth preparation classes

Women who had experienced CSA also reported that birth preparation classes, involving lying down among strangers, were frightening to them [11]. In our study, only 6.4% mentioned prenatal classes as an important trigger for memories of CSA and the participation rates in antenatal classes were similar in exposed women and controls. Despite a comparable participation rate in birth preparation classes, a significantly higher number of women with CSA experiences than unexposed women did not feel ready for labor at the end of their pregnancy. Therefore, improved prenatal care with regard to better preparing these women for labor is urgently needed.

Social support

During pregnancy, partner support and being in a confiding, trusting relationship may help to ease the consequences of CSA and to facilitate adequate medical support [24]. In our study, participants with CSA experiences

were significantly more often either single or divorced (P<0.0001). This suggests an association between CSA and intimate relationships, which has been confirmed by other studies [2, 26]. In accordance with these results, women exposed to CSA were significantly less often satisfied with their current relationship and changed partners more often than unexposed women after the index pregnancy. Consequently, adequate prenatal care is not only hampered by the direct consequences of CSA but also by the indirect effects of conflicts in intimate relationships.

Satisfaction with prenatal care and demands for improvement

The known difficulties of women exposed to CSA in trusting relationships as well as the effect of generally increased fear [2, 4, 10, 29] also have an effect on their relationship with health care providers, for example, gynecologists and dentists [20, 21]. Out of the 48 women who mentioned specific factors interfering with prenatal care in the present study, 35.4% reported an increased fear focusing on pregnancy and delivery and 31.2% had difficulties with confidence in medical professionals.

Obstetricians seem not to investigate CSA experiences routinely, as a history of CSA was taken in <10% of the exposed women. Still, questions on CSA were reported significantly more often by women exposed to CSA than by unexposed women. This difference may be explained by the fact that gynecologist-obstetricians ask more often about CSA when they note increased fear of the patients during gynecological examinations [18]. Alternatively, women with CSA experiences may better remember being asked the question.

Although more than one third of the women exposed to CSA felt like they were either being ignored or treated disrespectfully, or regretted that no obstetrical care giver had suggested integrating their CSA experiences into prenatal care, most of the women were satisfied with the medical support they received. Currently, obstetricians do not seem to be considered as being able to provide helpful support in dealing with the consequences of CSA, and many women report negative reactions on the part of the providers when they try to make CSA experiences an issue [25]. Not surprisingly, only a minority of women make this a topic in their prenatal care. Less than half of the women with CSA experiences investigated mentioned specific aspects to improve prenatal care, and most of these aspects focused on empathy and competence in dealing with CSA. Given the finding that only one woman

did not want to be asked about her CSA, health care professionals should signal their willingness to deal with the consequences of CSA. Asking for such experiences when taking the pregnant woman's medical history might be a first step to adapt prenatal care to the specific needs of women exposed to CSA. When abuse is disclosed, adequate (interdisciplinary) support models must be available [19]. Better education of obstetrical caregivers in the potential consequences of CSA might increase the confidence women exposed to CSA have in obstetrical health professionals [25].

Abortions

According to the presented results and those of other authors [6], the number of induced abortions is significantly higher in women exposed to CSA in comparison to controls. Women presenting for a third or more abortions were more than 2.5 times as likely as those seeking a first abortion to report a history of sexual abuse [6]. Study results are inconsistent, however [1, 8]. Women with a history of CSA may have reduced confidence in their abilities as a mother [11], as well as difficulties in using contraception reliably [7, 28, 36]. Both factors might lead to an increased number of induced abortions in women exposed to CSA. The findings of several authors have suggested that CSA may increase the risk of adolescent pregnancy [5, 28]. In a study by Kellogg et al. [14], 53% of pregnant or parenting adolescents had at least one unwanted sexual experience, which is far higher than the prevalence of around 20% for any woman of reproductive age [19, 32].

Strengths and limitations

The generalization of the study results is hampered by several factors. As women contacting a support center were investigated, the study group is not representative of all women with a history of CSA. The study group shows several risk factors for long-term consequences of CSA, such as early onset of abuse, long duration of abuse, a high number of and close relationships toward perpetrators [3]. However, it is especially from such high-risk groups that we can learn about the long-term consequences of CSA. There are probably some women in the control group who have experienced CSA, but may not remember it. However, such a background would lead to underestimation of the presented differences between both groups. Results are self-reported and the

average time since pregnancy was several years. Therefore, recall bias cannot be excluded. However, information on smoking habits could be obtained accurately and retrospectively, independent of recall time and the pregnancy outcomes studied [15]. This indicates that recall bias of significant behaviors and events occurring during pregnancy can be accurately remembered. Women also recalled their pregnancy and birth experiences with great accuracy [33]. Women with a history of sexual abuse are often also victims of physical abuse [26]. Consequently, the presented effects might theoretically be the combined effects of CSA and/or physical abuse. The analysis of confounders by multiple logistic regression shows that, in addition to CSA, the experience of physical abuse during pregnancy is associated with an inadequately low number of prenatal consultations, whereas physical abuse and other adverse experiences during childhood, pregnancy complications and the professional status of the women showed no such association. As no validated questionnaire was available, a self-developed questionnaire had to be used and no data on reliability and validity can be given. There exist also no data on the reliability and validity of the Wyatt questionnaire. However, CSA experiences were investigated within a therapeutical setting and should therefore be very reliable. Although in Germany nearly all children attend kindergarten, an overrepresentation of families with a lower social background in the group of families who refrain from sending their child to kindergarten cannot be excluded.

An advantage of the sample of exposed women in our study was its homogeneity regarding severe forms of sexual abuse. All of the exposed women experienced sexual abuse during childhood. The ethnic background of the study group was very homogeneous as well, with nearly 100% of the women being Caucasians. Another strength of the study was the comparison of women exposed to CSA to women without such exposure. Furthermore, the investigated study group was one of the largest regarding CSA experiences in the context of obstetrical health risk behavior. To the knowledge of the authors, this is the first study to systematically investigate prenatal care in women exposed to CSA.

Future studies will have to investigate the correlations between CSA experiences with prenatal care and pregnancy outcome in larger studies with more representative groups of women with such experiences. Furthermore, resulting models for improved obstetrical care should be evaluated for their effectiveness.

A variety of recent research results show that at least every fifth woman has experienced CSA in her past. Women with a positive history of CSA may present several consequences which may interfere with adequate prenatal care. These factors are associated with a reduced frequency of consultations as well as reduced quality of prenatal care, affecting the relationship between pregnant women and health care providers as well as comfort during physical examinations. Dissociation might help to reduce psychological strain during pregnancy but may also interfere negatively with adequate prenatal care. Improved education of obstetricians regarding the particular needs of women exposed to CSA, including implementation of a routine question about CSA when taking a woman's history and providing empathetic support, should be considered; these steps will help to ensure adequate primary care for these women and their future children.

References

[1] Bartoi MG, Kinder BN, Tomianovic D. Interaction effects of emotional status and sexual abuse on adult sexuality. J Sex Marital Ther. 2000;26:1–23.

[2] Bengtsson-Tops A, Tops D. Self-reported consequences and needs for support associated with abuse in female users of psychiatric care. Int J Ment Health Nurs. 2007;16:35–43.

[3] Briere J. Child abuse trauma. Theory and treatment of the lasting effects. Newbury Park, London: Sage Publications; 1993.

[4] Eberhard-Gran M, Slinning K, Eskild A. Fear during labor: the impact of sexual abuse in adult life. J Psychosom Obstet Gynaecol. 2008;29:258–61.

[5] Fiscella K, Kitzman HJ, Cole RE, Sidora KJ, Olds D. Does child abuse predict adolescent pregnancy? Pediatrics. 1998;101:620–4.

[6] Fisher WA, Singh SS, Shuper PA, Carey M, Otchet F, MacLean-Brine D, et al. Characteristics of women undergoing repeat induced abortion. Can Med Assoc J. 2005;172:637–41.

[7] Grimstad H, Backe B, Jacobsen G, Schei B. Abuse history and health risk behaviors in pregnancy. Acta Obstet Gynecol Scand. 1998;77:893–7.

[8] Grimstad H, Schei B. Pregnancy and delivery for women with a history of child sexual abuse. Child Abuse Negl. 1999;23:81–90.

[9] Halbreich U. The association between pregnancy processes, preterm delivery, low birth weight, and postpartum depressions – the need for interdisciplinary integration. Am J Obstet Gynecol. 2005;193:1312–22.

[10] Heimstad R, Dahloe R, Laache I, Skogvoll E, Schei B. Fear of childbirth and history of abuse – implications for pregnancy and delivery. Acta Obstet Gynecol Scand. 2006;85:435–40.

[11] Heritage C. Working with childhood sexual abuse survivors during pregnancy, labor, and birth. J Obstet Gynecol Neonatal Nurs. 1998;27:671–7.

[12] Hoffman S, Hatch MC. Stress, social support and pregnancy outcome: a reassessment based on recent research. Paediatr Perinat Epidemiol. 1996;10:380–405.

[13] Jacobs JL. Child sexual abuse victimization and later sequellae during pregnancy and childbirth. J Child Sex Abuse. 1992;1:103–12.

[14] Kellogg ND, Hoffman TJ, Taylor ER. Early sexual experiences among pregnant and parenting adolescents. Adolescence. 1999;34:293–303.

[15] Kesmodel U, Olsen SF. Smoking habits among pregnant Danish women: reliability of information recorded after delivery. J Epidemiol Community Health. 1999;53:239–42.

[16] Kramer MS, Lydon J, Seguin L, Goulet L, Kahn SR, McNamara H, et al. Stress pathways to spontaneous preterm birth: the role of stressors, psychological distress, and stress hormones. Am J Epidemiol. 2009;169:1319–26.

[17] Leeners B, Neumaier-Wagner P, Quarg AF, Rath W. Childhood sexual abuse (CSA) experiences: an underestimated factor in perinatal care. Acta Obstet Gynecol Scand. 2006;85:971–6.

[18] Leeners B, Neumaier-Wagner P, Schierbaum V, Rath W. Beratung werdender Eltern zur Sexualität in der Schwangerschaft. Geburtsh Frauenheilkd. 2002;62:60–5.

[19] Leeners B, Richter-Appelt H, Imthurn B, Rath W. Influence of childhood sexual abuse on pregnancy, delivery, and the early postpartum period in adult women. J Psychosom Res. 2006;61:139–51.

[20] Leeners B, Stiller R, Block E, Gorres G, Imthurn B, Rath W. Effect of childhood sexual abuse on gynecologic care as an adult. Psychosomatics. 2007;48:385–93.

[21] Leeners B, Stiller R, Block E, Gorres G, Imthurn B, Rath W. Consequences of childhood sexual abuse experiences on dental care. J Psychosom Res. 2007;62:581–8.

[22] Leeners B, Stiller R, Block E, Gorres G, Rath W. Pregnancy complications in women with childhood sexual abuse experiences. J Psychosom Res. 2010;69:503–10.

[23] McFarlane J, Parker B, Soeken K, Bullock L. Assessing for abuse during pregnancy. Severity and frequency of injuries and associated entry into prenatal care. J Am Med Assoc. 1992;267:3176–8.

[24] Mezey G, Bacchus L, Bewley S, White S. Domestic violence, lifetime trauma and psychological health of childbearing women. Br J Obstet Gynecol. 2005;112:197–204.

[25] Moeller TP, Bachmann GA, Moeller JR. The combined effects of physical, sexual, and emotional abuse during childhood: long-term health consequences for women. Child Abuse Negl. 1993;17:623–40.

[26] Mullen PE, Martin JL, Anderson JC, Romans SE, Herbison GP. The effect of child sexual abuse on social, interpersonal and sexual function in adult life. Br J Psychiatry. 1994;165:35–47.

[27] Noll JG, Schulkin J, Trickett PK, Susman EJ, Breech L, Putnam FW. Differential pathways to preterm delivery for sexually abused and comparison women. J Pediatr Psychol. 2007;32:1238–48.

[28] Rainey DY, Stevens-Simon C, Kaplan DW. Are adolescents who report prior sexual abuse at higher risk for pregnancy? Child Abuse Negl. 1995;19:1283–8.

[29] Rellini A, Meston C. Sexual function and satisfaction in adults based on the definition of child sexual abuse. J Sex Med. 2007;4:1312–21.

[30] Rhodes N, Hutchinson S. Labor experiences of childhood sexual abuse survivors. Birth. 1994;21:213–20.

[31] Romans S, Belaise C, Martin J, Morris E, Raffi A. Childhood abuse and later medical disorders in women. An epidemiological study. Psychother Psychosom. 2002;71: 141–50.

[32] Senior R, Barnes J, Emberson JR, Golding J. Early experiences and their relationship to maternal eating disorder symptoms, both lifetime and during pregnancy. Br J Psychiatry. 2005;187:268–73.

[33] Simkin P. Women's long-term perceptions of their first birth experience. Part II. Nature and consistency of women's long-term memories of their first birth experiences. Birth. 1992;19:64–81.

[34] Stevens-Simon C, Kaplan DW, McAnarney ER. Factors associated with preterm delivery among pregnant adolescents. J Adolesc Health. 1993;14:340–2.

[35] Van Der Leden ME, Raskin VD. Psychological sequelae of childhood sexual abuse: relevant in subsequent pregnancy. Am J Obstet Gynecol. 1993;168:1336–7.

[36] Vogeltanz ND, Wilsnack SC, Harris TR, Wilsnack RW, Wonderlich SA, Kristjanson AF. Prevalence and risk factors for childhood sexual abuse in women: national survey findings. Child Abuse Negl. 1999;23:579–92.

[37] Wescott C. Sexual abuse and childhood education. Int J Childbirth Educ. 1991;6:32–33.

[38] Wyatt GE. The sexual abuse of Afro-American and white-American women in childhood. Child Abuse Negl. 1985;9:507–19.