Childhood Trauma and Perinatal Depression: Data From the IGEDEPP Cohort

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ABSTRACT

Background: Childhood trauma (CT) is associated with an increased risk of major depressive disorder, but little is known about the impact of CT on depression during pregnancy and the early and late postpartum period. The present study assesses whether CT is associated with perinatal depression, considering different types of CT.

Methods: This study used data from the Interaction of Gene and Environment of Depression in PostPartum (IGEDEPP), a French multicenter prospective cohort study, including 3,252 women who completed the Childhood Trauma Questionnaire at the maternity department between November 2011 and June 2016. Depression during pregnancy was assessed retrospectively at the maternity department using *DSM-5* criteria. Early- and late-onset postpartum depression were assessed at 2 months and 1 year postpartum, respectively.

Results: Among the 3,252 women, 298 (9.2%) reported at least 1 CT. Women with CT had a higher risk of depression (OR = 2.2; 95% CI, 1.7–2.7), anxiety (OR = 2.3; 95% CI, 1.7–3.0), and suicide attempts (OR = 5.4; 95% CI, 3.5–8.4) than women without CT. Perinatal depression was more frequent in women with CT than in women without CT, after adjustment for sociodemographic characteristics and personal history of major depressive episode and consideration of the timing of onset (pregnancy, early or late postpartum) ($P < .001$). There was a dose effect between the number of CT types and the risk of perinatal depression.

Conclusions: These results show that CT is associated with a depressive episode during adulthood, specifically in the perinatal period. These findings may lead to special prenatal care for women abused or neglected during childhood, to better screen and treat perinatal depression.

Trial registration: ClinicalTrials.gov identifier: NCT01648816

J Clin Psychiatry 2021;82(5):20m13664

To cite: Tebeka S, Le Strat Y, Etain B, et al. Childhood trauma and perinatal depression: data from the IGEDEPP cohort. *J Clin Psychiatry*. 2021;82(5):20m13664.

To share: https://doi.org/10.4088/JCP.20m13664

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The perinatal period, including pregnancy and the first year postpartum,[1] is associated with an increased risk for psychiatric disorders, especially mood disorders.[2] Perinatal depression affects 10%–20% of women.[2,3] It is associated with adverse consequences for both the mother and her child, including a higher risk of suicide and an increased risk of developmental disorders.[2,4,5] A personal or family history of depression, high levels of anxiety or depression during pregnancy, stressful life events, obstetrical complications, and childhood trauma (CT) are considered risk factors for perinatal depression.[3,6–15]

According to child protection agencies, between 1.5% and 5% of children in Western countries are victims of child abuse.[16–18] Trauma during childhood is recognized as a major public health problem by the World Health Organization.[19] However, these prevalences might be underestimated, with studies based on self-reported trauma suggesting a 34%–48% range.[17,20,21] Women report higher prevalence of CT than men and in particular more emotional and sexual abuse.[16,22,23] Women are also more likely to experience multiple CTs than men and to report different types of abuse.[20,23]

CT is associated with poor outcomes in adolescence and adulthood, with an increased risk of both physical and psychiatric disorders,[24] including cardiovascular disorders,[25] cancers,[26] and premature death.[27] CT is associated with an increased risk of major depressive disorder,[28] posttraumatic stress disorder,[29] and substance use disorder[30] and is associated with a higher suicidality.[31,32] In a prospective study,[33] individuals who experienced CT were 2 times more likely to report a major depressive disorder, 2 times more likely to report suicidal ideation, and 4 times more likely to report an anxiety disorder than individuals without CT. Patients with CT are more likely to report multiple psychiatric diagnoses than their counterparts without CT. More than 75% of individuals reporting both CT and a depressive episode also meet criteria for at least one other psychiatric diagnosis.[23,32,34] Moreover, psychiatric disorders in patients with CT have a poorer prognosis than those in their counterparts without CT. In patients with both CT and a psychiatric disorder, the age at onset of the psychiatric disorder is younger, with greater symptom severity and a worse treatment response than in patients without a history of CT.[35–43]

Several studies[44–47] found an association between the risk of CT and depression during pregnancy, with a

Clinical Points

- The link between perinatal depression, including within pregnancy or during the early or late postpartum periods, and childhood trauma (CT) is unclear.
- Perinatal depression was more common in women with CT, regardless of the timing of onset of depression (during pregnancy or early or late postpartum) or the type of CT, with a dose effect between the number of CT types and the risk of perinatal depression.

dose-response effect. For example, in a study by Robertson-Blackmore et al,[10] women with 3 or more CTs reported a 4-fold risk of depression during pregnancy compared to women without CT. However, subsequent studies yielded conflicting findings, with some studies failing to find this association.[48–50] On the other hand, there also are contradictory data regarding the impact of CT on postpartum depression,[50] with some studies showing an association between CT and postpartum depression[6,9] but others not showing this association.[10,51]

These contradictory results could be explained by the small samples involved, preventing the distinguishing of depression during pregnancy and early- and late-onset postpartum depression and rarely assessing the distinct subtypes of CT. Early-onset depression was defined as beginning prior to the sixth week postpartum and was diagnosed at 8 weeks, following *DSM* criteria, and corresponding to the peak of depression observed in the first weeks postpartum.[52,53] Late-onset postpartum depression was defined as beginning between 2 months and 1 year postpartum. This definition is based on clinical practice and is adopted by the International Marce Society for Perinatal Mental Health[1] and the World Health Organization.[54]

Using data from the French Interaction of Gene and Environment of Depression in PostPartum depression (IGEDEPP) study, we performed an intracohort case-control association study to fill the gaps in the literature. The aim of this study was to assess how CT is associated with women's history of depression, anxiety, and/or suicide attempts by (1) comparing the sociodemographic characteristics and personal history of depression, anxiety, and suicide attempts and (2) assessing the prevalence of depression during pregnancy and the early and late postpartum period in women with CT compared to women without CT. Our hypotheses were that (1) women with CT would be more likely to report depression, anxiety, and suicide attempts than those without CT and (2) the types of CT would be associated with depression depending on the timing of onset (ie, during pregnancy and postpartum).

METHODS

Participants

IGEDEPP is a large French multicenter cohort, composed of 3,310 European women in 8 maternity departments in the Paris, France, metropolitan area. Women were included between November 2011 and June 2016. Main inclusion criteria were age >18 years, European ethnicity (required for further genetic studies in the IGEDEPP Cohort), and coverage by French social insurance. Women who did not speak French, had an intellectual disability or schizophrenia, or gave birth before 32 weeks of gestation were excluded. In the present work, we included only women who completed the Childhood Trauma Questionnaire (CTQ; N = 3,252).

Women were included and assessed between the second and fifth day postpartum at the maternity department by trained clinicians using a face-to-face interview. They were followed-up at 8 weeks and at 1 year postpartum by phone.

All details concerning this cohort are described by Tebeka et al.[55] The research protocol (ClinicalTrials.gov identifier: NCT01648816), including informed consent procedures, was approved by the French Ethics Committee (Ile de France I) and the Data Protection and Freedom of Information Commission.

Measures

Assessment of childhood trauma at the first evaluation. The CTQ[56] is a self-administered questionnaire used to assess CT; participants completed the CTQ during the first clinical assessment, at the maternity department. The CTQ included 28 items grouped into 5 subscales of trauma: sexual abuse (defined as a sexual contact with an adult or an older person), emotional abuse (verbal assaults), emotional neglect (lack of love, nurturance, or support), physical abuse (bodily assaults), and physical neglect (poor parental supervision and care). The presence of trauma was determined according to validated cutoff scores on the CTQ. In the French version of the CTQ,[23] sexual abuse, emotional neglect and abuse, and physical neglect and abuse are considered as present if the score of the corresponding subscale is greater or equal than 11, 16, 11, 14 and 16, respectively. The α coefficients, estimated from our sample, were 0.51 (physical neglect), 0.85 (emotional neglect), 0.90 (sexual abuse), 0.78 (physical abuse), and 0.81 (emotional abuse).

Sociodemographic measures at the first evaluation. Data on age, education level, employment, and marital status were collected at baseline. Age at interview was categorized into (*a*) 18–25 years, (*b*) 26–39 years, and (*c*) 40 years or older. Education level was classified into (*a*) high school or less and (*b*) university.

Personal history assessed at the first evaluation. Psychiatric diagnoses were based on a semistructured interview, the Diagnostic Interview for Genetic Studies (DIGS),[57,58] according to *DSM-5* criteria.[53] The French validation study of the DIGS found excellent interrater reliability and a fair to good diagnostic reliability using a test-retest interval of 6 weeks.[58] The interviewers were psychiatrists or psychologists who received specific training to administer the DIGS. We obtained data on lifetime prevalence for major depressive episode and anxiety disorders (including obsessive-compulsive disorder, panic disorder, agoraphobia, social anxiety disorder, specific

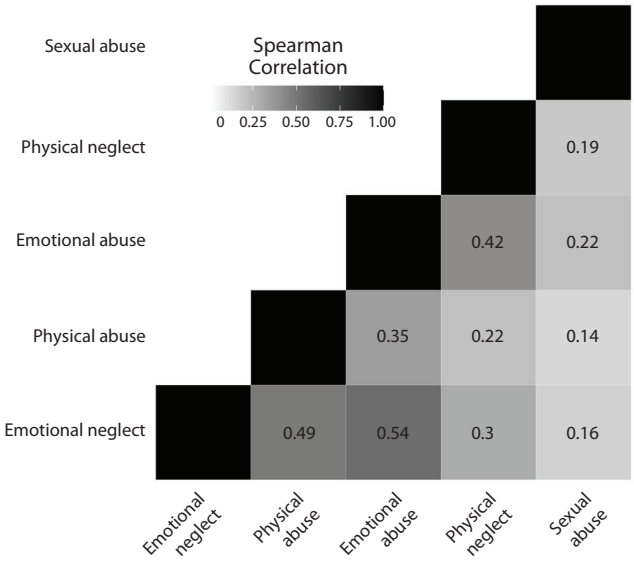
Table 1. Association Between Childhood Trauma and Sociodemographic Data, and Psychiatric History in Participants Evaluated at Baseline[a]

Variable	All (N = 3,252), n (%)	CT (n = 298), n (%)	No CT (n = 2,954), n (%)	CT vs No CT, OR (95% CI)	*P* Value
Sociodemographic					
Age, y					
≤ 25	156 (4.8)	24 (8.1)	132 (4.5)	**1.8 (1.2–2.6)**	**.0031**
25 < age < 40	2,856 (87.8)	241 (80.9)	2,615 (88.5)	1 (reference)	
≥ 40	240 (7.4)	33 (11.1)	207 (7.0)	**1.9 (1.2–2.9)**	**.0076**
Marital status					
Married, common-law married	3,152 (96.9)	278 (93.3)	2,874 (97.3)	1 (reference)	
Widowed, divorced, separated, never married	100 (3.1)	20 (6.7)	80 (2.7)	**2.6 (1.5–4.2)**	**< .001**
Education level					
University	2,996 (92.1)	244 (81.9)	2,752 (93.2)	1 (reference)	
Primary or high school	256 (7.9)	54 (18.1)	202 (6.8)	**3.0 (2.2–4.2)**	**< .001**
Employment					
Yes	3,031 (93.2)	256 (85.9)	2,775 (93.9)	1 (reference)	
No	221 (6.8)	42 (14.1)	179 (6.1)	**2.5 (1.8–3.6)**	**< .001**
Psychiatric					
Psychiatric history					
No	1,866 (57.4)	116 (38.9)	1,750 (59.2)	1 (reference)	
Any	1,386 (42.6)	182 (61.1)	1,204 (40.8)	**2.3 (1.8–2.9)**	**< .001**
History of MDE					
No	2,107 (64.8)	143 (48.0)	1,964 (66.5)	1 (reference)	
Any	1,145 (35.2)	155 (52.0)	990 (33.5)	**2.2 (1.7–2.7)**	**< .001**
History of anxiety disorder					
No	2,719 (83.6)	212 (71.1)	2,507 (84.9)	1 (reference)	
Any	533 (16.4)	86 (28.9)	447 (15.1)	**2.3 (1.7–3.0)**	**< .001**
History of suicide attempt					
No	3,156 (97.0)	266 (89.3)	2,890 (97.8)	1 (reference)	
Any	96 (3.0)	32 (10.7)	64 (2.2)	**5.4 (3.5–8.4)**	**< .001**

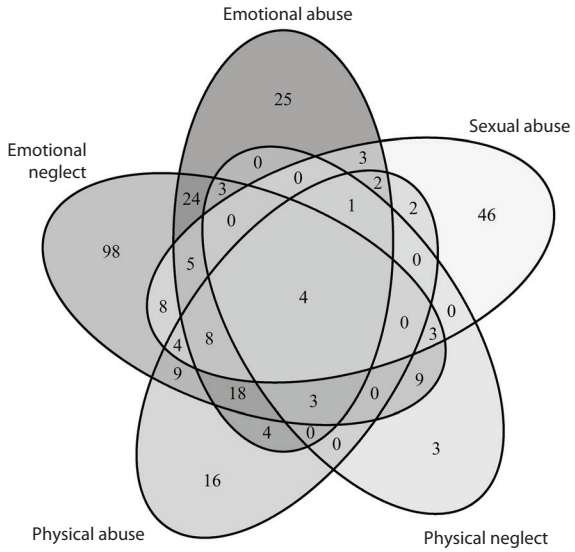
[a]Significant differences are in bold.
Abbreviations: CT = childhood trauma, OR = odds ratio, MDE = major depressive episode.

Figure 1. Structure Between Types of Childhood Trauma (N = 3,252)

A. Spearman correlation; all combinations have *P* < .001



B. Venn diagram; number indicates co-occurrences of every combination of childhood trauma.



phobia, social phobia, and generalized anxiety disorder). Lifetime suicide attempts were also assessed.

Perinatal depression assessed at 3 time points. Perinatal depression was assessed according to the *DSM-5* criteria, using the DIGS interview at 3 time points (baseline, 8 weeks postpartum, and 1 year postpartum). At baseline, clinicians retrospectively assessed depression during pregnancy by a face-to-face interview, using DIGS, at the maternity department during the days following birth. For women who were diagnosed with depression during the assessment or in past months, the time at onset of the depressive episode was noted. Early-onset postpartum depression was defined

Table 2. Comparison of Patient Characteristics Between Participants With Follow-Up Data and Participants Lost to Follow-Up for Both Evaluations (8 Weeks and 1 Year)[a]

Variable	8-Week Follow-Up (n = 2,973), n (%)	Lost to Follow-Up Before 8 Weeks (n = 279), n (%)	*P* Value	1-Year Follow-Up (n = 2,318), n (%)	Lost to Follow-Up Before 1 Year (n = 934), n (%)	*P* Value
Age, y			**.0055**			**.00029**
≤ 25	207 (7.0)	33 (11.8)		144 (6.2)	96 (10.3)	
25 < age < 40	2,627 (88.4)	229 (82.1)		2,059 (88.8)	797 (85.3)	
≥ 40	139 (4.7)	17 (6.1)		115 (5.0)	41 (4.4)	
Marital status			.49			.081
In relationship	2,884 (97.0)	268 (96.1)		2,255 (97.3)	897 (96.0)	
Single	89 (3.0)	11 (3.9)		63 (2.7)	37 (4.0)	
Education level			**.0016**			**<.001**
Higher than high school	2,753 (92.6)	243 (87.1)		2,172 (93.7)	824 (88.2)	
Less than high school	220 (7.4)	36 (12.9)		146 (6.3)	110 (11.8)	
Professional activity			.38			.35
Yes	2,775 (93.3)	256 (91.8)		2,167 (93.5)	864 (92.5)	
No	198 (6.7)	23 (8.2)		151 (6.5)	70 (7.5)	
Childhood trauma			.39			.9
Yes	2,705 (91.0)	249 (89.2)		2,107 (90.9)	847 (90.7)	
No	268 (9.0)	30 (10.8)		211 (9.1)	87 (9.3)	
History of major depressive episode			.22			.23
Yes	1,936 (65.1)	171 (61.3)		1,517 (65.4)	590 (63.2)	
No	1,037 (34.9)	108 (38.7)		801 (34.6)	344 (36.8)	

[a]Significant differences are in bold.

as a major depressive disorder with an onset between delivery and 8 weeks postpartum and assessed at 8 weeks by phone. Late-onset postpartum depression was defined as a major depressive disorder with an onset between 8 weeks postpartum and 1 year postpartum and assessed at 1 year postpartum by phone. Depressive episodes during pregnancy and the early postpartum and late postpartum periods were not considered as mutually exclusive. Perinatal depression was defined as major depressive disorder during pregnancy or the early postpartum or late postpartum periods.

Statistical Analyses

We report variables describing the included population as counts and percentages for binary variables, and mean and standard deviations or median and interquartile range for quantitative variables.

We used the Student *t* test (resp. Fisher exact test) to compare between quantitative scores (respective proportions) across independent samples and the Spearman correlation coefficient to evaluate correlations between scores for different kinds of trauma.

Odds ratios (ORs) and their 95% CIs were estimated with logistic regressions and are reported with the asymptotic Wald *P* value. We report both univariate and multivariate analyses adjusted for sociodemographic variables, including age, education level, unemployment, and marital status (model 1). An additional multivariate model included the same sociodemographic variables covariates and the lifetime history of major depressive episode (model 2).

We conducted a sensitivity analysis by excluding women with depression at the time of the first assessment, considering that the presence of depression could have an impact on the responses to the CTQ.

No replacement of missing data (eg, for the perinatal depression) was done. All computations were done with R software, version 3.6.1 (2019).

RESULTS

Among the 3,252 women who completed the CTQ, 298 (9.2%) reported at least 1 CT. There were no missing data for sociodemographic characteristics and personal history of depression, anxiety, and suicide attempts.

Sociodemographic Characteristics

The sociodemographic characteristics of the whole sample (N = 3,252) are described in Table 1. Participants had a mean age of 32 years, with 12.2% of women in our sample being younger than 26 years or older than 39 years. Women were mostly married or living in common-law marriage (96.9%), had a high level of education (92.1% reported an education level of more than high school), and most had a professional activity (93.2%).

Childhood Trauma and Associated Factors

Emotional neglect was the most frequently observed type of CT (n = 196, 6.0%), whereas physical neglect was the least (n = 26, 0.8%). Concerning abuse, emotional abuse was the most prevalent (n = 100, 3.1%), followed by sexual abuse (n = 86, 2.6%) and physical abuse (n = 71, 2.2%).

More than one-third of women who experienced at least 1 CT in our sample experienced at least 2 CTs (n = 110, 3.4% of the total sample). All subtypes of CT (when considered as continuous variables) were positively correlated with each other (Figure 1A), and the Venn diagram shows co-occurrences of CT subtypes (Figure 1B).

Women with a history of CT had different sociodemographic characteristics as compared to those

Table 3. Association Between Childhood Trauma and Perinatal Depression in Participants With Available Outcomes[a]

Perinatal Depression	All (n = 2,405), n (%)	CT (n = 225), n (%)	No CT (n = 2,180), n (%)	CT vs No CT OR (95% CI)	CT vs No CT aOR (95% CI)[b]	CT vs No CT aOR (95% CI)[c]
None	1,831 (76.1)	138 (61.3)	1,693 (77.7)	1 (reference)	1 (reference)	1 (reference)
Any perinatal depression	574 (23.9)	87 (38.7)	487 (22.3)	**2.2 (1.6–2.9)**	**2.0 (1.5–2.7)**	**1.7 (1.3–2.3)**
Antenatal depression	123 (5.1)	24 (10.7)	99 (4.5)	**3.0 (1.8–4.8)**	**2.7 (1.6–4.4)**	**1.8 (1.1–3.0)**
Early postpartum depression	230 (9.6)	32 (14.2)	198 (9.1)	**2.0 (1.3–3.0)**	**1.8 (1.2–2.7)**	**1.6 (1.1–2.5)**
Late postpartum depression	221 (9.2)	31 (13.8)	190 (8.7)	**2.0 (1.3–3.0)**	**1.9 (1.3–2.9)**	**1.8 (1.2–2.8)**

[a]Significant differences are in bold.
[b]Multivariate model adjusted for sociodemographic covariates (age, marital status, educational level, and employment).
[c]Multivariate model adjusted for history of major depressive episode and sociodemographic covariates (age, marital status, education level, and employment).
Abbreviations: aOR = adjusted odd ratio, CT = childhood trauma.

Table 4. Association Between Each Type of Childhood Trauma and Perinatal Depression[a,b]

Variable	Emotional Abuse (n = 100) aOR (95% CI)	Emotional Abuse (n = 100) *P* Value	Physical Abuse (n = 71) aOR (95% CI)	Physical Abuse (n = 71) *P* Value	Sexual Abuse (n = 86) aOR (95% CI)	Sexual Abuse (n = 86) *P* Value	Emotional Neglect (n = 196) aOR (95% CI)	Emotional Neglect (n = 196) *P* Value	Physical Neglect (n = 26) aOR (95% CI)	Physical Neglect (n = 26) *P* Value
Perinatal depression	**2.2 (1.3–3.5)**	**.0021**	**1.9 (1.0–3.3)**	**.033**	**2.1 (1.2–3.5)**	**.0065**	**1.7 (1.2–2.4)**	**.0055**	1.1 (0.3–3.2)	.96
Antenatal depression	2.2 (1.0–4.9)	.054	2.3 (1.0–5.5)	.051	1.3 (0.5–3.4)	.59	**2.1 (1.2–3.8)**	**.012**	2.1 (0.5–8.8)	.31
Early postpartum depression	1.6 (0.8–3.4)	.21	1.4 (0.6–3.4)	.409	**2.3 (1.2–4.6)**	**.016**	1.5 (0.9–2.6)	.105	0.6 (0.1–4.8)	.62
Late postpartum depression	**2.7 (1.4–5.1)**	**.0021**	2.0 (0.9–4.5)	.092	**2.4 (1.2–4.9)**	**.015**	1.5 (0.9–2.7)	.112	0.6 (0.1–5.3)	.68

[a]Significant differences are in bold.
[b]Odds ratio for each trauma component compared to subjects with no trauma was adjusted for history of major depressive episode and sociodemographic covariates (age, marital status, education level, and employment).
Abbreviation: aOR = adjusted odd ratio.

without such a history (Table 1). They were more likely to be less than 26 years old (8.1% vs 4.5%; OR = 1.8; 95% CI, 1.2–2.6) or more than 39 years old (11% vs 7%; OR = 1.9; 95% CI, 1.2–2.9). Women with a history of CT were also more likely to be single (6.7% vs 2.7%; OR = 2.6; 95% CI, 1.5–4.2), had a lower level of education (18.1% vs 6.8%; OR = 3.0; 95% CI, 2.2–4.2), and were more likely to have be unemployed (14.1% versus 6.1%; OR = 2.5; 95% CI, 1.8–3.6).

Personal History Assessed at the First Evaluation

Almost half of the women (42.6%) had a history of depression, anxiety disorders, or suicide attempt (Table 1). Depression was the most common psychiatric disorder, reported by 35.2% of all women in the cohort. Sixteen percent had a history of anxiety disorder and 3.0% a history of attempted suicide.

Women with CT had a higher risk of either depression, anxiety, or suicide attempts than women without CT (61.1% versus 40.8%; OR = 2.3; 95% CI, 1.8–2.9). A personal history of depression, anxiety disorder, or suicide attempt was more frequent in women with CT (depression: OR = 2.2; 95% CI, 1.7–2.7; anxiety: OR = 2.3; 95% CI, 1.7–3.0; suicide attempt: OR = 5.4; 95% CI, 3.5–8.4).

Perinatal Depression

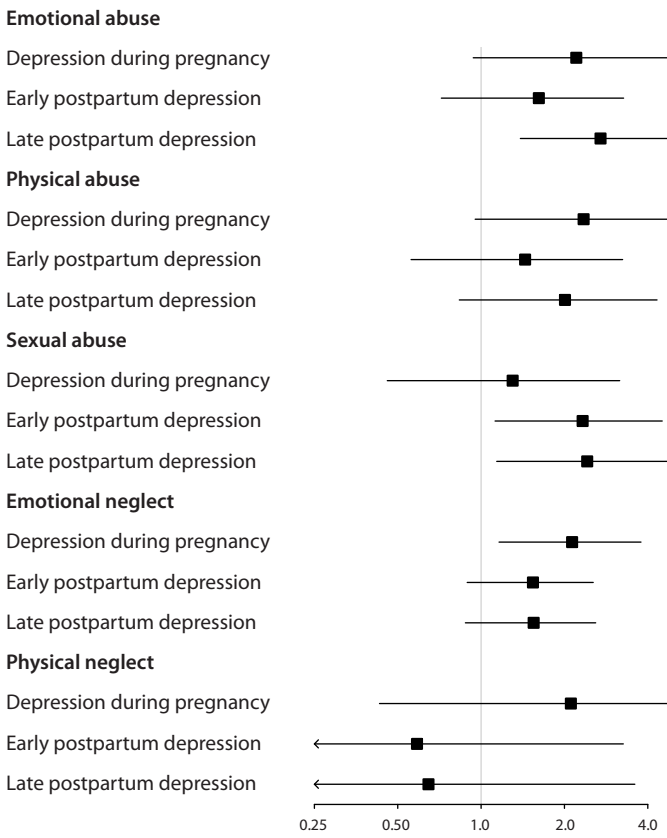
Due to women being lost during the prospective follow-up of the IGEDEPP cohort, the perinatal depression status (early- or late-onset depression) was unknown for 847 women, despite available CTQ data. Participants lost to follow-up were significantly younger and had a lower level of education than those who were not lost to follow-up. Other baseline characteristics were not significantly different among the two groups, including childhood trauma and lifetime history of major depressive episode (Table 2).

Among the 2,405 women with known status for perinatal depression, nearly 1 in 4 (n = 574, 23.9%) had perinatal depression. Of them, 123 (21.4%) had depression during pregnancy, 230 (40.0%) had early-onset postpartum depression, and 221 (38.5%) had late-onset postpartum depression (Table 3).

Perinatal depression was overall more frequent in women with at least 1 CT than in their counterparts without such history (38.7% vs 22.3%, $P < .001$). This difference remained significant after adjusting for sociodemographic characteristics (adjusted OR [aOR] = 2.0; 95% CI, 1.5–2.7, $P < .001$) and for personal history of major depression episode (aOR = 1.7; 95% CI, 1.3–2.3, $P < .001$). Depression during pregnancy and during the early and late postpartum periods were all significantly associated with CT, independent of sociodemographic characteristics and personal history of depression (pregnancy: aOR = 1.8; 95% CI, 1.1–3.0; early postpartum period: aOR = 1.6; 95% CI, 1.1–2.5; late postpartum period: aOR = 1.8; 95% CI, 1.2–2.8) (Table 3). A sensitivity analysis excluding women with depression at the time of the first assessment (n = 49) showed consistent results (data available on request).

Perinatal depression was more common in women with CT, regardless of the type of CT (Table 4). This difference was significant for emotional, physical, and sexual abuse and for emotional neglect ($P < .05$ for each). However, the types of CT showed specific associations with the different timing for perinatal onset (Figure 2). Emotional neglect was associated with depression only during pregnancy (aOR = 2.1; 95% CI, 1.2–3.8, $P = .012$). Sexual abuse was associated with both

Figure 2. Forest Plot Showing Association Between Each Type of Childhood Trauma and Peripartum Depression (n = 2,405)[a]



[a]Reported odds ratios and 95% CIs correspond to multivariate model adjusted for sociodemographic characteristics and history of depression.

Table 5. Association Between the Number of Types of Childhood Trauma and Perinatal Depression (n = 2,405)[a]

	Association With Perinatal Depression		
Variable	OR (95% CI)	aOR (95% CI)[b]	aOR (95%CI)[c]
No childhood trauma	1 (reference)	1 (reference)	1 (reference)
Exactly 1 type of childhood trauma	**1.9 (1.3–2.6)**	**1.8 (1.2–2.5)**	**1.6 (1.1–2.3)**
At least 2 types of childhood trauma	**2.9 (1.8–4.6)**	**2.7 (1.7–4.2)**	**2.1 (1.3–3.3)**

[a]Significant differences are in bold.
[b]Multivariate model adjusted for sociodemographic covariates (age, marital status, education level, and employment).
[c]Multivariate model adjusted for history of major depressive episode and sociodemographic covariates (age, marital status, education level, and employment).
Abbreviation: aOR = adjusted odd ratio.

early- and late-onset postpartum depression (aOR = 2.3; 95% CI, 1.2–4.6; and aOR = 2.4; 95% CI, 1.2–4.9, respectively). Emotional abuse was associated only with late postpartum depression (aOR 2.7; 95% CI, 1.4–5.1).

Finally, we found a dose effect between the number of CT types and the risk of perinatal depression (Table 5). Thus, compared to women without CT, women who reported exactly 1 type of CT had a higher risk of perinatal depression (aOR = 1.6; 95% CI, 1.1–2.3, $P = .015$), while women reporting 2 or more types of CT had an even higher risk (aOR = 2.1; 95% CI, 1.3–3.3), even after adjustment for history of depression and sociodemographic covariates.

DISCUSSION

This study examined the association between CT (including types of abuse and neglect) and perinatal depression in a large prospective French cohort of women. To our knowledge, this study is the first assessing the impact of 5 different types of CT on perinatal depression during pregnancy and the early and late postpartum period in a nonclinical sample.

In this study, women with CT presented with more perinatal depression than women without CT, independent of the type of trauma. These results were significant for

depression during pregnancy and for early- and late-onset postpartum depression assessed independently and remained significant after adjustment for sociodemographic characteristics and previous history of depression. This finding suggests that trauma during childhood continues to be associated with the occurrence of a depressive episode later in adulthood and, more specifically, in the perinatal period.

In our sample of women in the perinatal period, 9.2% reported CT. This rate is lower than that for other samples of women of the same age category.[23,59] For example, in a French nonclinical sample of women using the same scale and the same definition thresholds, Paquette et al[23] found that 34.8% of their sample reported emotional neglect and 13.3% emotional abuse, higher than the 6.0% with emotional neglect and 3.1% with emotional abuse in the present work. Likewise, Yildiz Inanici et al[59] also found higher levels of CT in 144 Turkish pregnant women compared to our IGEDEPP cohort. The sample's characteristics can at least in part explain these differences. Women in the sample from Paquette et al were younger and non-pregnant, while women in the sample from Yildiz Inanici et al had a lower education level.

CTs were significantly more frequent among socioeconomically disadvantaged women (single, unemployed, and with a lower level of education). These results are consistent with those from the literature, which found an association between precariousness and CT. In addition, socioeconomically disadvantaged women are more at risk for psychiatric disorders and, more specifically, perinatal psychiatric disorders.[3,8,60–63]

CTs were significantly associated with a large range of lifetime psychiatric disorders: major depressive episode, anxiety disorder, and suicide attempt. This is in line with other studies that found an association between CT and depressive disorders, as well as twice the risk of suicide in adulthood.[34,42,64–66] In our cohort, 16.4% of women had a history of anxiety disorder, and those women were twice as likely to develop perinatal depression, which is consistent with the data in the literature.[50] While our focus was the link between different CTs and perinatal depression, future studies should more specifically assess the relationship between perinatal anxiety disorder and CT. In addition, a history of depression was observed in 35.2% of the women in our sample. This is relatively high compared to the percentages found in other studies in the French population,[3,67,68] which found mental health problems in 1 in 8 women and compared to findings of studies in the American population reporting that 22% of women have a history of depression. A hypothesis for these differences can be the methodology used in IGEDEPP. The use of a semistructured interview by a specifically trained clinician to assess depression, anxiety, and suicide attempts in women may have increased the sensitivity of the diagnoses.[69,70] We showed that trauma during childhood is associated with perinatal depression independent of depression history. The association between CT and perinatal depression remained significant after adjustment for history of major depressive disorders.

CT was associated with perinatal depression at each of the 3 times of assessment (during pregnancy and the early and late postpartum periods). Interestingly, some CTs appear to be associated with depression only at specific time points during pregnancy and postpartum. For example, history of emotional neglect is associated with depression during pregnancy (OR = 2.1; 95% CI, 1.2–3.8), but not with depression during the early or late postpartum period. This association of history of emotional neglect with depression during pregnancy have been confirmed by others.[71,72] Other studies[10,73,74] found associations between history of sexual abuse and physical abuse and depression during pregnancy, while this association is not significant in IGEDEPP. This might be due to the specific profile of IGEDEPP participants: low prevalence of the CT and high education level were negatively associated with history of sexual and physical abuse. History of sexual abuse was associated with both early- and late-onset postpartum depression, while history of emotional abuse was associated specifically with late postpartum depression. Dennis et al[75] also found an association between sexual abuse and early postpartum depression, while Robertson-Blackmore et al[10] did not find this association with both early and late postpartum depression. Early postpartum depression was also associated with emotional abuse in a sample of low-income Australian women.[48] These comparisons with data from the literature should be taken with caution, since CT was often assessed as a single dimension or restricted to sexual or physical abuse, with emotional abuse and neglect being described less often. In addition, the majority of studies were carried out using small samples, in clinical populations, and mostly using self-questionnaires to define major depression rather than *DSM* criteria.

We also observed a dose effect of the number of types of CT on the risk of perinatal depression. This is congruent with previous studies that found an association between the number of trauma types with depression during pregnancy[10] and postpartum depression at 6 months.[76]

The main limitation is that our sample, although large, is not representative of the general population. Our sample consisted only of European women who gave birth in the Paris area and had a higher education level than did the general population. However, our results remained significant after adjustment for sociodemographic characteristics, suggesting that these variables alone are unlikely to explain our findings. Further replication of these results in a more diverse sample, representative of the general population, is required to generalize our results. In addition, women with unknown clinical status due to premature loss to follow-up were not analyzed. Noteworthy, CT and peripartum depression were not associated with dropout (Table 2). A third limitation is that the CTQ assesses a range of traumatic events that may have occurred during childhood and early adolescence. However, the CTQ lacks any precise information about the age at which these traumas have occurred. While age at

onset of maltreatment was not found to significantly predict depression symptoms during pregnancy,[77] further studies should explore the importance of timing of traumatic events, since the age at exposure (childhood or later during the adolescence) might influence the associations being observed postpartum. Different questionnaires, including the Adverse Childhood Experiences (ACEs) Scale,[78] could provide additional information. Given the small size of each CT type subgroup, our results concerning the association between the type of CT and specific perinatal depression should therefore be replicated in larger samples. Fourth, our study excluded women with any psychotic disorder and included only 6 women diagnosed with bipolar disorders. Whether our findings can be replicated in such populations is yet unknown. Finally, given the retrospective nature of CT assessment in our sample, no conclusion on causality between CT and postpartum depression should be drawn.

CT is associated with a depressive episode during adulthood and, more specifically, in the perinatal period, whatever the timing of onset (during pregnancy or during the early or late postpartum period). There was also a dose effect between the number of CT types and the risk of perinatal depression. Our results may lead to special prenatal care for women abused or neglected during childhood to better screen and treat perinatal depression. Indeed, our results support the benefit of a systematic evaluation of CTs at the beginning of pregnancy, which would aid in the identification of women at higher risk of developing depression in the perinatal period, allowing for appropriate care and reducing the negative impact of depression.[79,80]

Submitted: August 28, 2020; accepted February 15, 2021

Published online: September 7, 2021.

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Author contributions: Dr Tebeka drafted the initial manuscript and approved the final manuscript as submitted. Dr Mullaert carried out the initial analyses, revised the manuscript, and approved the final manuscript as submitted. Dr Dubertret designed the study, revised the manuscript, and approved the final manuscript as submitted. Drs Le Strat and Etain and Ms Ray revised the manuscript and approved the final manuscript as submitted.

Potential conflicts of interest: None.

Funding/support: The study was funded by a grant from the Programme Hospitalier de Recherche Clinique—PHRC 2010 (French Ministry of Health). The study was sponsored by Assistance Publique—Hôpitaux de Paris (Délégation à la Recherche Clinique et à l'Innovation).

Role of the sponsor: The funder and sponsor had no role in the conduct and publication of the study.

Acknowledgments: We thank all the clinicians who participated in the inclusion of women in the study: Cindy Parent, Julie Guillon, Jeanne Colombe, Cecile Bourneuf, Celine Hebbache, Madhavi-Julie Guiot, Laura Couppa and Marie Lebars who recruited and followed the participants. All are clinical psychologists, with a master's degree, hired by the Assistance Publique—Hôpitaux de Paris , without conflict of interest. We are very grateful and thank all of the women who participated in the study. We would also like to thank the entire team of Bichat's Clinical Research and Innovation Department, and in particular Sonia Makhlouf, Project Director; Samira Laribi, Bioinformatician Manager; and Yohan Maurer, Clinical Research Associate; Mss Makhlouf and Laribi and Mr Maurer have no conflicts of interest.

Additional information: The research protocol, including informed consent procedures, was approved by the French Ethics committee (Ile de France I) and Data Protection and Freedom of Information Commissions.

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