

Fear of childbirth and social support in women with and without previous traumatic pregnancy or birth experiences

BACKGROUND

Fear of childbirth (FOC) is a prevalent psychological concern with implications for maternal well-being and obstetric outcomes. Although previous traumatic pregnancy or birth experiences and perceived social support are recognized correlates of FOC, their combined effects remain underexplored. This study investigated whether previous traumatic pregnancy or birth experiences moderate the association between perceived social support and FOC among pregnant women.

PARTICIPANTS AND PROCEDURE

The sample comprised 152 pregnant women (aged 22-42 years, $M = 32.32$, $SD = 4.39$) recruited online and through gynaecological clinics across Croatia. Participants completed the Wijma Delivery Expectancy/Experience Questionnaire-Version A (W-DEQ-A), the Social Support Appraisals Scale, and the Partner Support Scale. Previous traumatic pregnancy or birth experience was assessed via a single self-report item. Multiple linear regression models tested the main and interaction effects of social support and prior trauma on FOC, controlling for age and gestational week.

RESULTS

Greater perceived family support was associated with lower FOC scores ($p < .001$). Women reporting a previous traumatic

experience showed significantly higher FOC than those without such experiences ($p < .001$). The interaction between trauma history and family support was significant ($p < .05$), such that family support exerted a protective effect among women with prior trauma, but not among women without prior trauma. The effect of partner support was not significant.

CONCLUSIONS

The findings suggest that social support, particularly from family, may be relevant to childbirth-related fear in women with prior traumatic pregnancy or birth experiences. Assessing such previous experiences and considering the role of supportive family communication may represent potential components of preventive approaches aimed at addressing FOC and promoting perinatal wellbeing.

KEY WORDS

fear of childbirth; traumatic pregnancy; traumatic birth; social support; pregnancy

ORGANIZATION – Department of Psychology, Faculty of Humanities and Social Sciences, University of Rijeka, Rijeka, Croatia

AUTHORS' CONTRIBUTIONS – A: Study design · B: Data collection · C: Statistical analysis · D: Data interpretation · E: Manuscript preparation · F: Literature search · G: Funds collection

CORRESPONDING AUTHOR – Sanda Pletikosić Tončić, Ph.D., Department of Psychology, Faculty of Humanities and Social Sciences, University of Rijeka, Sveučilišna avenija 4, 51000 Rijeka, Croatia, e-mail: spletikosis@ffri.uniri.hr

TO CITE THIS ARTICLE – Tončić, M., Pletikosić Tončić, S., Grašić, K., Kukić, M., & Martinac Dorčić, T. (2026). Fear of childbirth and social support in women with and without previous traumatic pregnancy or birth experiences. *Health Psychology Report*. <https://doi.org/10.5114/hpr/224690>

RECEIVED 23.12.2025 · REVIEWED 15.02.2026 · ACCEPTED 17.06.2026 · ONLINE PUBLICATION 24.07.2026



BACKGROUND

Pregnancy represents a profound biopsychosocial transition encompassing extensive physical, emotional, and social changes that require substantial adaptation. Although childbirth is generally anticipated with joy and hope, it can also evoke intense fear and anxiety, reflecting its dual nature as both a biological event and a major psychological challenge (Dunkel Schetter, 2011). Fear of childbirth (FOC) refers to an emotional state characterized by worries, apprehension, and negative expectations regarding the process and outcome of giving birth, including concerns about pain, complications, and the safety of the mother and infant (Dencker et al., 2018; Wijma et al., 1998). Conceptualized as a situational, childbirth-specific form of anxiety rather than a general anxiety disorder, FOC can range from mild uneasiness to intense phobic fear known as tokophobia (Rondung et al., 2016; Wijma, 2003). Clinically significant FOC may interfere with daily functioning and obstetric decision-making, and has been associated with a variety of adverse obstetric outcomes (Ilska et al., 2021; O'Connell et al., 2017; Räisänen et al., 2014; Rouhe et al., 2011). As such, FOC reflects the complex interplay of biological vulnerability, cognitive-emotional processing, and social context that characterizes women's psychological adaptation to pregnancy and childbirth.

Epidemiological studies indicate that moderate FOC affects up to one in four pregnant women, while severe or clinically significant fear occurs in approximately 7-15% of cases (Nilsson et al., 2018; O'Connell et al., 2017). Reported prevalence varies considerably across countries, reflecting both cultural and methodological differences in measurement and thresholds (Ryding et al., 2015). Research examining demographic and obstetric correlates suggests that FOC is not confined to any specific group of women but may be more pronounced among those with lower education or socioeconomic status, and those with unplanned pregnancies (Elvander et al., 2013; Ilska et al., 2021; Lukasse et al., 2014; Zhou et al., 2021). Research suggests that fear of childbirth may follow a normative trajectory across pregnancy; however, findings are not entirely consistent. Although some studies did not find a significant association between gestational age and the intensity of FOC (e.g., Nieminen et al., 2009), numerous studies indicate that fear of childbirth tends to gradually increase as pregnancy progresses (e.g., Jing et al., 2025). Higher levels of fear have been reported in later gestational stages compared to earlier pregnancy (Rouhe et al., 2009), particularly during the third trimester (Alemu et al., 2024). Findings regarding age and parity remain inconsistent: some studies indicate greater fear among primiparas anticipating the unknown, whereas others report elevated fear among multiparas, particularly those with prior nega-

tive or traumatic births (Haines et al., 2011; Hall et al., 2012; Räisänen et al., 2014; Zhou et al., 2021). Higher FOC is also associated with higher rates of elective caesarean section (Vaajala et al., 2023; Yin et al., 2024), prolonged labour and higher in-labour pain intensity (Deng et al., 2021).

Beyond demographic and obstetric factors, psychological and social variables show strong and consistent associations with FOC. Women who report higher levels of general anxiety, depression, low positive and high negative perfectionism, or recent stressful life events tend to experience greater childbirth fear (Hall et al., 2009; Kuljanac et al., 2023; Lukasse et al., 2014; Rouhe et al., 2011; Zhang et al., 2023). Low perceived coping ability (Söderquist et al., 2004) and heightened anxiety sensitivity (Jokić-Begić et al., 2014; Spice et al., 2009) further contribute to fear responses, suggesting that women with pre-existing emotional vulnerability may be particularly susceptible. Meta-analytic findings also indicate robust positive correlations between FOC and symptoms of anxiety and depression (Rondung et al., 2016). Collectively, these results underscore that FOC arises from an interplay between individual psychological resources, prior experiences, and contextual stressors, providing a framework for understanding why traumatic pregnancy and childbirth may exert lasting emotional effects.

A substantial proportion of women describe their childbirth as distressing or traumatic, with prevalence estimates ranging from 10% to 44% and about 5% meeting diagnostic criteria for childbirth-related posttraumatic stress disorder (Heyne et al., 2022; Pidd et al., 2023). In Croatia, a longitudinal study conducted during mid-to-late pregnancy and 6-12 weeks postpartum found that 13% of women met DSM-5 criteria for traumatic childbirth, while 1.8% met full diagnostic criteria for PTSD (Nakić Radoš et al., 2026). A separate study of Croatian mothers within 12 months postpartum reported a higher prevalence (11.8%) (Nakić Radoš et al., 2019), likely reflecting differences in sampling and assessment timing. Traumatic birth experiences are commonly characterized by overwhelming feelings of fear, helplessness, or loss of control, and a perceived threat to the life or safety of the mother or infant (Beck, 2015; Olsen et al., 2022). Importantly, the experience of trauma is subjective: even medically uncomplicated deliveries can be appraised as threatening or violating when women feel disregarded, powerless, or uninformed (Beck, 2004; Thomson & Downe, 2008). Also, negative childbirth experiences seem to be more important for FOC than previous obstetric complications (Størksen et al., 2013). Recent conceptualizations define psychological birth trauma as intense emotional distress resulting from events directly related to childbirth, leading to short- or long-term impairment in health and well-being (Pidd et al., 2023). How the birth ex-

Marko Tončić,
Sanda Pletikosić
Tončić,
Klara Grašić,
Miljana Kukić,
Tamara Martinac
Dorčić

perience will be perceived is predicted by FOC, with higher FOC associated with a more negative experience, even when controlling for a number of relevant factors such as maternal education, parity, depression and birth complications (Yin et al., 2024). Moreover, it seems that the impact of FOC on maternal mental health extends beyond pregnancy and delivery. Higher FOC has also been related to perceived impairment in mother-infant bonding (Challacombe et al., 2021) and lower rates of exclusive breastfeeding and mixed feeding (Yin et al., 2024). Traumatic experiences can produce lasting psychological consequences, including intrusive memories, heightened vigilance, symptoms of depression and anxiety, and difficulties in the marital and mother–infant relationships (Beck, 2015; Ertan et al., 2021). Moreover, women with a history of traumatic birth often report reactivated memories and heightened fear in subsequent pregnancies, suggesting that unresolved trauma contributes to the development of secondary FOC (Holopainen et al., 2020; Olsen et al., 2022). Empirical evidence also links negative childbirth experiences to reproductive avoidance: for example, Hasani et al. (2025) found that psychological birth trauma fully mediated the association between childbirth care satisfaction and avoidance of future pregnancy. Within Beck's (2015) theory of traumatic childbirth, these outcomes can be understood as arising from the discrepancy between women's expectations of a safe, supported birth and their lived experience of fear, neglect, or violation – an incongruence that disrupts meaning-making and undermines trust in caregivers. Such findings underscore the importance of examining protective psychosocial resources that might mitigate the enduring impact of traumatic birth experiences.

Social support is one of the most robust protective factors for mental health during pregnancy and the postpartum period (Alizadeh-Dibazari et al., 2025). It encompasses both actual assistance and the belief that such help, empathy, and understanding are available when needed (Cobb, 1976). Of the two, perceived support – the sense of being valued and cared for – tends to be more important for mental health outcomes (Gulacti, 2010). In the perinatal context, primary sources of support typically include partners, family members, and close friends (Seto et al., 2024). High levels of perceived partner and family support are consistently associated with lower prenatal distress, fewer depressive and anxiety symptoms, and reduced FOC (Alizadeh-Dibazari et al., 2025; Hou et al., 2022; Seto et al., 2024; Zhou et al., 2021). Social support has also been shown to buffer the impact of grief on quality of life following pregnancy loss (Skalski-Bednarz et al., 2026), further underscoring its role as a stress-mitigating resource across diverse forms of reproductive adversity.

The relationship between previous traumatic experiences, social support, and FOC can be concep-

tualized within complementary theoretical frameworks. The diathesis–stress model (Zuckerman, 1999) posits that psychological outcomes emerge from the dynamic relationship between pre-existing vulnerabilities and environmental stressors. A prior traumatic pregnancy or birth experience constitutes a diathesis, an enduring vulnerability that heightens emotional reactivity to subsequent pregnancy-related stress. The stress-buffering model (Cohen & Wills, 1985) extends this logic, proposing that social support mitigates the negative effects of stress on mental health, especially among individuals under greater strain. These frameworks align with the transactional model of stress and coping (Lazarus & Folkman, 1984), which emphasizes cognitive appraisal and coping resources in determining stress outcomes. In the perinatal context, these models suggest that supportive social relationships may be particularly protective for women with trauma histories, by providing emotional reassurance, enhancing perceived control, and facilitating adaptive coping. This interpretation aligns with Beck's (2015) theory of traumatic childbirth, which emphasizes that traumatic childbirth arises from a profound sense of fear, helplessness, and loss of control, often exacerbated by a lack of empathetic and supportive interpersonal interactions during labour. Conversely, the presence of caring and validating relationships can help women reframe traumatic memories, restore agency, and reduce anticipatory anxiety in subsequent pregnancies. Together, these frameworks offer a coherent rationale for expecting that social support will be most strongly associated with reduced FOC among women with prior traumatic experiences.

Empirical evidence lends further support to these theoretical expectations. For instance, Tavares et al. (2025) found that partner support during childbirth was associated with lower depressive and anxiety symptoms only among women without a prior mental health diagnosis, suggesting that vulnerability can influence the extent to which social support exerts protective effects. Conversely, Nowak et al. (2022) observed that social support buffered the effects of childhood trauma on prenatal depressive symptoms more strongly among adolescent than adult mothers, implying that individuals facing greater psychosocial risk may benefit disproportionately from available support. These findings underscore the importance of considering prior trauma when examining the role of social support in perinatal adjustment.

Previous studies on FOC indicate the importance of family (Zhang et al., 2023) and partner support (Alizadeh-Dibazari et al., 2025), highlighting the relevance of social support in prenatal psychosocial care. However, prenatal care practices are strongly influenced by national medical policies and health-care systems. In Croatia, as in other Central and Eastern European countries (Ilska et al., 2021), childbirth

takes place almost exclusively in hospital settings, with a high prevalence of unnecessary or potentially harmful interventions and medication overuse (European Parliament, 2024; RODA, 2023). Women are not consistently encouraged to have a birth companion during labour. During the COVID-19 pandemic, restrictions on companionship were perceived by many women as contributing to poorer birth experiences and to feeling inadequately treated by medical personnel (RODA, 2023). To date, only a limited number of studies on FOC have been conducted in Croatia (Brekalo et al., 2024; Jokić-Begić et al., 2014; Kuljanac et al., 2023; Nakić Radoš et al., 2022; Žigić Antić et al., 2018), and none have specifically examined the role of social support. In light of ongoing efforts within the European Union to promote evidence-based policies that support respectful maternity care (European Parliament 2021, 2024), as well as national action plans aimed at strengthening reproductive health policies, including maternal mental health support (RODA, 2023), further investigation of this topic appears both timely and warranted. To the best of our knowledge, the possibility that prior traumatic pregnancy or birth experiences condition the association between social support and FOC has not been empirically examined.

The present study therefore tested this proposed moderation. Specifically, the aim of this study was to examine whether previous traumatic pregnancy or birth experiences moderate the relationship between perceived social support and FOC. It was hypothesized that (1) higher perceived partner, (2) friend and (3) family support would be associated with lower FOC, and (4) that previous traumatic birth or pregnancy experience would moderate these associations, such that the relationship between social support and FOC would be stronger among women with a prior traumatic birth or pregnancy experience. Additionally, given observed patterns of normative FOC trajectories during pregnancy, gestational week was included as a control variable to account for potential variation in levels of fear associated with the stage of pregnancy.

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

This study was part of a larger project that included a total of 348 pregnant women. The following inclusion criteria were used: currently pregnant women, residing in Croatia, fluent in Croatian and older than 18 years. After applying inclusion/exclusion criteria, a number of participants were excluded: not residing in Croatia ($n = 36$); unknown current pregnancy status ($n = 12$); age under 18 years ($n = 1$), resulting in 299 participants. For this study, only those with

previous pregnancies were included in the analysis ($n = 152$). Their ages ranged from 22 to 42 years ($M = 32.32$, $SD = 4.39$). Most participants had a college or university degree (65%), and all were married or living with a partner. The majority were employed (66%) and reported having an average household income (73%). Approximately three quarters of the sample resided in urban areas, and most participants (51%) were in their third trimester at the time of completing the survey, while the gestational week ranged from 1 to 41 weeks. Around 45% of the sample reported having had a previous traumatic pregnancy or birth experience. Detailed sample characteristics, including demographic and obstetric variables, are presented in Table 1.

MEASURES

Participants provided information on age, education, residence, marital, employment, and financial status, as well as obstetric variables including gestational week, and number of pregnancies and births. Previous traumatic pregnancy or birth experience was assessed with a single item: “Have you had a previous traumatic pregnancy or birth experience?”. The term “traumatic” was intentionally left undefined, consistent with research emphasizing the subjective nature of childbirth trauma, that is, even medically uncomplicated births may be perceived as traumatic when women experience intense fear, helplessness, or loss of control (Beck, 2004; Thomson & Downe, 2008). Importantly, the item refers not only to childbirth, but also to pregnancy-related traumatic experiences, thereby capturing a broader and more heterogeneous range of reproductive trauma than measures that focus solely on childbirth. This approach allowed participants to report trauma based on their own appraisal rather than predefined clinical criteria.

Fear of childbirth was assessed using the Wijma Delivery Expectancy/Experience Questionnaire – Version A (W-DEQ-A; Wijma et al., 1998), which measures emotional and cognitive expectations of childbirth. The Croatian adaptation (Žigić et al., 2012) contains 31 items rated on a six-point scale from 0 (*not at all*) to 5 (*extremely*). Higher scores indicate greater FOC (possible range: 0–155).

Perceived social support was measured with the Social Support Appraisals Scale (Vaux et al., 1986), adapted into Croatian by Hudek-Knežević and Kardum (1994, as cited by Hudek-Knežević et al., 2006). For this study, only the family support and friend support subscales were used, each containing seven items rated from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate stronger perceived support.

Perceived partner support was assessed with the Partner Support Scale (Nakić, 2011), which consists

Table 1

Demographic and obstetric characteristics of the sample (N = 152)

Variable	n	%	Variable	n	%
Age categories			Parity number		
20-34	101	66.45	2	98	64.47
35-39	45	29.61	3	37	24.34
> 40	6	3.94	≥ 4	17	11.12
Education level			Traumatic experiences from previous pregnancies		
Primary education	1	0.66	No	82	55.26
Secondary education	51	33.55	Yes	68	44.74
College or university degree	100	65.79	Pregnancy-related complications		
Marital status			No	104	68.42
Married	109	71.71	Yes	48	31.58
Cohabiting	43	28.29	Type of complication		
Employment status			Bleeding	10	20.83
Employed	141	92.76	Gestational diabetes	7	14.58
Unemployed	11	7.24	Hematoma	5	10.42
Self-reported socioeconomic status			Hypertension	5	10.42
Below average	6	3.95	Severe nausea/vomiting	3	6.25
Average	111	73.03	Shortened cervix	3	6.25
Above average	35	23.02	Thrombophilia	2	4.17
Place of residence			Urinary tract infection	2	4.17
Rural area	41	26.97	Other*	11	22.92
Urban area	111	73.03			
Trimester					
First	19	12.50			
Second	57	37.50			
Third	76	50.00			

Fear of childbirth and social support

Note. *Includes a variety of conditions (e.g., anaemia, cholestasis, low-lying placenta, kidney stones, hypothyroidism, dizziness), each occurring only once in the sample.

of five items evaluating satisfaction with emotional, instrumental, and relational aspects of partner support. Responses are rated on a five-point scale from 1 (*not at all satisfied*) to 5 (*completely satisfied*). Higher values indicate stronger perceived partner support.

PROCEDURE

Data were collected online using LimeSurvey (University Computing Centre – SRCE) from late February until early June 2025. The survey link was distributed through a total of 10 Facebook groups and Instagram accounts related to pregnancy and childbirth, as well as through printed flyers containing QR codes

placed in private and public gynaecological offices in three Croatian cities (Rijeka, Čakovec and Varaždin). Completion of the questionnaire took approximately 15-20 minutes. Participation was voluntary, anonymous, and limited to currently pregnant women.

The study was conducted in accordance with the Declaration of Helsinki and research and ethical standards of the University of Rijeka. The study was approved by the Ethics Committee of the Department of Psychology, Faculty of Humanities and Social Sciences, University of Rijeka, Croatia (39/2024; 2702.2024.12). Before accessing the online questionnaire, all participants were informed about the study aims and provided electronic informed consent. No identifying personal data were collected.

DATA ANALYTIC STRATEGY

All statistical analyses were conducted using R (R Core Team, 2025). Prior to the primary analyses, the data were screened for accuracy, missing values, potential outliers, duplicate responses, and completion times. No participant dropout was observed, and there were no missing values. Completion times were similar across participants, with no outliers detected. To facilitate interpretation of unstandardised regression coefficients, all scale variables were calculated using their original scale means, thereby preserving the meaning of the rating metrics. Internal consistency estimates for all instruments were obtained using Cronbach's α (presented in Table 2) computed with procedures from the psych package (Revelle, 2024).

Power analyses were conducted to estimate the required sample size for testing our hypotheses. Based on previously reported effects of social support on FOC ($r = -.23$; Alizadeh-Dibazari et al., 2025) and assuming a statistical power of .80, the required sample size was estimated at 133 participants. Based on the reported effect of previous trauma ($r = .40$; Størksen et al., 2013), the required sample size was estimated at 46 participants. No a priori power analysis was conducted specifically for the interaction effects, as no prior studies were identified that would allow a reliable estimation of the expected interaction effect size.

To assess whether perceived social support moderated the association between previous traumatic experiences and FOC, a series of linear regression models were estimated. Separate models were estimated for each type of social support to account for the ratio of model parameters to the available sample size. Moderation was tested using a multiplicative interaction term between trauma history and perceived social support. The social support variable was mean-centred prior to analysis to reduce potential multicollinearity with the interaction term. Trauma

history was dummy-coded, with "no trauma" serving as the reference category. Model comparisons were performed to evaluate whether inclusion of specific predictors significantly improved model fit relative to simpler models. The simplest model (M_1) contained only control variables (age and gestational week). These covariates were retained in all subsequent models. A more complex model (M_2) additionally included the main effects of previous traumatic experience and social support, while the last model (M_3) further included the social support $\times$ trauma interaction term. Model fit was evaluated using effect size estimates and inspection of residuals via Q-Q plots. Parameter significance was further assessed using bootstrapped 95% confidence intervals based on 5,000 replications.

RESULTS

Means, standard deviations and correlations between the studied variables are presented in Table 2.

First, as a control precaution, we examined whether perceived social support differed between women with and without previous traumatic experiences. No significant differences were found across sources of support: partner support, $t(150) = -1.20$, $p = .234$; friend support, $t(150) = -0.61$, $p = .543$; and family support, $t(150) = -0.46$, $p = .643$. There was no difference in the occurrence of pregnancy-related complications between the trauma and no-trauma groups ($\chi^2 = 1.15$, $p = .282$). Next, we compared models of increasing complexity separately for each source of social support. Model comparisons predicting FOC (WDEQ) from social support, traumatic experience, and their interaction (controlling for age and gestational week) are summarized in Table 3.

Control variables alone (M_1) did not significantly predict FOC. Adding social support and traumatic experience (M_2) significantly improved the model fit, regardless of social support source. Adding the inter-

Table 2

Means, standard deviations and correlations of the studied variables

Variable	<i>M (SD)</i>	Cronbach's α	1.	2.	3.	4.	5.	6.
1. Age	32.32 (4.39)		—					
2. Gestational weeks	25.80 (10.40)		.10	—				
3. FOC (WDEQ)	2.12 (0.86)	.95	.08	.11	—			
4. Trauma ¹	0.45		.15	.10	.38***	—		
5. Partner support	4.45 (0.60)	.87	.11	-.05	-.07	.10	—	
6. Friend support	4.17 (0.64)	.93	.18*	.09	-.15	.05	.30***	—
7. Family support	4.27 (0.77)	.95	.22**	.14	-.17*	.04	.28***	.67***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. ¹Trauma dummy coded: 0 – no trauma, 1 – previous trauma. Mean represents the proportion of women with previous traumatic experience.

Marko Tončić,
Sanda Pletikosić
Tončić,
Klara Grašić,
Miljana Kukić,
Tamara Martinac
Dorčić

action term (M_3) did not improve the fit significantly except for family social support (3). The effect sizes of the models were modest, with the largest proportion of explained variance attributable to previous trauma. The inclusion of the trauma $\times$ perceived family social support interaction resulted in an increase in model fit of .026.

In the partner social support model, only previous trauma was a significant predictor of FOC ($b = 0.66$, $t = 4.99$, $p < .001$), with higher levels of previous trauma associated with increased FOC.

The effect of partner support was not significant ($b = -0.11$, $t = -1.33$, $p = .187$). Detailed results are presented in Table 4.

A similar pattern emerged for friend support. Previous traumatic experience significantly impacts the model fit as a positive predictor of FOC, $b = 0.65$, $t = 5.00$, $p < .001$, while friend support showed a significant, albeit small effect ($b = -0.25$, $t = -2.41$, $p = .017$). As mentioned before, the interaction term did not improve the model fit (Table 5).

*Fear of childbirth
and social support*

Table 3

Combined model comparison summary for predicting FOC (WDEQ) across support sources

Support type	Model	R^2	AIC	R^2 change	F change	$df1$	$df2$	p
Partner	M_1	.02	391.45	.02	1.23	2	149	.296
	M_2	.16	370.98	.15	12.84	2	147	< .001
	M_3	.16	372.72	.00	0.24	1	146	.623
Friends	M_1	.02	391.45	.02	1.23	2	149	.296
	M_2	.19	366.92	.17	15.18	2	147	< .001
	M_3	.19	368.78	.00	0.13	1	146	.717
Family	M_1	.02	391.45	.02	1.23	2	149	.296
	M_2	.20	364.87	.18	16.38	2	147	< .001
	M_3	.22	361.95	.03	4.81	1	146	.030

Note. FOC – fear of childbirth; WDEQ – Wijma Delivery Expectancy/Experience Questionnaire.

Table 4

Regression coefficients for partner social support predicting FOC with covariates and trauma (bootstrap 95% CIs based on 5000 samples)

Model	Predictor	b	SE_b	t	p	95% CI (bootstrap)	
M_1	Intercept	1.47	0.54	2.75	.007	0.437	2.613
	Age	0.01	0.02	0.82	.413	-0.018	0.043
	Gestational weeks	0.01	0.01	1.24	.216	-0.005	0.022
M_2	Intercept	1.51	0.50	3.00	.003	0.480	2.573
	Age	0.01	0.02	0.33	.741	-0.024	0.036
	Gestational weeks	0.01	0.01	0.82	.413	-0.009	0.018
	Partner support (centred)	-0.11	0.09	-1.33	.187	-0.288	0.069
	Trauma (1 = yes)	0.66	0.13	4.99	< .001	0.388	0.924
M_3	Intercept	1.48	0.51	2.92	.004	0.418	2.490
	Age	0.01	0.02	0.36	.723	-0.024	0.036
	Gestational weeks	0.01	0.01	0.88	.383	-0.008	0.019
	Partner support (centred)	-0.15	0.11	-1.33	.186	-0.350	0.057
	Trauma (1 = yes)	0.67	0.14	5.00	< .001	0.399	0.942
	Support $\times$ Trauma	0.09	0.18	0.49	.623	-0.282	0.460

Note. FOC – fear of childbirth.

Table 5

Regression coefficients for friend social support predicting FOC with covariates and trauma (bootstrap 95% CIs based on 5000 samples)

Model	Predictor	<i>b</i>	<i>SE_b</i>	<i>t</i>	<i>p</i>	95% CI (bootstrap)	
M ₁	Intercept	1.47	0.54	2.75	.007	0.429	2.607
	Age	0.01	0.02	0.82	.413	−0.017	0.043
	Gestational weeks	0.01	0.01	1.24	.216	−0.004	0.022
M ₂	Intercept	1.32	0.50	2.63	.009	0.278	2.466
	Age	0.01	0.02	0.61	.542	−0.022	0.040
	Gestational weeks	0.01	0.01	1.10	.272	−0.006	0.020
	Friend support (centred)	−0.25	0.10	−2.41	.017	−0.437	−0.042
	Trauma (1 = yes)	0.65	0.13	5.00	< .001	0.398	0.922
M ₃	Intercept	1.34	0.51	2.65	.009	0.289	2.477
	Age	0.01	0.02	0.59	.559	−0.022	0.039
	Gestational weeks	0.01	0.01	1.06	.292	−0.007	0.020
	Friend support (centred)	−0.21	0.14	−1.49	.140	−0.416	0.009
	Trauma (1 = yes)	0.65	0.13	4.90	< .001	0.392	0.919
	Support × Trauma	−0.07	0.20	−0.36	.717	−0.440	0.352

Note. FOC = fear of childbirth.

In the family support model, previous traumatic experience was a significant positive predictor of FOC ($b = 0.61$, $t = 4.67$, $p < .001$), while the main effect of family support can be established only when no interaction term was present (M_2 ; $b = -0.31$, $t = -2.80$, $p = .006$). In the last model (M_3), the moderating effect / interaction between family support and traumatic experience was significant ($b = -0.46$, $t = -2.19$, $p = .030$) (see Table 6). Simple slopes analyses revealed that among participants with low family support, traumatic experience was associated with higher FOC, whereas this effect was attenuated at high levels of family support.

DISCUSSION

The present study examined the moderating role of previous pregnancy or birth trauma in the relationship between perceived social support and FOC. Overall, traumatic experience consistently predicted higher FOC regardless of source of social support. Contrary to hypothesis 1, partner support did not significantly predict FOC. On the other hand, the effects of friend and family support were significant, in line with hypotheses 2 and 3. However, the effects of friend support were small and became non-significant once the interaction term was added. In contrast, for family support adding the interaction term resulted in an increase of model fit. Specifically, and

consistent with hypothesis 4, the findings suggest that higher family social support may be associated with lower FOC only among women who had experienced a previous traumatic pregnancy or birth. Among women without such experiences, social support was not significantly associated with FOC. This pattern suggests that the protective effects of social support may become most salient under conditions of heightened psychosocial vulnerability. However, it is important to note that the observed interaction reflects a pattern of associations rather than a temporal dynamic mechanism. Also, this finding should be interpreted in light of the relatively coarse assessment of previous traumatic experiences, which was based on a single self-report item and may not fully capture the type, severity, or timing of trauma.

Participants in this study exhibited a moderately high level of FOC, which aligns with prior findings from Croatian (Jokić-Begić et al., 2014), Italian (Calderani et al., 2019), and Turkish (Calpbinici et al., 2023) samples. A certain degree of worry and fear during pregnancy is a normative emotional response to the major physical and psychological changes that occur during this period. Childbirth represents a complex, unpredictable process in which many women experience diminished control over outcomes, making anxiety an understandable reaction. However, when fear intensifies, it may reflect mechanisms of fear acquisition and maintenance similar to those described in classical and cognitive theories of learning.

Table 6

Regression coefficients for family social support predicting FOC with covariates and trauma (bootstrap 95% CIs based on 5000 samples)

Model	Predictor	<i>b</i>	<i>SE_b</i>	<i>t</i>	<i>p</i>	95% CI (bootstrap)	
M ₁	Intercept	1.47	0.54	2.75	.007	0.418	2.571
	Age	0.01	0.02	0.82	.413	−0.017	0.043
	Gestational weeks	0.01	0.01	1.24	.216	−0.005	0.022
M ₂	Intercept	1.21	0.51	2.40	.018	0.158	2.381
	Age	0.01	0.02	0.78	.438	−0.021	0.043
	Gestational weeks	0.01	0.01	1.27	.205	−0.005	0.021
	Family support (centred)	−0.31	0.11	−2.80	.006	−0.532	−0.057
	Trauma (1 = yes)	0.65	0.13	4.98	< .001	0.395	0.923
M ₃	Intercept	1.30	0.50	2.60	.010	0.199	2.529
	Age	0.01	0.02	0.70	.485	−0.023	0.043
	Gestational weeks	0.01	0.01	1.17	.245	−0.006	0.020
	Family support (centred)	−0.05	0.16	−0.34	.732	−0.354	0.252
	Trauma (1 = yes)	0.61	0.13	4.67	< .001	0.360	0.885
	Support × Trauma	−0.46	0.21	−2.19	.030	−0.841	−0.050

Note. FOC – fear of childbirth.

*Fear of childbirth
and social support*

The results indicate that previous traumatic experiences are related to increased FOC. According to Rachman's (1977) theory of fear acquisition, fears can develop through direct conditioning, vicarious learning, or informational transmission. In the context of childbirth, conditioning may underlie secondary FOC – that is, fear emerging after a previous negative or traumatic delivery, where aversive stimuli (pain, loss of control, perceived threat) become associated with the broader context of childbirth. This helps explain why women with negative prior births show heightened fear in subsequent pregnancies (Haines et al., 2011; Hall et al., 2012). Once established, this fear can enter a vicious cycle, as proposed by Wijma et al. (2002), Zar et al. (2001), and Rondung et al. (2016): women with high antenatal fear may be more likely to appraise labour as threatening, which increases the risk of a negative birth experience and reinforces fear in later pregnancies. This cycle highlights the transactional nature of fear, trauma, and cognitive appraisal, consistent with Lazarus and Folkman's (1984) transactional model of stress and coping. Fear may also be acquired vicariously through others' experiences or media portrayals of birth, with negative narratives linked to greater fear and lower self-efficacy, and positive narratives to reduced fear and greater confidence (Miller & Danoy-Monet, 2021; Vitek & Ward, 2018). These social learning mechanisms underscore the importance of interpersonal environments in shaping women's expectations and

emotional responses to childbirth – an idea further reflected in our findings regarding the role of family support, as discussed below. Together, these findings reinforce the interpretation that FOC arises through both direct experience (conditioning after trauma) and indirect exposure (vicarious or informational learning). They also provide a framework for understanding why previous traumatic experiences may be associated with elevated fear in subsequent pregnancies and why social context, including supportive or unsupportive relationships, may be relevant to women's experiences of childbirth-related fear.

In a broad sense, our findings are consistent with the stress-buffering model of social support (Cohen & Wills, 1985) and the diathesis-stress framework (Zuckerman, 1999), which posit that supportive resources become particularly effective under high-stress or vulnerability conditions. Women with unresolved birth trauma may represent a group experiencing emotional strain (Olsen et al., 2022). One possible interpretation is that perceiving family members as available sources of empathy, reassurance, and practical help may reduce cognitive and emotional arousal related to childbirth. However, it is also important to consider that women with prior trauma may perceive or mobilize social support differently. Traumatic events can strain social networks over time, leading to withdrawal of support. Thus, the observed moderation could partly reflect differences in how support is sought, offered, or eval-

uated among women with trauma histories (Kaniasty & Norris, 2008). These interpretations should be viewed as theoretical explanations that are consistent with the observed associations but cannot be directly tested within the present cross-sectional design.

Although previous studies consistently show a negative association between social support and FOC (Alizadeh-Dibazari et al., 2025; Hou et al., 2022; Seto et al., 2024), few have tested whether this association depends on prior trauma. Our findings suggest that family support may not uniformly protect against childbirth fear but may be particularly relevant for women with trauma histories. However, this interpretation should be viewed cautiously, as previous traumatic experiences were assessed using a single-item measure. Future studies employing more comprehensive assessments of trauma are needed to determine whether the observed pattern generalizes across different types and severities of traumatic pregnancy and birth experiences. Replication in larger independent samples is also needed to establish the robustness of the observed moderation effect. The observed pattern, in which family support was associated with lower FOC only among women with prior traumatic experiences, is consistent with the results reported by Nowak et al. (2022), who found that social support buffered the effects of childhood trauma on prenatal depressive symptoms more strongly among adolescent mothers – those at higher psychosocial risk – than among adult mothers. In contrast, Tavares et al. (2025) reported that partner support during childbirth reduced depressive and anxiety symptoms only among women without prior mental health diagnoses, suggesting that the effectiveness of support may depend on both support source and timing. Partner support during labour represents an acute, dyadic process, while family support during pregnancy may play a broader role during pregnancy, particularly for women integrating past traumatic experiences. This interpretation also aligns with Beck's (2015) theory of traumatic childbirth, which conceptualizes trauma as arising not only from medical complications but from profound feelings of fear, helplessness, loss of control, and violation of expectations. Within this framework, the observed pattern is consistent with the possibility that social support helps women regain a sense of control, reduces fear through reassurance, and fosters trust through empathic, validating interpersonal interactions. One possible interpretation is that supportive family environments may facilitate emotional reappraisal of prior experiences, enhance coping efficacy, and reduce anticipatory anxiety in subsequent pregnancies. Conversely, the absence of such support may contribute to cognitive and emotional dysregulation, maintaining the self-reinforcing cycles of fear described in previous models (Rondung et al., 2016).

Previous research has identified family members, friends, partners, and healthcare professionals as the most significant sources of support during pregnancy and childbirth (Edmonds et al., 2011). In the present study, support from friends was only weakly associated with reduced FOC (and this association disappeared when the interaction with trauma was considered), which is partly consistent with the findings of Zamani et al. (2019), who reported that pregnant women perceive the lowest levels of support from friends. Moreover, our finding that family support, rather than partner support, was most strongly associated with reduced FOC warrants further discussion. Although previous research highlights partner support as crucial for maternal adjustment (Azimi et al., 2018; Çıtak Bilgin et al., 2021), contextual and cultural factors may shape the availability and relative importance of different support sources. Research indicates that not only husbands but also mothers, sisters, mothers-in-law and sisters-in-law are the most frequent providers of informational and emotional support throughout pregnancy (Edmonds et al., 2011). Consistent with this, young Croatian women report family as their main source of information about childbirth (Žigić Antić et al., 2018). This pattern aligns with population-level evidence on social support patterns in Croatia. A large-scale study involving over 8,000 Croatian adults (Dobrotić & Laklija, 2012) found that family members, including partners, are perceived as the primary source of informal social support. While practical support is largely grounded in family relationships, respondents reported turning to both family members and friends for emotional or financial assistance. Additionally, Böhnke (2008) highlighted the importance of strong family cohesion and intergenerational solidarity in Mediterranean and Eastern European countries, suggesting that in such contexts family networks may play a particularly central role in providing emotional and practical support. Social interactions within extended family networks may influence how women appraise childbirth through shared narratives, memories, and expectations passed between generations (Stoll, 2012; Žigić Antić et al., 2018). This is in line with reports about vicarious learning of FOC. Women exposed to negative or medicalized portrayals of childbirth report higher fear and lower self-efficacy (Vitek & Ward, 2018), whereas those exposed to positive birth narratives show reduced fear and increased confidence (Miller & Danoy-Monet, 2021). Female family members are sources of such experience which can then vicariously affect pregnant women, while this is not the case for male partners. The obtained significant role of family support in reducing FOC is in contrast with data which Alizadeh-Dibazari et al. (2025) reported in their meta-analysis, suggesting that family support may not reduce FOC. All three studies report-

Marko Tončić,
Sanda Pletikosić
Tončić,
Klara Grašić,
Miljana Kukić,
Tamara Martinac
Dorčić

ed there examined family support in Turkey, where familial networks often shift toward the husband's family after marriage, potentially reducing emotional closeness to the woman's family of origin (Gözüyeşil et al., 2008, as cited by Alizadeh-Dibazari et al., 2025). While these findings suggest that the importance of family support may reflect broader cultural patterns in Croatia, this interpretation remains tentative given the cross-sectional design and warrants further cross-cultural investigation.

Finally, our findings are consistent with a broader body of research linking higher social support to better psychological adjustment in the perinatal period, including lower posttraumatic symptoms following childbirth (Dikmen-Yildiz et al., 2018; Handelzalts et al., 2024). Together, this literature suggests that social support may be related to women's emotional processing of pregnancy and childbirth experiences, beyond its association with lower distress. In line with stress-buffering models, supportive relationships may help reduce perceived threat and facilitate adaptive coping (Cohen & Wills, 1985; Lazarus & Folkman, 1984), thereby potentially disrupting cycles of fear and avoidance described in models of FOC (Rondung et al., 2016). Although the present findings are consistent with this interpretation, the temporal ordering of these associations cannot be determined from the present cross-sectional data.

LIMITATIONS

Several limitations should be noted. First, the cross-sectional design precludes causal inferences about the directionality of effects. Although family support was associated with lower FOC among women with prior trauma, it is also possible that women with higher fear levels perceive less support. Moreover, previous research suggests that the relationship between trauma, support, and FOC may be bidirectional and dynamic. As proposed by Rondung et al. (2016), FOC may develop within a self-reinforcing cycle: elevated antenatal fear heightens the likelihood of perceiving labour as threatening, which increases negative childbirth appraisals and fear in subsequent pregnancies. Trauma may therefore both precede and result from childbirth fear, sustained by overlapping cognitive, affective, and contextual factors such as anxiety sensitivity, depressive and anxiety symptoms, and prior negative obstetric experiences (Ertan et al., 2021; Holopainen et al., 2020; Jokić-Begić et al., 2014).

Second, previous traumatic pregnancy or birth experiences were assessed using a single self-report item without specification of the type, timing, or severity of the event. Although this approach captures women's subjective perceptions, which is an important aspect given the individualized and experien-

tial nature of childbirth-related trauma (Beck, 2004; Thomson & Downe, 2008), it limits the precision and comparability of the construct. Future studies should therefore employ validated multidimensional instruments, such as the City Birth Trauma Scale (Ayers et al., 2018), and directly assess posttraumatic symptom severity. Moreover, the item used in this study referred to both traumatic pregnancy and traumatic birth experiences, thus capturing a broader and more diverse range of events than studies focusing exclusively on birth trauma. While this broader conceptualization may be clinically meaningful, it may also have introduced heterogeneity into the trauma group. Consequently, the observed moderation effect may not apply equally across different types, severities, or temporal distances of traumatic experiences. Future research should therefore examine whether the role of family support differs according to the nature and characteristics of prior trauma.

Third, data were collected online via self-report, potentially introducing bias toward more educated or digitally literate participants. However, we found no differences in FOC by education or socioeconomic status. Still, future research should aim to recruit more diverse samples, including women with lower socioeconomic status or limited digital access. Finally, the study's focus on Croatian women limits generalizability to other cultural settings where family structures and norms of support differ.

An additional limitation relates to the broad range of gestational ages represented in the sample. Although gestational week was included as a covariate in all regression models and was not significantly associated with FOC in the present study, previous research suggests that fear of childbirth may vary across pregnancy stages, with some studies reporting increasing levels of fear as childbirth approaches (Alemu et al., 2024; Jing et al., 2025; Rouhe et al., 2009). It is therefore possible that the associations between traumatic experiences, social support, and FOC differ across gestational stages. In particular, the strength of the observed moderation effect may vary depending on proximity to childbirth. Future longitudinal studies should examine whether the role of social support changes over the course of pregnancy.

Finally, although the present study had sufficient statistical power to detect the previously reported main effects on which the sample size calculations were based, the relatively modest and potentially biased sample may limit the generalizability and stability of the observed effects. This consideration is particularly relevant for the moderation analysis, as interaction effects are often more sensitive to sampling variability and may be estimated less precisely than main effects. Accordingly, the observed moderation effect may be relatively unstable and sensitive to sample-specific characteristics. The modest sample size also constrained model complexity, requir-

ing separate interaction models with a limited set of covariates. As a result, multiple models were tested, which may increase the family-wise error rate. Consequently, the observed moderating role of family support should be interpreted as preliminary and requiring replication in larger independent samples.

CONCLUSIONS AND CLINICAL IMPLICATIONS

Marko Tončić,
Sanda Pletikosić
Tončić,
Klara Grašić,
Miljana Kukić,
Tamara Martinac
Dorčić

Despite these limitations, this study contributes to understanding the interplay between past pregnancy and obstetric experiences, social support, and emotional adjustment during pregnancy. The findings suggest that family support may be relevant for women who have experienced a traumatic pregnancy or birth. Although the observed moderation effect should be interpreted cautiously, it highlights a group that may warrant further attention in future research and clinical practice. If replicated, these findings may have implications for efforts to identify women at increased risk of elevated FOC through the assessment of prior traumatic experiences and perceived support.

The observed pattern of associations may also be compatible with approaches such as family-centred care or trauma-informed care, although their effectiveness was not examined in the present study. Future research could examine whether involving family members, providing psychoeducation regarding difficult pregnancy or birth experiences, and facilitating open communication about childbirth expectations contribute to improved psychological adjustment during pregnancy. These directions may be particularly relevant in Croatia, where available information on perinatal mental health protocols and practices remains limited, and existing data suggest relatively underdeveloped legislative, institutional, and systemic frameworks for screening, detecting, and treating perinatal mental health difficulties (Horakova et al., 2024).

DISCLOSURES

This research received no external funding. The study was approved by the Ethics Committee of the Department of Psychology, Faculty of Humanities and Social Sciences, University of Rijeka, Croatia (Approval No. 39\2024; 2702.2024.12). The authors declare no conflict of interest.

REFERENCES

- Alemu, C., Wudu, H., & Lakew, S. (2024). Fear of childbirth and its associated factors among pregnant women in Dejen Woreda, East Gojjam Zone, Northwest Ethiopia: a community-based cross-sectional study. *Scientific Reports*, 14, 9319. <https://doi.org/10.1038/s41598-024-58855-5>
- Alizadeh-Dibazari, Z., Maghalian, M., & Mirghafourvand, M. (2025). The relationship between perceived social support and fear of childbirth in pregnant women: a systematic review and meta-analysis. *BMC Psychology*, 13, 709. <https://doi.org/10.1186/s40359-025-03047-7>
- Ayers, S., Wright, D. B., & Thornton, A. (2018). Development of a measure of postpartum PTSD: The City Birth Trauma Scale. *Frontiers in Psychiatry*, 9, 409. <https://doi.org/10.3389/fpsy.2018.00409>
- Azimi, M., Fahami, F., & Mohamadirizi, S. (2018). The relationship between perceived social support in the first pregnancy and fear of childbirth. *Iranian Journal of Nursing and Midwifery Research*, 23, 235–239. https://doi.org/10.4103/ijnmr.IJNMR_170_16
- Beck, C. T. (2004). Birth trauma: In the eye of the beholder. *Nursing Research*, 53, 28–35. <https://doi.org/10.1097/00006199-200401000-00005>
- Beck, C. T. (2015). Middle range theory of traumatic childbirth: The ever-widening ripple effect. *Global Qualitative Nursing Research*, 2, 2333393615575313. <https://doi.org/10.1177/2333393615575313>
- Böhnke, P. (2008). Are the poor socially integrated? The link between poverty and social support in different welfare regimes. *Journal of European Social Policy*, 18, 133–150. <https://doi.org/10.1177/0958928707087590>
- Brekalo, M., Kuljanac, A., & Nakić Radoš, S. (2024). Intolerance of uncertainty and fear of childbirth: Role of perceived preparedness for childbirth. *Clínica y Salud*, 35, 35–38. <https://doi.org/10.5093/clysa2024a10>
- Calderani, E., Giardinelli, L., Scannerini, S., Arcabasso, S., Compagno, E., Petraglia, F., & Ricca, V. (2019). Tocophobia in the DSM-5 era: Outcomes of a new cut-off analysis of the Wijma Delivery Expectancy/Experience Questionnaire based on clinical presentation. *Journal of Psychosomatic Research*, 116, 37–43. <https://doi.org/10.1016/j.jpsychores.2018.11.012>
- Calpbini, P., Terzioglu, F., & Koc, G. (2023). The relationship of perceived social support, personality traits, and self-esteem of pregnant women with the fear of childbirth. *Health Care for Women International*, 44, 1423–1437. <https://doi.org/10.1080/07399332.2021.2007925>
- Challacombe, F. L., Nath, S., Trevillion, K., Pawlby, S., & Howard, L. M. (2021). Fear of childbirth during pregnancy: Associations with observed mother–infant interactions and perceived bonding. *Archives of Women's Mental Health*, 24, 483–492. <https://doi.org/10.1007/s00737-020-01098-w>
- Çıtak Bilgin, N., Coşkun, H., Coşkun Potur, D., İbar Aydın, E., & Uca, E. (2021). Psychosocial predictors

- of the fear of childbirth in Turkish pregnant women. *Journal of Psychosomatic Obstetrics & Gynaecology*, 42, 123–131. <https://doi.org/10.1080/0167482X.2020.1734791>
- Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine*, 38, 300–314. <https://doi.org/10.1097/00006842-197609000-00003>
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310–357. <https://doi.org/10.1037/0033-2909.98.2.310>
- Dencker, A., Nilsson, C., Begley, C., Jangsten, E., Mollberg, M., Patel, H., Wigert, H., Hessman, E., & Sjöblom, H. (2018). Causes and outcomes in studies of fear of childbirth: a systematic review. *Women and Birth*, 32, 99–111. <https://doi.org/10.1016/j.wombi.2018.07.004>
- Deng, Y., Lin, Y., Yang, L., Liang, Q., Fu, B., Li, H., Zhang, H., & Liu, Y. (2021). A comparison of maternal fear of childbirth, labor pain intensity and intrapartum analgesic consumption between primiparas and multiparas: a cross-sectional study. *International Journal of Nursing Sciences*, 8, 380–387. <https://doi.org/10.1016/j.ijnss.2021.09.003>
- Dikmen-Yildiz, P., Ayers, S., & Phillips, L. (2018). Longitudinal trajectories of post-traumatic stress disorder (PTSD) after birth and associated risk factors. *Journal of Affective Disorders*, 229, 377–385. <https://doi.org/10.1016/j.jad.2017.12.074>
- Dunkel Schetter, C. (2011). Psychological science on pregnancy: Stress processes, biopsychosocial models, and emerging research issues. *Annual Review of Psychology*, 62, 531–558. <https://doi.org/10.1146/annurev.psych.031809.130727>
- Dobrotić, I., & Laklija, M. (2012) Obrasci društvenosti i percepcija izvora neformalne socijalne podrške u Hrvatskoj [Patterns of sociability and the perception of sources of informal social support in Croatia] *Društvena istraživanja*, 21, 39–58. <https://doi.org/10.5559/di.21.1.03>
- Edmonds, J. K., Paul, M., & Sibley, L. M. (2011). Type, content, and source of social support perceived by women during pregnancy: Evidence from Matlab, Bangladesh. *Journal of Health, Population and Nutrition*, 29, 163–173. <https://doi.org/10.3329/jhpn.v29i2.7859>
- Elvander, C., Cnattingius, S., & Kjerulff, K. H. (2013). Birth experience in women with low, intermediate or high levels of fear: Findings from the first baby study. *Birth*, 40, 289–296. <https://doi.org/10.1111/birt.12065>
- Ertan, D., Hingray, C., Burlacu, E., Sterlé, A., & El-Hage, W. (2021). Post-traumatic stress disorder following childbirth. *BMC Psychiatry*, 21, 155. <https://doi.org/10.1186/s12888-021-03158-6>
- European Parliament (2021). *Report on the situation of sexual and reproductive health and rights in the EU, in the frame of women's health (2020/2215(INI))* (Committee on Women's Rights and Gender Equality, Rapporteur P. F. Matić). Retrieved from <https://respectfulcare.eu/wp-content/uploads/2024/07/2021-European-Parliament-Report-on-the-situation-of-sexual-and-reproductive-health-and-rights-in-the-EU.pdf>
- European Parliament, Policy Department for Citizens' Rights and Constitutional Affairs. (2024). *Obstetric and gynaecological violence in the EU – prevalence, legal frameworks and educational guidelines for prevention and elimination* (Study No. PE 761.478). Retrieved from https://www.europarl.europa.eu/RegData/etudes/STUD/2024/761478/IPOL_STU%282024%29761478_EN.pdf
- Gulacti, F. (2010). The effect of perceived social support on subjective well-being. *Procedia: Social and Behavioral Sciences*, 2, 3844–3849. <https://doi.org/10.1016/j.sbspro.2010.03.602>
- Haines, H. M., Pallant, J. F., Karlström, A., & Hildingson, I. (2011). Cross-cultural comparison of levels of childbirth fear in an Australian and Swedish sample. *Midwifery*, 27, 560–567. <https://doi.org/10.1016/j.midw.2010.05.004>
- Hall, W. A., Hauck, Y. L., Carty, E. M., Hutton, E. K., Fenwick, J., & Stoll, K. (2009). Childbirth fear, anxiety, fatigue, and sleep deprivation in pregnant women. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 38, 567–576. <https://doi.org/10.1111/j.1552-6909.2009.01054.x>
- Hall, W. A., Stoll, K., Hutton, E. K., & Brown, H. (2012). A prospective study of effects of psychological factors and sleep on obstetric interventions, mode of birth, and neonatal outcomes among low-risk British Columbian women. *BMC Pregnancy and Childbirth*, 12, 78. <https://doi.org/10.1186/1471-2393-12-78>
- Handelzalts, J. E., Kalfon-Hakhmigari, M., Raichin, A., & Peled, Y. (2024). Postpartum acute stress disorder symptoms, social support, and quality of couple's relationship associations with childbirth PTSD. *Frontiers in Psychiatry*, 15, 1310114. <https://doi.org/10.3389/fpsy.2024.1310114>
- Hasani, S., Bahrami, N., Heidarifard, S., & Alimoardi, Z. (2025). The mediating role of psychological birth trauma in the association between childbirth satisfaction and the desire to avoid pregnancy among Iranian postpartum women. *Midwifery*, 151, 104636. <https://doi.org/10.1016/j.midw.2025.104636>
- Heyne, C. S., Kazmierczak, M., Souday, R., Horesh, D., Lambregtse-van den Berg, M., Weigl, T., Horsch, A., Oosterman, M., Dikmen-Yildiz, P., & Garthus-Niegel, S. (2022). Prevalence and risk factors of birth-related posttraumatic stress among parents: a comparative systematic review and meta-analysis. *Clinical Psychology Review*, 94, 102157. <https://doi.org/10.1016/j.cpr.2022.102157>
- Holopainen, A., Stramrood, C., van Pampus, M. G., Hollander, M., & Schuengel, C. (2020). Subsequent childbirth after previous traumatic birth experi-

- ence: Women's choices and evaluations. *British Journal of Midwifery*, 28, 2–10. <https://doi.org/10.12968/bjom.2020.28.8.488>
- Horakova, A., Nemcova, H., Hrdlickova, K., Kalli, S., Davletova, A., Duarte, M. F. R. S., Molodina, D., Riekk, T., & Sebela, A. (2024). State of perinatal mental health care in the WHO region of Europe: a scoping review. *Frontiers in Psychiatry*, 15, 1350036. <https://doi.org/10.3389/fpsyt.2024.1350036>
- Hou, Y., Zhou, X., Yao, M., & Liu, S. (2022). Fear of childbirth and its predictors in re-pregnant women after cesarean section: a cross-sectional multicenter study in China. *BMC Pregnancy and Childbirth*, 22, 393. <https://doi.org/10.1186/s12884-022-04721-z>
- Hudek-Knežević, J., Krapić, N., & Kardum, I. (2006). Burnout in dispositional context: The role of personality traits, social support, and coping styles. *Review of Psychology*, 13, 65–73.
- Ilska, M., Brandt-Salmeri, A., Kołodziej-Zaleska, A., Banaś, E., Gelner, H., & Cnota, W. (2021). Factors associated with fear of childbirth among Polish pregnant women. *Scientific Reports*, 11, 4397. <https://doi.org/10.1038/s41598-021-83915-5>
- Jing, Q., Jie, J., Ke, X., Liu, Y., Xiumin, D., Xiuchuan, L., & Jinzhi, L. (2025). The relationship between fear of childbirth and prenatal depression in pregnant women during pregnancy: a cross-lagged analysis. *BMC Pregnancy and Childbirth*, 25, 192. <https://doi.org/10.1186/s12884-025-07321-9>
- Jokić-Begić, N., Žigić, L., & Nakić Radoš, S. (2014). Anxiety and anxiety sensitivity as predictors of fear of childbirth: Different patterns for nulliparous and parous women. *Journal of Psychosomatic Obstetrics & Gynaecology*, 35, 22–28. <https://doi.org/10.3109/0167482X.2013.866647>
- Kaniasty, K., & Norris, F. H. (2008). Longitudinal linkages between perceived social support and posttraumatic stress symptoms: Sequential roles of social causation and social selection. *Journal of Traumatic Stress*, 21, 274–281. <https://doi.org/10.1002/jts.20334>
- Kuljanac, A., Brekalo, M., & Nakić Radoš, S. (2023). Perfectionism, intolerance of uncertainty, and fear of childbirth in pregnant and non-pregnant women. *Clínica y Salud*, 34, 65–70. <https://doi.org/10.5093/clysa2023a17>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
- Lukasse, M., Schei, B., & Ryding, E. L. (2014). Prevalence and associated factors of fear of childbirth in six European countries. *Sexual & Reproductive Healthcare*, 5, 99–106. <https://doi.org/10.1016/j.srh.2014.06.007>
- Miller, Y. D., & Danoy-Monet, M. (2021). Reproducing fear: The effect of birth stories on nulligravid women's birth preferences. *BMC Pregnancy and Childbirth*, 21, 451. <https://doi.org/10.1186/s12884-021-03944-w>
- Nakić, S. (2011). *Prediktori razvoja poslijeporodajne depresije* [Predictors of postpartum depression] [Unpublished doctoral dissertation]. Faculty of Humanities and Social Sciences, University of Zagreb.
- Nakić Radoš, S., Matijaš, M., Kuhar, L., Anđelino-
vić, M., & Ayers, S. (2019). Measuring and conceptualizing PTSD following childbirth: Validation of the City Birth Trauma Scale. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12, 147–155. <https://doi.org/10.1037/tra000050>
- Nakić Radoš, S., Žigić Antić, L., & Jokić-Begić, N. (2022). The role of personality traits and delivery experience in fear of childbirth: a prospective study. *Journal of Clinical Psychology in Medical Settings*, 29, 750–759. <https://doi.org/10.1007/s10880-022-09848-x>
- Nakić Radoš, S., Brekalo, M., Žutić, M., Matijaš, M., Habek, D., Marton, I., Tikvica Luetić, A., Prka, M., Ujević, B., Štefulj, J., Pačić-Turk, L., Čivljak, M., Bošnjaković, J., Čartolovni, A., & Ayers, S. (2026). Prospective study of individual characteristics and post-traumatic stress disorder (PTSD) symptoms following childbirth: Birth satisfaction as a moderator. *Psychological Trauma: Theory, Research, Practice, and Policy*, 18, 29–38. <https://doi.org/10.1037/tra0001823>
- Nieminen, K., Stephansson, O., & Ryding, E. L. (2009). Women's fear of childbirth and preference for cesarean section – a cross-sectional study at various stages of pregnancy in Sweden. *Acta Obstetrica et Gynecologica Scandinavica*, 88, 807–813. <https://doi.org/10.1080/00016340902998436>
- Nilsson, C., Hessman, E., Sjöblom, H., Dencker, A., Jangsten, E., Mollberg, M., Patel, H., Wigert, H., & Begley, C. (2018). Definitions, measurements, and prevalence of fear of childbirth: a systematic review. *BMC Pregnancy and Childbirth*, 18, 28. <https://doi.org/10.1186/s12884-018-1659-7>
- Nowak, A. L., Braungart-Rieker, J. M., & Kuo, P. X. (2022). Social support moderates the relation between childhood trauma and prenatal depressive symptoms in adolescent mothers. *Journal of Reproductive and Infant Psychology*, 40, 644–658. <https://doi.org/10.1080/02646838.2021.1938980>
- O'Connell, M. A., Leahy-Warren, P., Khashan, A. S., Kenny, L. C., & O'Neill, S. M. (2017). Worldwide prevalence of tocophobia in pregnant women: Systematic review and meta-analysis. *Acta Obstetrica et Gynecologica Scandinavica*, 96, 907–920. <https://doi.org/10.1111/aogs.13138>
- Olsen, B., Forgaard, A., Salmi Nordsletta, A. H., Sommerseth, E., & Røseth, I. (2022). "I shut it out": Expectant mothers' fear of childbirth after a traumatic birth – a phenomenological study. *International Journal of Qualitative Studies on Health and Well-being*, 17, 2101209. <https://doi.org/10.1080/17482631.2022.2101209>

- Pidd, D., Newton, M., Wilson, I., & East, C. (2023). Optimising maternity care for a subsequent pregnancy after a psychologically traumatic birth: a scoping review. *Women and Birth*, 36, e471–e480. <https://doi.org/10.1016/j.wombi.2023.03.006>
- R Core Team (2025). *R: a language and environment for statistical computing*. R Foundation for Statistical Computing. Retrieved from <https://www.R-project.org/>
- Rachman, S. (1977). The conditioning theory of fear-acquisition: a critical examination. *Behaviour Research and Therapy*, 15, 375–387. [https://doi.org/10.1016/0005-7967\(77\)90041-9](https://doi.org/10.1016/0005-7967(77)90041-9)
- Räsänen, S., Lehto, S. M., Nielsen, H. S., Gissler, M., Kramer, M. R., & Heinonen, S. (2014). Fear of childbirth in nulliparous and multiparous women: a population-based analysis of all singleton births in Finland in 1997–2010. *BJOG: An International Journal of Obstetrics & Gynaecology*, 121, 965–970. <https://doi.org/10.1111/1471-0528.12599>
- Revelle, W. (2024). *psych: Procedures for psychological, psychometric, and personality research*. Northwestern University. Retrieved from <https://CRAN.R-project.org/package=psych>
- RODA (2023). *Action plan for women's reproductive health*. Retrieved from https://www.roda.hr/media/attachments/udruga/projekti/radar/Akcijski_plan_z_a_reproduktivno_zdravlje%20_zena.pdf
- Rondung, E., Thomtén, J., & Sundin, Ö. (2016). Psychological perspectives on fear of childbirth. *Journal of Anxiety Disorders*, 44, 80–91. <https://doi.org/10.1016/j.janxdis.2016.10.007>
- Rouhe, H., Salmela-Aro, K., Halmesmäki, E., & Saisto, T. (2009). Fear of childbirth according to parity, gestational age, and obstetric history. *BJOG: An International Journal of Obstetrics and Gynaecology*, 116, 67–73. <https://doi.org/10.1111/j.1471-0528.2008.02002.x>
- Rouhe, H., Salmela-Aro, K., Gissler, M., Halmesmäki, E., & Saisto, T. (2011). Mental health problems common in women with fear of childbirth. *BJOG: An International Journal of Obstetrics & Gynaecology*, 118, 1104–1111. <https://doi.org/10.1111/j.1471-0528.2011.02967.x>
- Ryding, E. L., Lukasse, M., Parys, A. S., Wangel, A. M., Karro, H., Kristjansdottir, H., Schroll, A. M., Schei, B., & Bidens Group (2015). Fear of childbirth and risk of cesarean delivery: a cohort study in six European countries. *Birth*, 42, 48–55. <https://doi.org/10.1111/birt.12147>
- Seto, N., Tahara-Sasagawa, E., Yonezawa, K., Hikita, N., Usui, Y., & Haruna, M. (2024). The association between fear of childbirth and social support through the Internet and social networking services in pregnant women: a cross-sectional study. *Nursing & Health Sciences*, 26, e13082. <https://doi.org/10.1111/nhs.13082>
- Skalski-Bednarz, S. B., Loichen, T., Toussaint, L., Mendrek, A., Konaszewski, K., & Surzykiewicz, J. (2026). The moderating roles of social support and spirituality in the relationship between complicated grief and quality of life among women who have experienced pregnancy loss. *Health Psychology Report*, 14, 24–38. <https://doi.org/10.5114/hpr/196641>
- Söderquist, J., Wijma, K., & Wijma, B. (2004). Traumatic stress in late pregnancy. *Journal of Anxiety Disorders*, 18, 127–142. [https://doi.org/10.1016/S0887-6185\(02\)00242-6](https://doi.org/10.1016/S0887-6185(02)00242-6)
- Spice, K., Jones, S. L., Hadjistavropoulos, H. D., Kowalyk, K., & Stewart, S. H. (2009). Prenatal fear of childbirth and anxiety sensitivity. *Journal of Psychosomatic Obstetrics & Gynaecology*, 30, 168–174. <https://doi.org/10.1080/01674820902950538>
- Stoll, K. (2012). *Fear of childbirth among young Canadians* [Doctoral dissertation]. University of British Columbia. <https://doi.org/10.14288/1.0072860>
- Størksen, H. T., Garthus-Niegel, S., Vangen, S., & Eberhard-Gran, M. (2013). The impact of previous birth experiences on maternal fear of childbirth. *Acta Obstetrica et Gynecologica Scandinavica*, 92, 318–324. <https://doi.org/10.1111/aogs.12072>
- Tavares, D. S. M., Figueiredo, B., & Canário, C. (2025). History of mental health problems moderates the association between partner support during childbirth and women's mental health in the postpartum period. *Midwifery*, 130, 104359. <https://doi.org/10.1016/j.midw.2025.104359>
- Thomson, G., & Downe, S. (2008). Widening the trauma discourse: The link between childbirth and experiences of abuse. *Journal of Psychosomatic Obstetrics & Gynaecology*, 29, 268–273. <https://doi.org/10.1080/01674820802545453>
- Vaajala, M., Liukkonen, R., Kuitunen, I., Ponkilainen, V., Mattila, V. M., & Kekki, M. (2023). Trends in the epidemiology of fear of childbirth and association with intended mode of delivery: a nationwide register-based cohort study in Finland. *Acta Obstetrica et Gynecologica Scandinavica*, 102, 430–437. <https://doi.org/10.1111/aogs.14521>
- Vaux, A., Phillips, J., Holly, L., Thomson, B., Williams, D., & Stewart, D. (1986). The Social Support Appraisals (SS-A) Scale: Studies of reliability and validity. *American Journal of Community Psychology*, 14, 195–219. <https://doi.org/10.1007/BF00911821>
- Vitek, K., & Ward, L. M. (2018). Risky, dramatic, and unrealistic: Reality television portrayals of pregnancy and childbirth and their effects on women's fear and self-efficacy. *Health Communication*, 34, 1289–1295. <https://doi.org/10.1080/10410236.2018.1481708>
- Wijma, K. (2003). Why focus on 'fear of childbirth'? *Journal of Psychosomatic Obstetrics & Gynaecology*, 24, 141–143. <https://doi.org/10.3109/01674820309039667>
- Wijma, K., Ryding, E. L., & Wijma, B. (2002). Predicting psychological well-being after emergency caesarean section: a preliminary study. *Journal of Re-*

Marko Tončić,
Sanda Pletikosić
Tončić,
Klara Grašić,
Miljana Kukić,
Tamara Martinac
Dorčić

- productive and Infant Psychology*, 20, 25–36. <https://doi.org/10.1080/02646830220106776>
- Wijma, K., Wijma, B., & Zar, M. (1998). Psychometric aspects of the W-DEQ: a new questionnaire for the measurement of fear of childbirth. *Journal of Psychosomatic Obstetrics & Gynaecology*, 19, 84–97. <https://doi.org/10.3109/01674829809048501>
- Yin, A., Shi, Y., Heinonen, S., Räisänen, S., Fang, W., Jiang, H., & Chen, A. (2024). The impact of fear of childbirth on mode of delivery, postpartum mental health and breastfeeding: a prospective cohort study in Shanghai, China. *Journal of Affective Disorders*, 347, 183–191. <https://doi.org/10.1016/j.jad.2023.11.054>
- Zamani, P., Ziaie, T., Lakeh, N. M., & Leili, E. K. (2019). The correlation between perceived social support and childbirth experience in pregnant women. *Midwifery*, 75, 146–151. <https://doi.org/10.1016/j.midw.2019.05.002>
- Zar, M., Wijma, K., & Wijma, B. (2001). Pre- and postpartum fear of childbirth in nulliparous and parous women. *Scandinavian Journal of Behaviour Therapy*, 30, 75–84. <https://doi.org/10.1080/02845710152507418>
- Žigić Antić, L., Nakić Radoš, S., & Jokić-Begić, N. (2018). Are non-pregnant women afraid of childbirth? Prevalence and predictors of fear of childbirth in students. *Journal of Psychosomatic Obstetrics & Gynaecology*, 40, 226–231. <https://doi.org/10.1080/0167482X.2018.1470162>
- Žigić, L., Nakić, S., & Jokić-Begić, N. (2012). *The validation of the Croatian version of the Wijma Delivery Expectancy/Experience Questionnaire* [Conference presentation]. 18th Psychology Days in Zadar (Symposium: Reproductive Mental Health), Zadar, Croatia, May 24–26.
- Zhang, T., Liu, M., Min, F., Wei, W., Liu, Y., Tong, J., Meng, Q., Sun, L., & Chen, X. (2023). Fear of childbirth and its determinants in pregnant women in the third trimester: a cross-sectional study. *BMC Psychiatry*, 23, 574. <https://doi.org/10.1186/s12888-023-05070-7>
- Zhou, X., Liu, H., Li, X., & Zhang, S. (2021). Fear of childbirth and associated risk factors in healthy pregnant women in northwest of China: a cross-sectional study. *Psychology Research and Behavior Management*, 14, 731–741. <https://doi.org/10.2147/PRBM.S309889>
- Zuckerman, M. (1999). Diathesis–stress models. In M. Zuckerman (Ed.), *Vulnerability to psychopathology: a biosocial model* (pp. 3–23). American Psychological Association. <https://doi.org/10.1037/10316-001>