

Frequency of Perinatal Depression in Serbia and Associated Risk Factors

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Abstract

Objective: To screen 212 women for depression symptoms during pregnancy and postpartum in Serbia.

Methods: Two thousand thirteen women, without psychiatric history, were screened for depressive symptoms using the Edinburgh Postnatal Depression Scale (EPDS). Questionnaire that covered key demographic and obstetric information were administered at the third trimester of pregnancy, and at eight weeks postpartum. Women were identified as at high risk for depression if scores were above a cut-off score of twelve.

Results: Twenty-one point seven percent of the sample was screened as depression positive during pregnancy. Subsequently, efforts were made to follow-up 195 women thought postpartum. Eleven point eight percent were screened positive during postpartum. Risk factors low education level, low satisfaction with financial situation, high risk pregnancy and depression during pregnancy. Logistic regression with backwards elimination showed that women who had high risk pregnancy have threefold increased risk for postpartum depression; antenatal depressive symptoms tenfold increased risk for postpartum depression.

Conclusion: In countries where screening tool for depression is not applied routinely in obstetrics settings, clinicians should be aware of the frequency and level of depressive symptoms during pregnancy, especially regarding its negative effect on course of pregnancy and postpartum depression. Therefore, it is very important to identify women at high risk. Clinicians should be aware that depression is one of the risk factors that can complicate pregnancy.

Keywords: Perinatal depression; Psychosocial factors; Obstetric factors; Screening

Introduction

Perinatal depression refers to major and minor episodes during pregnancy (termed antenatal) and/or within the first 12 months after delivery (termed postpartum or postnatal). Perinatal depression is a great public health problem. It affects women in most countries around the globe, but women in developing countries bear the greatest burden [1]. Antenatal depression has low detection rate and many women remain under-diagnosed [2]. Depression during pregnancy has negative impact on course of pregnancy, fetal and neonatal outcome [3]. These include growth restriction [4], preterm birth [5] and low birth weight, Small for Gestational Age (SGA) [6]. Studies have also shown that children born to depressed mothers are more likely to have behavioural problems and/or disruptions in cognitive and emotional development [7].

There is no information on prevalence of perinatal depressive disorders in Serbian women.

This study is the first one in Serbia estimating the frequency of depressive disorder during pregnancy and postpartum. For females in Serbia, depressive disorders are the third leading cause of Global Burden of Disease (GBD) [8]. Since pregnancy is not a protective factor against depressive disorder, we aimed to estimate the frequency and risk factors of perinatal mood disorders in Serbia and verify previously confirmed risk factors on our population.

If providers know the clinical significance of risk factors for depression in pregnancy, they may be able to identify more easily women with the highest chance for developing this condition.

Early identification by routine data could play an important role in preventing maternal morbidity and mortality and morbidity of the whole family.

Materials and Methods

The research was performed at the inpatient department of

Obstetrics and Gynaecology Clinics at the Clinical Centre of Serbia, The Faculty of Medicine - University of Belgrade and at the outpatient department of Primary Health Centre Zvezdara from June 2011 until June 2012. It was designed as a cross-sectional population study with follow-up. Ethical Committees of both institutions have approved the research.

Population under study

Survey participants were pregnant women in the third trimester of pregnancy, who were hospitalised at the Obstetrics and Gynaecology Institute of The Faculty of Medicine - University of Belgrade, when the research was done; or who had their second trimester check up at the Primary Health Centre Zvezdara.

Pregnant women were asked to participate in this prospective study from July 2011 until June 2012. The aims and procedures of the study were explained to women at the first visit. At the beginning, 250 women were informed, but 36 refused to participate. A total number of 212 women who provided written consent were included in the study, but only 195 were followed during the postnatal period.

Measurements

Semi - structured questionnaire was designed to obtain socio-demographic data (age, education, occupation, place of birth, marriage status) and obstetric variables (mode of conception (naturally, IVF), course of pregnancy (high-risk pregnancy or not), number of fetuses,

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mode of delivery (caesarean section or vaginal delivery, gender of the baby). Edinburgh Postnatal Depression Scale (EPDS) [9] has been used as a screening tool for depression during pregnancy and postpartum.

Women would be identified as high risk for depression if the scores were above a cut-off score of twelve. After being informed and giving their consent to participate, screening for depressive symptoms was done during last trimester of the pregnancy (>28 g.w). Follow up was performed 6-8 weeks postpartum. EPDS was obtained via email, together with the obstetric data (mode of the delivery, gender of the baby).

Statistical analysis

Data were analyzed using Student's *t*-test or Fisher's χ^2 test according to the characteristics of the variables. Spearman's rank correlation was used to check correlation between variables. Predictors were tested with logistic regression analyses. SPSS 12.0 processed all data.

Results

This study reports the findings of the first epidemiological survey, using the Edinburgh Postnatal Depression Scale (EPDS), of the perinatal depression and the associated risk factors in Serbia.

In this survey, we found elevated levels of the depression symptoms during the pregnancy at the 21.7% of the sample, and at the 11.8% of the sample (Table 1).

Depression rate

Depression rate significantly differ in pregnancy and postpartum ($p < 0.001$). The level of depressive symptoms decreases from late pregnancy to puerperium (Table 2).

Estimating the socio-demographic factors we found out that only low educational attainment was associated with higher rates of depressive symptoms during pregnancy. Other socio-demographic factors were not statistically significant (Table 3).

Spearman's rank correlation revealed that low satisfaction with material situation correlates both with antenatal ($\rho = 0.159$; $p < 0.05$) and postnatal depression ($\rho = 0.192$; $p < 0.01$) (Table 4).

Among all obstetric variables measured, only course of pregnancy was found to be significantly different ($X^2 = 5.290$; $p = 0.021$) between depressed and non-depressed women (Table 5).

Antenatal depression strongly correlates with postpartum depression ($r = 0.445$; $p < 0.001$). Depression during pregnancy = 2.814 + 0.401 * depression postpartum (Table 4).

Strong predictor of postpartum depression is antenatal depression ($t = 6.911$; $p < 0.001$) (Table 4).

Multivariate regression with backward elimination showed that revealed complications during pregnancy increase the risk of postpartum depression three times, and antenatal depression increases the risk for postpartum depression ten times (Table 6).

	Antenatal period		Postpartum	
	N	(%)	N	(%)
Non depressed	166	(78.3)	172	(88.2)
Depressed	46	(21.7)	23	(11.8)
No.	212	(100)	195	(100)

Table 1: Frequency of antenatal and postpartum depression.

	N	X	Median	Min.	Max.	Interval	SD
Antenatal period	195	6.99	6.00	0	22	22	4.487
Postpartum	195	5.62	5.00	0	21	21	4.041

Wilcoxon's test ($Z = -3.657$; $p < 0.001$).

Table 2: Depression rate through pregnancy and postpartum.

	N	X	Median	Min.	Max.	SD	N	P
	Low	8	9.62	8.50	4.00	17.00	4.63	0.046*
Education	middle	88	7.60	7.50	.00	22.00	4.41	
	High	116	6.56	6.00	.00	21.00	4.43	
	Town	130	6.95	6.00	.00	17.00	4.26	0.739
Place of birth	village	82	7.35	7.00	.00	22.00	4.79	
	Yes	158	6.92	6.00	.00	22.00	4.43	0.284
Occupation	No	54	7.65	7.00	.00	22.00	4.58	
	married	165	7.09	6.50	.00	22.00	4.45	0.309
Marital status	single	20	8.60	8.50	1.00	22.00	5.55	
	cohabitation	27	6.11	6.00	1.00	12.00	3.46	

Table 3: Socio-demographic characteristics and depressive symptoms.

	R	p
Low satisfaction with material status /AnD	$\rho = 0.159$;	$p < 0.05$
Low satisfaction with material status/PPD	$\rho = 0.192$;	$p < 0.01$
AnD/PPD	$r = 0.445$;	$p < 0.001$

Table 4: Correlation between low satisfaction with material status and depressive symptoms.

Mode of conception	naturally	N (%)	160 (89.4%)	19 (10.6%)
	IVF	N (%)	12 (75.0%)	4 (25.0%)
Total		N (%)	172 (88.2%)	23 (11.8%)
Parity	0	N (%)	125 (88.7%)	16 (11.3%)
	1	N (%)	41 (85.4%)	7 (14.6%)
	2	N (%)	4 (100.0%)	0 (.0%)
	4	N (%)	1 (100.0%)	0 (.0%)
Total		N (%)	171 (88.1%)	23 (11.9%)
Gender of a baby	male	N (%)	83 (91.2%)	8 (8.8%)
	Male twins	N (%)	2 (100.0%)	0 (.0%)
	Mix twins	N (%)	3 (75.0%)	1 (25.0%)
	Female	N (%)	82 (86.3%)	13 (13.7%)
	Female twins	N (%)	1 (50.0%)	1 (50.0%)
Total		N (%)	171 (88.1%)	23 (11.9%)
Mode of delivery	vaginally	N (%)	89 (89.9%)	10 (10.1%)
	Caesarean section	N (%)	83 (86.5%)	13 (13.5%)
Total		N (%)	172 (88.2%)	23 (11.8%)
Number of babies	1	N (%)	167 (88.8%)	21 (11.2%)
	2	N (%)	5 (71.4%)	2 (28.6%)
Total		N (%)	172 (88.2%)	23 (11.8%)
Course of pregnancy	Normal course	N (%)	81 (94.2%)	5 (5.8%)
$\chi^2 = 5.290$ $p = 0.021^*$	High risk pregnancy	N (%)	91 (83.5%)	18 (16.5%)

Table 5: Obstetric features and depressive symptoms in postpartum.

Discussion

Two hundred and twenty-three women were involved in this survey, and one hundred and ninety-five were followed during the postnatal period. Although EPDS assesses only the depressive symptoms and cannot lead to the diagnosis of perinatal depression, it is the most used screening test in this period.

Frequency

In this study, we found enhanced levels of depression during pregnancy in 21.7% of our sample, and 11.8% in postpartum period. The

	P=	Or	95.0% I P Lower	or Upper
Mode of conception	.941	1.074	.164	7.048
Course of pregnancy	.051	3.320	.995	11.073
Age	.331	1.060	.943	1.191
Education	.563	1.306	.529	3.225
Number of babies	.478	2.255	.238	21.364
Satisfaction	.695	1.099	.686	1.759
And	.000	10.611	3.856	29.197
Backward Course of pregnancy	.047	3.060	1.014	9.228
And	.000	10.151	3.841	26.827

Table 6: Multivariate linear regression.

observed rate of antenatal depression is comparable to other studies [10-14], and the observed rate is in line with data that antenatal depression is twice more often than postpartum depression [15]. Unfairly neglected by researchers and clinical doctors, antenatal depression is one of the most confirmed risk factor and predictor of postpartum depression [2,16,17]. Antenatal depression is far more often than other physical risk factors (HTA, hyperglycaemia, anaemia...), that are routinely checked at every check-up [18]. Unfortunately, detection rate is still very low. The observed rate of postpartum depression is comparable to other studies in region [19], but lower than most estimated prevalence rate [16]. In addition, the findings underline once more the importance of an early detection of antenatal depression in (developing) countries without systematic screening.

Depression rate

The level of depressive symptoms decreases from late pregnancy to puerperium. This finding brings full attention to pregnancy, confirming that pregnancy is the most vulnerable period of woman's life. It is in contrast to previous knowledge stating that puerperium is a time of great vulnerability to affective illness [3]. Depression rate significantly differ in pregnancy and postpartum ($p < 0.001$). Using the old diagnostic criteria, during pregnancy, women are more prone to neurosis and during postpartum to psychosis. However, the diagnostic criteria are changed but the prevalence is still the same.

The aim of this study is to point out the socio-demographic, obstetric and psychological factors that play the role in developing the perinatal depression.

Risk factors

Estimating the socio-demographic factors, we found out that only education level was associated with higher rates of depressive symptoms; other socio-demographic factors were not statistically significant. There was a correlation found between lower satisfaction with material status and antenatal and postpartum depression. This finding was confirmed before low socioeconomic status [16,17], but we thought that not only the amount of money matters, but a psychological aspect plays the role, too. The differences in age, marriage, occupation, experience of pregnancy or delivery, difficulties during pregnancy, sex of the baby, method of delivery, were not statistically significant, or associated with higher rate of depression.

Assessment of obstetric variables showed that only course of pregnancy significantly differed in both groups ($p < 0.001$). Antenatal depression affects the course of pregnancy and vice versa.

In addition, these data are in line with studies that include course of pregnancy in risk factors [20], while other research groups did not confirm it [19]. Pregnancy and medical complications that can

accompany it are stressful life events. It is known that two or more stressful life events in a year prior to delivery, increase the risk for postpartum affective disorders [20]. All other obstetric variables (parity, mode of conception, mode of delivery, number of babies, baby's gender) were not significantly different in depressed and non-depressed group.

Predictors

Predictors of postpartum depression are antenatal depression and high-risk pregnancy. This finding is consistent to some studies where these predictors were confirmed [2,19,21].

Multivariate logistic regression with backward elimination showed that the risk for developing perinatal depression increases the risk for postnatal depression three times and the risk for postnatal depression after having antenatal depression ten times.

It is still hard to predict who will suffer perinatal depression and when, but antenatal depression and high-risk pregnancy increase the risk.

It is said that socio-demographic and obstetric factors may not precisely predict who will suffer perinatal depression and when, so future research in this area will elucidate more clearly the underlying pathogenesis and the potential long-term impact of perinatal depression on developing fetus.

Conclusions

Therefore, it is important for clinical doctors to recognize mental health problems that can affect women in the perinatal period. Depression is only one of risk factors that can complicate pregnancy.

Multidisciplinary approach is needed when we are dealing with such an enemy that affects not only the mother but the fetus and neonate, as well.

It is far more important to screen women for depression during pregnancy, in countries without regular screening procedure and in countries where seeing the psychiatrist is believed to be a shame, especially when it is known that only 25% of women having difficulties in postpartum sees psychiatrist and receives the appropriated treatment.

It is a reason more to screen women especially when antenatal depression can predict postpartum depression, and therefore prevent long-term social, emotional and behavioural disturbances of a newborn. Two limitations should be taken into account in interpreting the findings in this study: the small number of participants and use of the EPDS screening tool, which is not a diagnostic tool. Future studies are needed to clarify the roles of other compounding factors.

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