

Effect of Perceived Social Support on Postnatal Depression in Females with Cesarean Section and Normal Vaginal Delivery

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ABSTRACT

Objectives: To assess the association of perceived social support with postnatal depression among puerperal women of Faisalabad, Pakistan.

Methods: It was a case-control study carried out during a period of 18 months (1-1-2019 to 30-06-2020). By using purposive sampling technique 284 postpartum women were enrolled from Allied hospital and Children hospital Faisalabad. The postnatal depression was diagnosed with Edinburgh Postnatal Depression Scale (EPDS). The Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure the social support that was perceived by women.

Results: According to cut-off score ≥ 13 on EPDS 37.3% women were found depressed while 62.7% women were found non-depressed. The mean EPDS score \pm SD was 10.12 ± 6.27 (min score 0; max score 27). The perceived social support from significant other, family and friends was found as significant predictor of postnatal depression. With one-point increase in global perceived social support, the postnatal depression decreased by 0.1 points on EPDS scale ($p = 0.03$) among women in normal vaginal delivery group, by 0.2 points in cesarean section group ($p < 0.001$) and the postnatal depression decreased by 0.2 points in total sample ($p < 0.001$).

Conclusion: A poor perceived social support from significant other, family and friends is a significant risk factor for postnatal depression among puerperal women.

Keywords: Postnatal Depression, EPDS, MSPSS, Perceived social support.

INTRODUCTION

Postpartum or postnatal depression is currently known as a notable health problem because it has many adverse effects not only on the health of the

mother but also on the health of the infant [1]. In South Asia, depression during childbirth is a serious public health problem, affecting approximately one in four women [2, 3]. The estimated prevalence rate for this disease nationwide is commonly thought to be about

13% [4, 5]. Without a question, that rate is concerning, suggesting an immediate need for more in-depth research into the causes and conditions contributing to this disease, since it has detrimental impact on women, children and community as a whole[6]. During the first four weeks including the postnatal period, postpartum depression (PPD) occurs which can persist since as long as one year[7]. This not only affects wellbeing of the mother, but also has a detrimental impact on the mental, cognitive, psychological and even functional growth of the child[8].

Several risk factors of postnatal depression have been identified, for example, obstetric history, physical causes, behavior, traumatic life events, past mental illness background and social support [9]. The risk factors of postnatal depression identified in multivariate analysis done by Roumieh *et al*, were history of depression for the period of pregnancy, worrying life occasions and displacement, while antenatal care was found as a protective factor for postnatal depression [10]. Smorti *et al* identified women's age, prenatal depression during pregnancy, quality of relationship with spouse and mode of delivery as significant predictors of postnatal depression [11]. Other risk factors of postnatal depression identified in literature are socioeconomic status, biological history of mother, obstetrical history, lifestyle and previous mental illnesses [12, 13].

Surveys and epidemiological studies report that the incidence of postpartum depression in different cultures around the world is increasing [3]. In order to determine whether this issue is specific to a particular cultural background or is significantly affected by it, it is important to determine the prevalence of PPD and its social and biological relevance in different populations and cultures [14]. This study aimed to assess the association of perceived social support with postnatal depression among puerperal women of Faisalabad, Pakistan.

MATERIALS AND METHODS

A case-control study design was used in this study. Women diagnosed with postnatal depression were taken as cases and those women who had no depression were enrolled as controls. The exposure to various risk factors was compared between cases and controls. The study was conducted in Allied hospital Faisalabad and Children hospital Faisalabad.

The study was completed in 18 months after approval of synopsis i-e, from 4th Jan 2019 to 5th July 2020. A non-probability A sample of 284 women (142 women in normal delivery group; 142 women in cesarean section group) was taken by using 90% power of test, 95% confidence level and 5% margin of error using following formula:

$$n = \frac{\left\{ z_{1-\alpha} \sqrt{2\bar{P}(1-\bar{P})} + z_{1-\beta} \sqrt{P_1(1-P_1) + P_2(1-P_2)} \right\}^2}{(P_1 - P_2)^2}$$

P1 = Depression in females with normal vaginal delivery = 13.6% [15]

P2 = Depression in females with C-section = 27.6% [15]

Purposive sampling technique was used to collect data. Postpartum women aged 18-45 years were included in the study. Women who had any kind of condition that required immediate inpatient care, women who had stillbirth, neonatal death or newborn with any kind of physical or mental anomalies, women who had elective cesarean section without any medical recommendation or complication, women who had their newborn less than one month and more than 6 months of age and women who could not speak Urdu or Punjabi language were excluded from the study.

The rules and regulations set by the ethical committee of university of Lahore were followed while conducting the research and the rights of the research participants were respected.

The Edinburg Postnatal Depression Scale (EPDS) was used to measure the prevalence of postnatal depression among women of this study. The Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure the social support that was perceived by women. This scale consists of 12 items that are measured on 7 points Likert scale, from 'very strongly disagree' to 'very strongly agree'. The 12 items of MSPSS are further categorized into three subscales measuring 'perceived social support from significant other', 'perceived social support from family' and 'perceived social support from friends' separately. Each subscale consists of 4 items. The minimum possible score was 4 and maximum possible score was 28. A higher score indicated higher social support perceived by women of this study. The overall score of all 12 items measured 'Global Perceived Social Support'. The minimum possible score for 'Global Perceived Social Support'

was 7 and maximum possible score was 84. A higher score indicated higher 'Global Perceived Social Support'.

Data Analysis

All the data was analyzed by using SPSS version 24. The women screened out with postnatal depression (EPDS score >13) were compared with women having no depression across perceived social support variables using the Chi-square Test of Independence. A Simple Linear Regression was done to measure the association of 'global perceived social support' with postnatal depression among women in cesarean section group and normal vaginal delivery group separately. A p-value <0.05 was considered as showing statistically significant results for all statistical tests used in this study.

RESULTS

A total of 284 postpartum women (142 having normal vaginal delivery and 142 having cesarean section) were enrolled in the study. According to cut-off score ≥ 13 on EPDS 106 (37.3%) women were found depressed while 178 (62.7%) women were found non-depressed. The mean EPDS score \pm SD was 10.12 ± 6.27 (min score 0; max score 27). The descriptive statistics of Perceived social support scale and subscales among women having normal vaginal delivery (n = 142) and cesarean section (n = 142) are shown below in Table 1.

Table 1. Descriptive Statistics of Perceived Social Support Scale and Subscales among Women Having Normal Vaginal Delivery (n = 142) and Cesarean Section (n = 142).

Scale/Subscale	Study Groups	N	Min	Max	Mean \pm SD
Perceived Social Support from Significant Other (Subscale)	Normal Vaginal Delivery	142	9	28	21.50 \pm 4.59
	Cesarean Section	142	5	28	20.23 \pm 5.57
	Total	284	5	28	20.87 \pm 5.14
Perceived Social Support from Family (Subscale)	Normal Vaginal Delivery	142	12	28	21.09 \pm 4.39
	Cesarean Section	142	4	28	20.12 \pm 5.34
	Total	284	4	28	20.61 \pm 4.91
Perceived Social Support from Friends (Subscale)	Normal Vaginal Delivery	142	12	28	20.22 \pm 3.58
	Cesarean Section	142	8	28	19.50 \pm 5.27
	Total	284	8	28	19.86 \pm 4.51
Global Perceived Social Support (Scale)	Normal Vaginal Delivery	142	36	84	62.82 \pm 10.99
	Cesarean Section	142	19	84	59.85 \pm 14.95
	Total	284	19	84	61.34 \pm 13.18

The Chi-square Test of Independence revealed that the women's perception that they have someone special who is there in time of need was not significantly associated with postnatal depression among women in normal vaginal delivery group χ^2 (2, n = 142) = 3.09, p = 0.21; but was significantly associated with postnatal depression among women in cesarean section group χ^2 (2, n = 142) = 17.05, p < 0.001; and in total sample χ^2 (2, n = 284) = 16.79, p < 0.001. The women's perception that they have someone special to share worries and happiness with him/her was significantly associated with postnatal depression among women in normal vaginal delivery group χ^2 (2, n = 142) = 9.77, p = 0.008; among

women in cesarean section group χ^2 (2, n = 142) = 21.40, p < 0.001; as well as in total sample χ^2 (2, n = 284) = 34.92, p < 0.001. The women's perception that they have someone special who provides real comfort to them was significantly associated with postnatal depression among women in normal vaginal delivery group χ^2 (2, n = 142) = 14.13, p = 0.001; among women in cesarean section group χ^2 (2, n = 142) = 20.74, p < 0.001; as well as in total sample χ^2 (2, n = 284) = 31.88, p < 0.001. The women's perception that they have someone special for whom their feelings matter a lot was significantly associated with postnatal depression among women in normal vaginal delivery group χ^2 (2, n = 142) = 7.56, p = 0.02; among

women in cesarean section group $\chi^2 (2, n = 142) = 13.70, p < 0.001$; as well as in total sample $\chi^2 (2, n = 284) = 23.95, p < 0.001$ (Table 2).

The Chi-square Test of Independence revealed that the women's perception that they have a helping family was significantly associated with postnatal depression among women in normal vaginal delivery group $\chi^2 (2, n = 142) = 18.37, p < 0.001$; among women in cesarean section group $\chi^2 (2, n = 142) = 46.21, p < 0.001$; as well as in total sample $\chi^2 (2, n = 284) = 68.86, p < 0.001$. The women's perception that they are emotionally supported and being helped by family was significantly associated with postnatal depression among women in normal vaginal delivery group $\chi^2 (2, n = 142) = 19.61, p < 0.001$; among women in cesarean section group $\chi^2 (2, n = 142) = 30.39, p < 0.001$; as well as in total sample $\chi^2 (2, n = 284) = 50.23, p < 0.001$. The women's perception that they can consult their family in case of any problem was significantly associated with postnatal depression among women in normal vaginal delivery group $\chi^2 (2, n = 142) = 9.14, p = 0.01$; among women in cesarean section group $\chi^2 (2, n = 142) = 19.38, p < 0.001$; as well as in total sample $\chi^2 (2, n = 284) = 25.43, p < 0.001$. The women's perception that their family helps in decision making matters was significantly associated with postnatal depression among women in normal vaginal delivery group $\chi^2 (2, n = 142) = 24.26, p < 0.001$; among women in cesarean section group $\chi^2 (2, n = 142) = 34.57, p < 0.001$; as well as in

total sample $\chi^2 (2, n = 284) = 62.21, p < 0.001$ (Table 2).

The Chi-square Test of Independence revealed that the women's perception that they have some helping friends was significantly associated with postnatal depression among women in normal vaginal delivery group $\chi^2 (2, n = 142) = 21.02, p < 0.001$; among women in cesarean section group $\chi^2 (2, n = 142) = 21.83, p < 0.001$; as well as in total sample $\chi^2 (2, n = 284) = 41.79, p < 0.001$. The women's perception that they are able to rely on friends when matters go wrong was not significantly associated with postnatal depression among women in normal vaginal delivery group $\chi^2 (2, n = 142) = 0.72, p = 0.69$; among women in cesarean section group $\chi^2 (2, n = 142) = 2.02, p = 0.36$; as well as in total sample $\chi^2 (2, n = 284) = 2.38, p = 0.30$. The women's perception that they have friends to share worries and happiness with them was significantly associated with postnatal depression among women in normal vaginal delivery group $\chi^2 (2, n = 142) = 7.80, p = 0.02$; among women in cesarean section group $\chi^2 (2, n = 142) = 10.82, p = 0.004$; as well as in total sample $\chi^2 (2, n = 284) = 12.39, p = 0.002$. The women's perception that they can consult their friends in case of any problem was significantly associated with postnatal depression among women in normal vaginal delivery group $\chi^2 (2, n = 142) = 11.80, p = 0.003$; among women in cesarean section group $\chi^2 (2, n = 142) = 7.28, p = 0.02$; as well as in total sample $\chi^2 (2, n = 284) = 17.50, p < 0.001$ (Table 2).

Table 2. Chi-Square Test of Independence to Measure Association of Perceived Social Support from Significant other with Postnatal Depression Among Women Having Normal Vaginal Delivery (n = 142) and Cesarean Section (n = 142).

	Mode of Delivery	Response	EPDS Categories		% of Depression	χ^2 (df)	p-value
			Non-Depressed	Depressed			
Perceived Social Support from Significant Other							
Have someone special who is there when needed	Normal Vaginal Delivery	Agree	74	29	28.2	3.09 (2)	0.21
		Neutral	19	5	20.8		
		Disagree	8	7	46.7		
	Cesarean Section	Agree	63	32	33.7	17.05 (2)	<0.001
		Neutral	6	12	66.7		
		Disagree	8	21	72.4		
Total	Agree	137	61	30.8	16.79 (2)	<0.001	
	Neutral	25	17	40.5			
	Disagree	16	28	63.6			
Have someone special to share worries and	Normal Vaginal Delivery	Agree	87	26	23.0	9.77 (2)	0.008
		Neutral	10	9	47.4		
		Disagree	4	6	60.0		

happiness with him/her	Cesarean Section	Agree Neutral Disagree	65 8 4	32 15 18	33.0 65.2 81.8	21.40 (2)	<0.001
	Total	Agree Neutral Disagree	152 18 8	58 24 24	27.6 57.1 75.0	34.92 (2)	<0.001
Got someone special who provides real comfort	Normal Vaginal Delivery	Agree Neutral Disagree	81 14 6	21 10 10	20.6 41.7 62.5	14.13 (2)	0.001
	Cesarean Section	Agree Neutral Disagree	62 3 12	30 16 19	32.6 84.2 61.3	20.74 (2)	<0.001
	Total	Agree Neutral Disagree	143 17 18	51 26 29	26.3 60.5 61.7	31.88 (2)	<0.001
Have someone special for whom my feelings matter a lot	Normal Vaginal Delivery	Agree Neutral Disagree	80 17 4	26 8 7	24.5 32.0 63.6	7.56 (2)	0.02
	Cesarean Section	Agree Neutral Disagree	62 11 4	39 8 18	38.6 42.1 81.8	13.70 (2)	0.001
	Total	Agree Neutral Disagree	142 28 8	65 16 25	31.4 36.4 75.8	23.95 (2)	<0.001
Perceived Social Support from Family							
Have a helping family	Normal Vaginal Delivery	Agree Neutral Disagree	89 4 8	23 8 10	20.5 66.7 55.6	18.37 (2)	<0.001
	Cesarean Section	Agree Neutral Disagree	70 3 4	24 24 17	25.5 88.9 81.0	46.21 (2)	<0.001
	Total	Agree Neutral Disagree	159 7 12	47 32 27	22.8 82.1 69.2	68.86 (2)	<0.001
Emotionally supported and being helped from family	Normal Vaginal Delivery	Agree Neutral Disagree	89 4 8	23 10 8	20.5 71.4 50.0	19.61 (2)	<0.001
	Cesarean Section	Agree Neutral Disagree	70 3 4	32 11 22	31.4 78.6 84.6	30.39 (2)	<0.001
	Total	Agree Neutral Disagree	159 7 12	55 21 30	25.7 75.0 71.4	50.23 (2)	<0.001
Can consult family in case of any problem	Normal Vaginal Delivery	Agree Neutral Disagree	85 6 10	25 7 9	22.7 53.8 47.4	9.14 (2)	0.01
	Cesarean Section	Agree Neutral Disagree	71 4 2	41 8 16	36.6 66.7 88.9	19.38 (2)	<0.001
	Total	Agree Neutral Disagree	156 10 12	66 15 25	29.7 60.0 67.6	25.43 (2)	<0.001
Family helps in decision making matters	Normal Vaginal Delivery	Agree Neutral Disagree	90 7 4	22 7 12	19.6 50.0 75.0	24.26 (2)	<0.001

	Cesarean Section	Agree	70	30	30.0	34.57 (2)	<0.001
		Neutral	3	8	72.7		
		Disagree	4	27	87.1		
	Total	Agree	160	52	24.5	62.21 (2)	<0.001
		Neutral	10	15	60.0		
		Disagree	8	39	83.0		
Perceived Social Support from Friends							
Have some helping friends	Normal Vaginal Delivery	Agree	86	20	18.9	21.02 (2)	<0.001
		Neutral	6	11	64.7		
		Disagree	9	10	52.6		
	Cesarean Section	Agree	59	28	32.2	21.83 (2)	<0.001
		Neutral	12	12	50.0		
		Disagree	6	25	80.6		
Total	Agree	145	48	24.9	41.79 (2)	<0.001	
	Neutral	18	23	56.1			
	Disagree	15	35	70.0			
Able to rely on friends when matters go wrong	Normal Vaginal Delivery	Agree	77	29	27.4	0.72 (2)	0.69
		Neutral	10	4	28.6		
		Disagree	14	8	36.4		
	Cesarean Section	Agree	52	39	42.9	2.02 (2)	0.36
		Neutral	7	11	61.1		
		Disagree	18	15	45.5		
Total	Agree	129	68	34.5	2.38 (2)	0.30	
	Neutral	17	15	46.9			
	Disagree	32	23	41.8			
Have friends to share worries and happiness with them	Normal Vaginal Delivery	Agree	81	24	22.9	7.80 (2)	0.02
		Neutral	13	13	50.0		
		Disagree	7	4	36.4		
	Cesarean Section	Agree	57	41	41.8	10.82 (2)	0.004
		Neutral	12	4	25.0		
		Disagree	8	20	71.4		
Total	Agree	138	65	32.0	12.39 (2)	0.002	
	Neutral	25	17	40.5			
	Disagree	15	24	61.5			
Can consult friends in case of any problem	Normal Vaginal Delivery	Agree	82	22	21.2	11.80 (2)	0.003
		Neutral	7	9	56.2		
		Disagree	12	10	45.5		
	Cesarean Section	Agree	57	36	38.7	7.28 (2)	0.02
		Neutral	6	4	40.0		
		Disagree	14	25	64.1		
Total	Agree	139	58	29.4	17.50 (2)	<0.001	
	Neutral	13	13	50.0			
	Disagree	26	35	57.4			

The Simple Linear Regression was done to measure association of Global perceived social support with postnatal depression among women in normal vaginal delivery, cesarean section and in total sample. The global perceived social support and postnatal depression were measured in terms of scores. A significant regression equation was found among women in normal vaginal delivery group ($F(1, 140) = 5.02, p = 0.02$), with an R^2 of 0.03; women in cesarean section group ($F(1, 140) = 21.41, p < 0.001$), with an R^2 of 0.13; and in total sample ($F(1, 282) = 29.46, p < 0.001$), with an R^2 of 0.09.

The global perceived social support was found as significant protective factor for postnatal depression among women in normal vaginal delivery group, in cesarean section group and in total sample. With one-point increase in global perceived social support, the postnatal depression decreased by 0.1 points on EPDS scale ($p = 0.03$) among women in normal vaginal delivery group, by 0.2 points in cesarean section group ($p < 0.001$) and the postnatal depression decreased by 0.2 points in total sample ($p < 0.001$) (Table 3).

Table 3. Simple Linear Regression to Measure Association of Global Perceived Social Support with Postnatal Depression in Normal Vaginal Delivery Group (n = 142) and Cesarean Section Group (n = 142) Separately and Total (n=284).

Global Perceived Social Support	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	S.E	Beta		
Normal Vaginal Delivery	-0.09	0.04	-0.18	-2.24	0.03
Cesarean Section	-0.17	0.04	-0.36	-4.63	<0.001
Total	-0.15	0.03	-0.31	-5.42	<0.001

DISCUSSION

The current study revealed significant association of various perceived social support indicators with postnatal depression. The women who received social support from their family, friends and significant other were found as less depressed compared to those women who were deprived of social support. The 'perceived social support from significant other', 'perceived social support from family' and 'perceived social support from friends' were found as significant predictors of postnatal depression among mothers of both groups (who had C-section and vaginal delivery). The findings of a similar study showed that the women who had their husband's support for the child care and women who had contented marital relationship had lower risk of having postnatal depression [16]. Another study confirmed the significant association of social support with postnatal depression and suggested that the lack of home support was a contributory factor towards having postnatal depression among puerperal women [17]. Gebregziabher *et al* found the lack of support from husband as a significant risk factor for developing postpartum depression [18]. The logistic regression analysis done by Ozmen *et al* measured a significant association of perceived social support from significant other and perceived social support from family with postnatal depression, however, no association was found between perceived social support from friends with postnatal depression [19]. Husain *et al* found perceived social support from significant other, from family as well as from friends as significant predictors of postnatal depression, the perceived support being measured by MSPSS and postnatal depression measured with EPDS [20].

Waqas *et al* measured social support by using Social Provision Scale (SPS) and measured depression with

Hospital Anxiety and Depression scale (HADS). Their study established the fact that decreased scores on SPS scale contributed to increased scores on HADS [21]. Shitu *et al* [22], Wubetu *et al* [23], Kakyo *et al* [24], Hamdan *et al* [25] and Eastwood *et al* [26] established a strong association between poor social support and increased maternal depressive symptoms during postpartum period. Ege *et al* also found a negative correlation between social support and postnatal depression [27].

Leonard *et al* in their study revealed that the perceived social support decreased with the passage of time from 1 to 18 months postpartum. At 6 months postpartum the lack of social support significantly contributed to postnatal depression [28]. Azale *et al* demonstrated that the social support is a protective factor in the society against postnatal depression and could become a risk factor if society ignores the importance of psychosocial support for mother during the postpartum period [29]. Salem *et al* found no significant association of perceived social support with postnatal depression [30].

CONCLUSION

A poor perceived social support from significant other, family and friends is a significant risk factor for postnatal depression among puerperal women.

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