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A Study of Postnatal Depression and Its Determinants in Postnatal Women Residing In Rural Areas of Ahemdabad District, Gujarat, India

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Abstract:
Introduction: *Improving maternal health is one of the UN Millennium Development Goal. Birth of baby can trigger jumble of powerful emotions, but it may result Post Natal Depression(PND). This study was carried out to screen postnatal women suffering from depression.*
Aim and Objectives: *(1) To study the prevalence of postnatal depression in rural areas of Ahmedabad district by using E.P.D.S.(Edinburgh Postnatal Depression Scale). (2)To find out association of postnatal depression with socio-demographic and other risk factors.*
Methodology: *A Community based cross-sectional study was carried out in rural areas of Ahmedabad by house to house visit of 516 Postnatal women by using Edinburgh Postnatal Depression Scale (EPDS)after obtaining informed verbal consent of women. The score was analyzed and the women suffering from depression were advised to consult psychiatry department for proper counseling and treatment.*
Results: *The prevalence of depression was 12% in the post-natal women in rural Ahmedabad. Socio-demographic factors of postnatal women like age >30 years, nuclear family, domestic violence, imbalanced budget were significantly associated with the depression. Variables related to health of the mother like late pregnancy, bad obstetric history, unwanted pregnancy, preterm baby, caesarean section, past history of any psychiatry illness, current history of any chronic illness and complication to women during antenatal, intra or postnatal period were also significantly associated with the depression. The variables related to child like birth of the female child, very low birth weight, complication to child during ante, intra and postnatal period were also significantly associated with the depression.*
Conclusion: *Postpartum depression screening improves recognition of the disorder may be at earlier stage.*
Key words: *Depression, Domestic violence, Post natal, Rural area, Women*

I. Introduction

Improving maternal health is one of the UN Millennium Development Goal.[1] The birth of baby can trigger a jumble of powerful emotions, from excitement and joy to fear anxiety. But it can also result in something which might not be expected i.e. Postnatal depression. The Edinburgh Postnatal Depression Scale (EPDS) 10-item was used to identify women who have PND.[2] Postpartum depression is found across the globe, with rates varying from 11% to 42%. (Ali NS et al. 2009).[3] Postnatal non-psychotic depression is the most common complication of childbearing affecting approximately 3-5% of women and as such represents a considerable public health problem affecting women and their families. The effects of postnatal depression on the mother, her marital relationship, and her children make it an important condition to diagnose, treat and prevent postpartum depression.[4] The Edinburgh Postnatal Depression Scale (EPDS) 10-item was used to identify women who have PND. On this scale, minimum score is 0 and maximum is 30. The postnatal women with score 10 or more in this scale are expected to have the risk of PND. Untreated postnatal depression can have adverse long-term effects. For the mother, the episode can be the precursor of chronic recurrent depression. For her children, a mothers' ongoing depression can contribute to emotional, behavioural, cognitive and interpersonal problems in later life. Postpartum depression (PPD), also called postnatal depression, is a type of clinical depression which can affect women after childbirth. Symptoms may include sadness, low energy, changes in sleeping and eating patterns, reduced desire for sex, crying episodes, anxiety, and irritability. While many women experience self-limited, mild symptoms postpartum, postpartum depression should be suspected when symptoms are severe and have lasted over two weeks.[5] Although a number of risk factors have been identified, the causes of PPD are not well understood. Hormonal change is hypothesized to contribute as one cause of postpartum depression. The emotional effects of postpartum depression can include sleep deprivation, anxiety about parenthood and caring for an infant, identity crisis, a feeling of loss of control over life, and lack of support from the sexual partner noted by Mayo Clinic Staff (2014).[6] Many women recover with treatment

such as a support group, counselling, or medication. Studies report prevalence rates among women from 5% to 25%, but methodological differences among the studies make the actual prevalence rate unclear. Among men, in particular new fathers, the incidence of postpartum depression has been estimated to be between 1% and 25.5% according to Paulson, et al (2010).[7]

II. Aim and Objectives

(1) To study the prevalence of postnatal depression in rural areas of Ahmedabad district by using E.P.D.S. (Edinburgh Postnatal Depression Scale). (2) To find out association of postnatal depression with socio-demographic and other risk factors.

III. Methodology

There are 3 PHCS and 1 CHC attached with the NHL Municipal Medical College. Therefore, a community based cross-sectional study was carried out by purposive sampling method in rural areas of Ahmedabad district in these centres, viz. Nandej, Barejadi, Sanathal and Singharva by house to house visit of 516 Post natal women during the study period May 2013 to March 2014. After obtaining informed verbal consent of post natal women having child of 1 to 6 weeks of age, the study was carried out by using questionnaire containing various socio-demographic variables and variables related to women and child health along with Edinburgh Postnatal Depression Scale (EPDS) 10-itemquestionnaire. The EPDS score was calculated at the same time. The women suffering from Depression (Score ≥10) were counseled and advised to consult Psychiatrist for proper counseling and treatment. Data was analyzed by using appropriate statistical software and association of depression with various variables were studied using appropriate statistical tests, e.g. Chi-square (χ^2)test.

IV. Results and Discussion

In our study, total 516 post natal women were enrolled. Age range was 15 to 42 years. The status of depression was assessed with socio-demographic variables and other factors related to women and the new born baby.

Table -1 : Association of depression of Post natal mothers with the Health services she received

Community outreach area Of N.H.L.Muni. Medical College	Subjects		Status of Depression			
	Total		Present		Absent	
	Freq	%	Freq	%	Freq	%
3 Primary Health Centres (Sanathal, Nandej, Kanbha)	251	48.6	44	17.5	207	82.5
1 Community Health Centre (Singharva)	265	51.3	18	6.7	247	93.2
Total	516	100	62	12	454	88
Chi square test: $\chi^2 = 14.05$, df = 1, 'p' Value=0.0002, Extremely significant						

Table -1 shows that depression observed was 17.5% in the post natal women receiving PHC services and it was 6.7% among the post natal women receiving CHC services. However, there is no significant association observed between the PHC and CHC services they received in the rural area.

Table-2 shows that depression found significantly more in the women after the age of 30years. Depression was significantly higher in the women belonging to nuclear family as compared to joint and 3-generation family. This may due to more responsibility of the child rearing along with all household work. All this work the women have to do alone in the nuclear family. The similar association was found with Ghosh Anuradha et al (2011), who used EPDS scale for screening of postpartum depression.

Table-2 Association of Post natal depression with the socio-demographic variables

Variables	Subjects		Post natal Depression				Association of depression with various variables			
Socio-demographic data	Total		Present		Absent					
Age of women(Years)	Freq	%	Freq	%	Freq	%	'p' Value	d.f.	χ^2	Interpr-etation
≤ 30	485	94.0	52	10.7	433	89.3	0.0018	Fisher's exact test		Highly Significant
>30	31	6.0	10	32.3	21	67.7				
Total	516	100.0	62	12.0	454	88.0				
Family Type										
Joint	311	60.3	17	5.4	294	94.6	<0.0001	2	$\chi^{2=}$ 56.93	Highly Significant
Nuclear	92	17.8	32	34.4	60	65.6				
3-Generation	113	21.9	14	12.1	99	87.9				
Total	516	100	62	12	454	88				

Here, They found significant association of depression with poor socioeconomic group, nuclear family structure, single mother, and past history of psychiatric illness, history of abuse, and poor obstetric outcome..[8] However, within this younger population there may be risk factors which predispose not only to postpartum depression, but also to pregnancy during adolescence.

Table-3 : Association of the depression with psychosocial behavior and literacy status of the women

Variables	Subjects		Status of Depression				Association of depression with various variables			
Socio-demographic data	Total		Present		Absent					
	Freq	%	Freq	%	Freq	%	'p' value	d.f.	χ^2 value	Interpre-tation
Variables related to Psychosocial behavior of women										
Domestic Violence										
Everyday/ week	12	2.3	6	50	6	50	<0.0001	2	115.4	Highly Significant
2-5 times/week	124	24	45	36.3	79	63.7				
Never	380	73.6	11	2.9	369	97.1				
Total	516	100	62	12	454	88				
Budget										
Balanced	388	75.2	17	4.3	371	95.5	<.0001	1	86.25	Highly Significant
Not balanced	128	24.8	45	35.1	83	65.1				
Total	516	100	62	12	454	88				
Literacy level of women										
Education of women										
Illiterate	219	42.5	17	7.7	202	92.1	0.01	1	6.51	Significant
Primary	114	22.1	12	10.5	102	89.7				
Secondary	73	14.2	11	15	62	84.8				
Higher secondary	55	10.7	9	16.3	46	83.2				
Graduate	32	6.2	8	25	24	74.8				
Post graduate	22	4.3	4	18.1	18	80.4				
Total	516	100	62	12	454	88				

In Table 3, Among all the women who experienced domestic violence everyday at their home, half of them were suffering from depression. PND decreased as the frequency of domestic violence decreased. When economic factor of women was considered, 35% of women whose budget was unbalanced, had PND. It was observed that depression was higher with higher levels of education as compared to those with lower levels of education.

Table-4: Association of the depression with the health of the women

Variables	Subjects		Status of Depression							
Socio-demographic data	Total		Present		Absent		Association of depression with various variables			
	Freq	%	Freq	%	Freq	%	'p' Value	d.f.	χ^2 value	Interpretation
Variables related to health of the women										
Duration of marriage and birth of the current child:										
< 5 Years	205	39.7	12	5.8	193	94.2	<0.0001	2	32.35	Highly Significant
5-10 Years	149	28.8	17	11.4	131	88.3				
11-15 Years	96	18.7	14	14.6	82	85.4				
16-20 Years	49	9.4	15	30.6	34	69.3				
>20 Years	18	3.4	4	22.2	14	77.8				
Total	516	100	62	12	454	88				
Obstetric history of the women										
Gravida										
<3	348	67.4	26	7.5	322	92.5	<0.0001	1	20.87	Highly Significant
≥3	168	32.6	36	21.4	132	78.6				
Total	516	100	62	12	454	88				
Parity										
<3	449	87	24	5.3	425	94.7	<0.0001	1	145.53	Highly Significant
≥3	67	13	38	56.7	29	43.3				
Total	516	100	62	12	454	88				
Abortion										
<2	490	95	45	9.2	445	90.8	<0.0001	1	73.76	Highly Significant
≥2	26	5	17	64.4	9	35.6				
Total	516	100	62	12	454	88				
Live										
<3	462	89.5	50	10.9	412	89.1	0.01	1	5.93	Significant
≥3	54	10.5	12	21.8	42	78.2				
Total	516	100	62	12	454	88				
Gestational age at the time of Delivery										
Pre term	54	10.5	38	70.4	16	29.6	<0.0001	2	215.8	Highly Significant
Term	445	86.2	17	3.8	428	96.2				
Post term	17	3.3	7	41.2	10	58.8				
Total	516	100	62	12	454	88				
Desire for pregnancy										
Wanted	495	95.9	49	9.9	446	90.1	<0.0001	1	51.53	Highly Significant
Unwanted	21	4.1	13	61.9	8	38.1				
Total	516	100	62	12	454	88				
Place of Delivery										
Home	2	0.4	1	50	1	50	0.22	Fischer's exact test		Not Significant
Institution	514	99.6	61	11.9	453	88.1				
Total	516	100	62	12	454	88				
Mode of Delivery										
ND	351	68	20	5.7	331	94.3	<0.0001	1	41.44	Highly Significant
CS	165	32	42	25.6	123	74.4				
Total	516	100	62	12	454	88				
Previous history of any psychiatric illness to women										
Yes	18	3.5	10	55.6	8	44.4	<.0001	1		Highly significant
No	498	96.5	52	10.4	446	89.6				
Total	516	100	62	12	454	88				
History of any chronic illness to women										
Yes	49	9.5	24	49	25	51	<0.0001	1	69.97	Highly significant
No	467	90.5	38	8.1	429	91.9				
Total	516	100	62	12	454	88				
Complication to women during antenatal, intranatal or postnatal period										
Yes	270	52.3	47	17.2	223	82.6	<.0002	1	14.27	Highly significant
No	246	47.7	16	6.3	230	93.5				
Total	516	100	62	12	454	88				

The prevalence of PND in women who had pregnancy within the 15 years of married life was 31.7 as compared to 52.8 in those who has delivered baby after the 15 years of married life. The depression found was significantly higher in women who had delivered later.

While assessing the obstetric history, the women with ≥3 gravida was 168, out of then around 36% were suffering from depression which was significantly higher than the women with <3gravida. Depression was significantly higher in the women with ≥3 parity, ≥2 abortion. The data shows that the more number of the pregnancy and more number of the children have adverse effects on the mental status of the women. And around 70% of the women who has delivered pre term baby was found depressive. Among the unwanted pregnancy, 61% were suffering from depression. Mode of delivery also have psychological effect. From the women who have delivered child through Caesarian Section, one fourth of them were found depressive. Around 56% who has previous history of psychiatric illness were found to be depressive. And among the women suffering from chronic illness around half of them were having significantly higher depression. Around 18% from the women having complication during and after pregnancy and at the time of birth were suffering from depression in postnatal period.

The study of Dr. Amit Vaja et al. (2009)[9] (n =370) reported history of miscarriage was a significant risk factor for development of post partum depression which is similar to this study.

Table: 5 Association of Post natal depression with the variables related to child borne

Variables Socio-demographic data	Subjects		Status of Depression				Association of depression with various variables			
			Present		Absent					
	Freq	%	Freq	%	Freq	%	'p' value	d.f.	Chi square value	Interpreta-tion
Variables related to last delivered child										
Sex of the child										
Male	189	36.6	16	8.5	173	91.5	0.08	1	3.04	Not-Significant
Female	327	63.4	46	14.1	281	85.9				
Total	516	100	62	12	454	88				
Birth weight of the child										
<1.5 kg	101	19.6	30	30.1	71	69.9	<0.0001	1	41.74	Highly significant
1.5-2.5 kg	134	26	22	16.2	112	83.8				
>2.5 kg	281	54.5	10	3.5	271	96.5				
Total	516	100	62	12	454	88				
Complication to the child during infancy										
Yes	352	68.2	53	15	299	85	0.003	1	8.8	Significant
No	164	31.8	9	5.7	155	94.3				
Total	516	100	62	12	454	88				
Age of child (In completed weeks)										
1 to <2 wk	231	44.8	20	8.7	208	90	<0.0001	1	27.545	Highly significant
2 to <3 wk	210	40.7	14	6.7	192	91.4				
3 to <4 wk	23	4.5	9	39.1	16	67.7				
4 to <5 wk	6	1.2	4	66.7	4	66.7				
5 to <6 wk	35	6.8	8	22.9	29	84.1				
At 6 wk	11	2.1	7	63.6	5	41.9				
Total	516	100	62	12	454	87.9				

Table-5 shows that the depression found more in the women who have delivered female child, this may be due to preference for male child. Among the women who has delivered low birth weight baby, 30% among them were depressive. And 15% women among the child suffering from complication was found depressive As the age of the child increases the depression found increases. Data are significantly associated with the study of Dr. Amit Vaja et al. (2009) (N=370),[9]who studied that the birth of a female child was a significant risk factor for development of post partum depression.

V. Summary and conclusion

In our study, it was observed that the overall prevalence of Postnatal Depression was 12% in postnatal women in the screening survey carried out using EPDS. The proportion of depression was 17.5% among them who received PHC services. PND was also observed more among the women aged 30 years above and it was around 35% in those living in the nuclear family. Depression was prevalent in half of all the women who became the victim of domestic violence almost everyday at their home. Women belonging to the lower socio-economic status and those whose budget was not balanced suffered from depression. It was observed that depression was high among the women having university degree as well as those who has delivered the child after 15 years of marriage. Women having $\geq$ 3 gravida, parity and $\geq$ 2 abortion, PND was 78.6%,67% and35.6% respectively. A significant association was observed between the gestational age at the time of delivery and depression. Among all the women who had delivered pre-term child, 70% of them suffered from

depression. Those women who had delivered a child following an unwanted pregnancy, 62% of them had depression. Depression was significantly associated with the past history of psychiatric illness, current chronic illness and women having complication during and after pregnancy, it were 55.6%,49% and 17.2% respectively. One fourth of all the women who had delivered the child through caesarian section were suffering from depression and also those who had given birth to female child (14%). Among the women who had delivered very low birth weight child, 30% among them had depression and those women whose child had a complication during infancy, 15% had depression. It is estimated that only 20 % of women with PPD are diagnosed and treated, leaving thousands of new mothers to suffer in silence. In terms of the serious effects of PND on the whole family, early identification of the symptoms is crucial. In addition, prevention is important in order to avoid spiraling downward.[10]

VI. Recommendations

Postnatal depression screening should be carried out by Obstetricians and Neonatologists.
Baby blues should not be ignored.

Women with score nearer to the 12 (is it 10 or 12) in EPDS scale[2] indicates the threshold for the depression, hence those women should be provided proper counselling and therapy to avoid the risk.

If the cause of postnatal depressions identified as mentioned before under "social risk factors", treatment should be aimed at mitigating the root cause of problem including increased partner and family support, additional help from childcare , advices regarding good health, counselling and support by health workers etc.

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