Original Research Article

Validation of Edinburgh post natal depression scale in post-natal woman from a tertiary referral center in South India

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Received: 17 June 2020
Accepted: 10 July 2020

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ABSTRACT

Background: Pregnancy and childbirth are two most important life-changing events. Post-partum depression can affect mother and has a wide spectrum of presentation depending upon various social factors. Studies suggest that the incidence of postnatal depression among women of high social strata is 13-19% while the incidence is 11-42% among women with limited social support. The present study aims to study postnatal depression and its causes in a postnatal mother in all the aspects of social, physical, cultural and psychiatric grounds in the Indian scenario with the help of the Edinburgh postnatal depression scale (EPDS).

Methods: From 1st July 2019 to 31st December 2019, a total 300 postnatal women between 1 to 6 weeks of the postpartum period participated and during their stay in the hospital responded to EPDS. The study was purposive sampling, and full consent of the study subjects was taken before the start of the study.

Results: In this study, we found 20.1% of a woman affected by post-partum in South India. The higher percentage of severe depression was seen in the primary gravida (20%). The risk factors such as availability of postnatal care (with NICU admission), the woman with medical complications, late childbirth or delayed childbirth after marriage, multiparity, delivery via caesarean and nuclear family showed significant relationship ($p<0.005$) with depression.

Conclusions: The present study, with a Post-natal depression of 20.1% along with the enumerated risk factors, suggest that the causes for postpartum depression (PPD) among working Indian woman, reflect a change to an urban-centric lifestyle. Further evaluation of these risk factors needs to be made and a routine screening of Postpartum depression (PPD) can help in improving maternal and child health.

Keywords: Cross-sectional study, Edinburgh postnatal depression scale, Mother, Newborn care, Postnatal mother, Postnatal period

INTRODUCTION

Pregnancy is a well-known term in human's life. Both the postpartum and the pregnancy are a period of higher risk for the beginning of several psychiatric disorders. In the list of these psychiatric disorders, postnatal depression is most common.[1] Non-psychotic episodes of depression can be defined in postnatal depression or PND, which includes symptoms such as loss of energy, lack of interest, and insomnia. These symptoms often appear during the first 6 weeks post-delivery.[1] Cases of postnatal depression are reported on a wide scale worldwide. The incidence of postpartum blues is 15-85% within first 10 days after delivery and postpartum psychosis has an incidence on 1 in 500 women.[2] The studies on postpartum depression (PPD) from various developing countries reveal an incidence of 12-36%.[3-7] The incidence of PPD India ranges between 11-26.3%.[8-11] It is reflected as a serious health issue, because of its direct impact on mother and child health.[12] Precise estimation of depression in post-partum and pregnant cases is tough to define, because of hesitation, family environment and culture, which negatively affect methods of determination of the accurate rate of such cases.[13,14] A few published

reports give shreds of evidence of a higher rate of post-partum depression in Asian women as compared to that of North American women.[15] Post-partum depression is affected by multiple factors such as the economic background of the woman, her physical condition (more in the obese women and with medical risk), her psychosocial background and demographic background. Few more factors such as the pressure of birth of the baby girl, rituals, financial status, domestic violence, and lack of social support added more factors in the aetiology of postpartum depression, especially in developing countries.[6,8]

Post-partum depression prompts recurrent or chronic depression, which can even affect the relationship of a mother with her child and also child's development.[16-18] It has been studied that the child of the mother suffering from post-partum depression also suffers from various problems such as behavioural, interpersonal and cognitive problems.[19] The shreds of evidence collected from the literature suggest that in developing countries, the children of mothers who are suffering from postpartum depression are stunted as well as underweight. Due to postpartum depression, the mother is unable to breastfeed her baby properly and take care of her child's health.[18] There has been a decline in the maternal mortality rate in India as a result of better maternal care during pregnancy and at the time of delivery.[20]

Rationale

The studies on postpartum depression is increasing day by day in India, which is providing shreds of evidence and guidelines for the better understanding of the aetiology of postpartum depression and to improve maternal and child health.[20]

Objective of this study was to determine the prevalence of postnatal depression among women and to validate the EPDS as a screening tool for postpartum depression in post-natal women attending tertiary care hospital in Bangalore.

METHODS

Study design: prospective observational study

Authors enrolled 300 adult women of 1 to 6 weeks post-partum who could communicate in Kannada and/or English language and were registered with department of obstetrics and gynecology, Rajarajeshwari Medical College and Hospital, Bengaluru, Karnataka, India.

Women with previously diagnosed depression were excluded from the study.

At 95% confidence levels, 5% margin of error, and considering 26% as the estimated prevalence of

postpartum depression among women living in India. The final sample size was calculated to be 296.

A total 300 consecutive women with a post-partum period ranging from one to six weeks registered with department of obstetrics and gynecology of Rajarajeshwari Medical college, Bengaluru from July 2019 to December 2019. Informed consent was obtained. The sampling method was purposive sampling. EDS tool was used.

Inclusion criteria

- An 18 years of age or older, participating voluntarily in the study, and speaking and reading Kannada and/or English attending postnatal clinic of Rajarajeshwari Medical College and Teaching Hospital, Bengaluru during the period July-December 2019.

Exclusion criteria

- Pregnant women with a previous history of any other severe mental disorder, suicidal ideation or on antidepressants were excluded from the study[21]
- Women who were unable to comprehend were also excluded
- Women with stillbirths and abortions.

EPDS is a self-rating questionnaire that reflects the subject's feelings over the past 7 days. It includes ten questions, with each item scored on a four-point scale from 0 to 3, depending on the severity or duration of each symptom. Total scores range from 0-30 and completion takes around 5 minutes.[21] The Socio-economic class was calculated using Modified Kuppuswami Scale.[22]

In a primary care setting, the score of <13 was recommended to identify the women at risk of depression, whereas the score of ≥13 likely reflects moderate to severe depression.[21] In the present study cut-off points of 9⁄10 and 12⁄13 as markers of possible minor and major depression, were also taken.[22]

The institutional review board of Rajarajeshwari Medical College and Hospital approved this study. The purpose of the study was explained and informed consent was obtained from the participants.

Statistical analysis

Statistical data analysis was done with the help of the Social science statistical package version 22. Statistical Package for the social sciences (SPSS). Authors also performed the chi-square test and Fisher's exact test.

RESULTS

Authors studied 300 women registered in the tertiary care center, who visited the center for post-natal follow-up,

after satisfying the exclusion and the inclusion criteria of the study. Among the registered woman out of 300, only 290 participated in the study with consent and 10 were non-participant. The non-participation rate of the present study was 13%. The mean age of the study participants was 25±1.0 years, range 21-29 years. Mean of duration of married life 2.5±2 years. Most of the studied women were having a good relationship with their husband, they were educated (98%), the salaried woman (98), residing in a nuclear family (95%) and belongs to middle-class families (99) (Table 1).

Table 1: Different primary studied parameters in the patients with post-partum in the registered in a tertiary care centre.

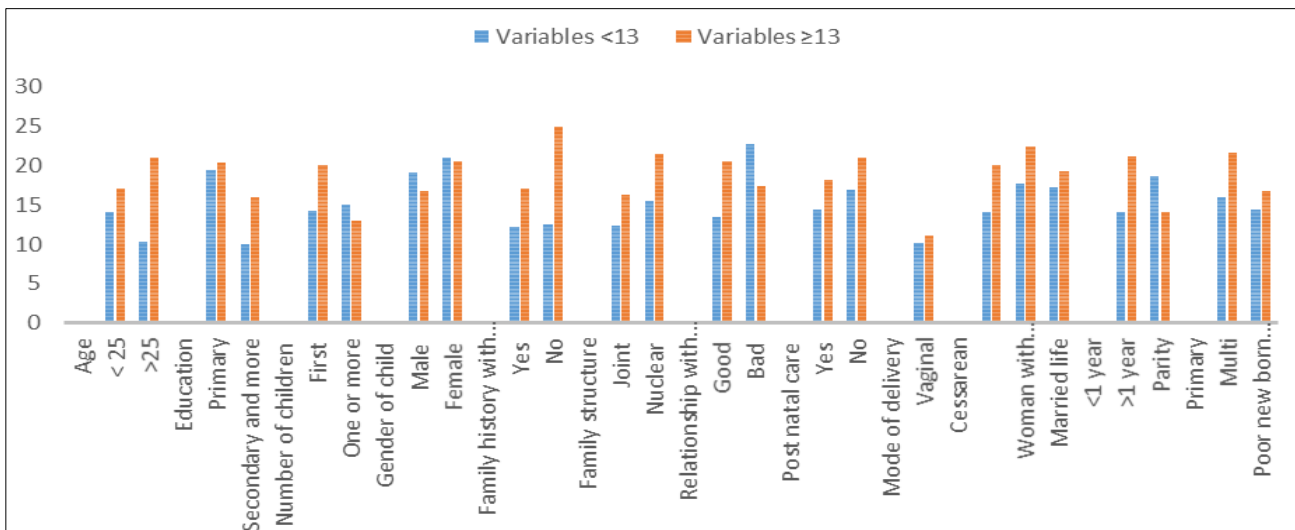| Variables		Number of patients (n=290)	With post-partum (n=250)	Without post-partum (n=40)
Age (21-29) (mean SD)		25	24	19
Education	Graduate (in %)	100	98	2
Family structure	Nuclear (in %)	95	95	1
	Joint (in %)	5	-	5
Occupation	Home maker (in %)	2	-	01
	Salaried/daily worker (in %)	98	96	04
Duration of marriage (1-11 years) (mean SD)		2.56	2.01	-
Income of the family	Middle class/lower middle class (in %)	99	97	3

Figure 1: The EPDS score of different studied risk factors responsible for post-partum in percentage.

Most of the participants were self-dependent and had a delivery in the first year of their marriage. A large number of total participants have delivered by Caesarean section. Rest all had vaginal delivery. Out of total registered woman every tenth postnatal woman had medical complications such as eclampsia, pre-eclampsia, anaemia, diabetes, hypertension, and PCOD. The woman has a history of stillbirth and abortions were excluded from the study.

The EPDS score showed a higher percentage (20.3%) of severe depression risk in a woman with primary education as compared to a woman with secondary education. A higher percentage of severe depression was seen in the primary gravida (20%), while moderate depression was seen in the woman having a second or third child. In our study the gender of the new-born and family history of depression was not found significant for severe depression, the woman showed moderate depression. The univariate examination of risk factors such as (availability of postnatal care with NICU admission), woman with medical complications, late childbirth or delayed childbirth after marriage, multiparity, delivery via caesarean and nuclear family) showed significant relationship (p<0.005) with depression (Table 2, Figure 1).

Table 2: The associated factors with the risk for post-partum in admitted patients where n=290.

Variables	EPDS score				Total woman participated in the study	p value
	<13		≥13			
	Number	%	Number	%		
Age						
< 25	40	14.1%	50	17%	282	0.594
>25	24	10.3%	50	21%	232	
Education						
Primary	48	19.43%	52	20.3%	248	0.412
Secondary and more	20	50%	29	16%	240	
Number of children						
First	50	14.25%	110	20%	260	0.0368
One or more	114	15%	38	13%	252	
Gender of child						
Male	38	19.18%	50	16.81%	288	0.008
Female	30	21.07%	76	20.46%	206	
Family history with depression						
Yes	21	12.25%	32	67%	164	0.0341*
No	30	12.5%	58	25%	248	
Family structure						
Joint	31	12.42%	40	16.27%	240	0.39*
Nuclear	35	15.57%	60	21.4%	266	
Relationship with husband						
Good	31	13.46%	47	20.5%	230	0.0076
Bad	34	22.66%	116	77.33%	150	
Post-natal care						
Yes	38	14.39%	48	18.1%	264	0.0052**
No	28	16.86%	58	21%	266	
Mode of delivery						
Vaginal	25	10.09%	28	11.1%	250	0.0067
Caesarean	28	14.09%	32	20.1%	200	
Woman with complication during pregnancy	40	17.74%	51	22.4%	226	0.0062
Married life						
<1 year	36	17.30%	42	19.23%	208	0.043
>1 year	32	14.03%	49	21.23%	208	
Parity						
Primary	42	18.69%	34	14.03%	230	0.004**
Multi	39	16%	44	21.56%	230	
Poor new born health (NICU admission)	36	14.4%	42	16.8%	250	0.006**

* Significant, ** Fisher's exact test.

DISCUSSION

Main findings

A large proportion of the woman admitted in tertiary care center from the duration of 1-6 weeks of delivery, participated in our study, were at the risk of postpartum depression. Post-partum was found associated with the caesarean section, nuclear family, poor child health with NICU admission, bad relationship with husband and in-laws, delayed childbirth, medical complication, and multiparity.

Interpretation

Pregnancy and child are two unique events of life and the associated stress cannot be reduced due to cultural and social backgrounds are vital collectively based on experiences of the woman.[22,23] The socio-economic status, religion, culture, and literacy show a significant influence on mental health. The present study is an

endeavor to explore the above-mentioned biological factors which cause the risk of depression in new mothers. In the present study, authors report 20.1% postpartum, and it is considered to be high. The studies previously published have reported a lower rate of postpartum in India, near about 11%. A wide range of prevalence of postpartum was seen in UAE 15.8%, Brazil 20.7%, China 11%, Pakistan 40%, and South Africa 34.7%.[24-27] In this study, authors tried to estimate the prevalence of postpartum in Indian scenario, through the EPDS screening tool. Nuclear family, medical complications, caesarean delivery, bad relationship with husband, late pregnancy after marriage, multiparity and bad health of baby with NICU admission were few factors considered to be more effective for PP. In a previous study, poverty was found to be an effective factor for PP.[26] In this study we didn't find poverty to be an effective factor for post-partum, as the woman visited tertiary care centre were from middle class and lower middle-class background. Similar results were published in other studies.[28] Some studies showed that working woman was under more risk of PP.[29] In the present study we also found similar results. Association of PP and working status of women was not signed earlier, but in our study, we found in to be a significant factor. Hegde S et al and Milgrom J et al, reported association of PP with the planning of pregnancy, type, and mode of delivery.[16,34] In this study, we found the woman undergone caesarean, with medical complications such as diabetes, eclampsia, pre-eclampsia, anaemia, hypertension, PCOD and unplanned pregnancy to be more under risk of severe PP. Similar results were published earlier in India.[15,16] Indian society is a male dominating society and therefore male childbirth is entrenched, and female childbirth is considered as a stress factor in families. In few studies published earlier from Karnataka, Tamil Nadu, and Goa the same results are verified.[25] In this study authors also find the birth of a female girl to a stress generating factor, but comparatively less. If the women already have a female child then the prevalence of PP is found but it was not significant, as reported earlier. Authors didn't find family history of stress to be an important factor for PP in our study. Authors also found woman has a baby in the first year of their married life to be less significant for PP, whereas a woman with delayed pregnancy was an effecting factor of PP. In such cases, several medical illnesses related to infertility also played a major role. In rural India, postnatal care plays a major role in PP, because it is rendered by the midwives (ANM and ASHA) for near about every 5000 of the rural population.[34] But in this study, the study background was urban and postnatal care was not provided by ANM. In this study the woman with their child admitted in NICU was found under severe PP.[35,36]

Limitations of this study were the woman with abortions and stillbirth were not available for follow-ups during the study tenure, therefore no data of PP was available in such woman. In this study, we also avoided the woman with domestic violence, gender preference. The study was conducted on the woman appearing in the tertiary care center. The woman not attending the tertiary care center are not mentioned and not studied.

CONCLUSION

Postpartum is a disorder appearing in a women's life with a prevalence of 20-21%. Medical illness during pregnancy, NICU admission of the new-born, delayed childbirth after marriage, caesarean, nuclear family, multiparity, bad relations with husband and in-laws played a significant role in the appearance of PP, whereas education status of the woman, birth of the female child, family history of depression, were also found responsible for PP but less significant. Postpartum (PP) screening plays an important role in postnatal care. Feasible trials and screening of PP at the root level are required in an Indian woman.

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