DETERMINANTS OF POSTNATAL DEPRESSION IN WOMEN WITH INTRAUTERINE FETAL DEMISE

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Abstract:

Intrauterine fetal death (IUFD) is a serious complication of pregnancy that influences a woman's short-term psychological well-being and increases the risk of anxiety and depression during the following few months. This study aimed to assess the occurrence of postnatal depression in women with Intrauterine Fetal Demise and the obstetric, psychosocial and emotional determinants of postnatal depression in them. A prospective observational study was conducted at Bangalore Medical College and Research Institute, (BMCRI) among 75 women diagnosed with Intrauterine Fetal Demise (IUFD). They were interviewed postnatally with a semi structured questionnaire which included the Edinburgh Postnatal Depression Scale for screening postnatal depression. It was found that mothers who had past history of abortions and Intrauterine Fetal Demise had higher mean scores on Edinburgh Postnatal Depression Scale and was found to be statistically significant (P value 0.001 and 0.007 respectively). Women who did not perceive to have social support following the diagnosis of Intrauterine Fetal Demise also had higher mean scores on Edinburgh Postnatal Depression scores with P value 0.017. On enquiring regarding the mother's wishes towards the deceased baby, it was found that 92% wished to see the baby, of which 61.3% saw the baby. 73.3% of them wished to hold the baby and among them only 14.7% spent time with it. 76% wished to keep mementos in its memory and 50.7% wished they be isolated in a separate ward where there are no mothers with healthy neonates during their hospital stay.

Keywords: Intrauterine fetal demise (IUFD), Postnatal Depression, Edinburgh Postnatal Depression Scale (EPDS), mother's wishes towards deceased baby.

Introduction:

Intrauterine fetal death (IUFD) referred to as babies with no signs of life in utero after 24 completed weeks of pregnancy^[1] is a serious complication of pregnancy that influences a woman's short-term psychological well-being^[2] and increases the risk of experiencing anxiety and depression during the following few months compared with women with a live birth^[3]. The risk of experiencing depression and posttraumatic stress disorder (PTSD) is prevalent during the next pregnancy, particularly when conception occurs soon after the loss^[4,5]. According to a new analysis by CDC, the rate of pregnant women with a depression diagnosis at delivery increased by seven times between 2000 to 2015. Additionally, CDC research shows that about 1 in 9 women experience symptoms of postpartum depression^[6].

A review on complicated grief after perinatal loss reveal that the loss of an infant through stillbirth, miscarriage, or neonatal death is recognized as a traumatic life event. Although it is clear that prenatal loss has a large psychological impact, there is a substantial lack of randomized controlled studies in this field of research.^[7] Research suggests increased anxiety and depression during

and after pregnancy in women with a prior history of miscarriage or stillbirth.^[4,8-10] A cohort study in 13,313 women with history of perinatal loss found that the number of previous miscarriages/stillbirths significantly predicted symptoms of depression and anxiety in a subsequent pregnancy.^[11]

We as obstetricians, always take a sigh of relief at the cry of the newborn, but fail to hear the silent cry of a mother whose newborn couldn't cry. She is managed as any other woman who delivers, going through the same pain, but with broken hopes of losing the life within her. We fail to think about the mind that has innumerable questions, doubts, fears, anxiety, flashbacks of that day, that moment when she was told about the dead fetus within her.

Objectives:

- A. To assess the occurrence of postpartum depression in women with Intrauterine fetal demise
- B. To assess the obstetric, psychosocial and emotional determinants of post natal depression in women with Intrauterine fetal demise

Methodology:

Study design and participants

This was a cross sectional study conducted between July 2019 to October 2019 in the In-patient department of Obstetrics in hospitals attached to Bangalore Medical College and Research Institute (BMCRI)

Inclusion criteria: All women admitted with more than or equal to 20 weeks period of gestation with diagnosis of Intrauterine fetal demise, willing to be a part of the study

Exclusion criteria:

- 1) Intrapartum stillbirth
 - 2) Use of psychotropic medication
 - 3) Previous history of psychiatric illness
 - 4) Conditions causing altered sensorium-CVA, Eclampsia
- Postnatal women fulfilling the criteria were interviewed face to face in the first postnatal week, by the principal investigator, maintaining confidentiality. Informed consent was obtained. These women were followed upto 4 weeks after delivery.

A semi structured proforma eliciting the participants' educational and religious background, obstetric history, relevant psychosocial factors related to current pregnancy, medical risk factors, details of delivery, attitude towards dead fetus following delivery were obtained.

Social and Partner support: Participant mothers were asked whether they perceived their spouse, their families and close friends as supportive figures at the diagnosis of intrauterine fetal demise, during delivery and postpartum.

Emotional Investment in pregnancy: It was assessed by asking if they had bought clothes or toys for welcoming of the unborn child.

Attitude towards the pregnancy: Participants were asked whether the pregnancy was planned or unplanned and also if they had an ambivalent or unambivalent attitude towards it.

Participant mothers were screened for postnatal depression using Edinburgh Postnatal Depression Scale (EPDS).^[12] It is a 10-item questionnaire, with a maximum score of 30. Mothers who score above 13 are likely to be suffering from a depressive illness of varying severity, with a score of 10 or greater suggesting possible depression. We considered a score of more than or equal to 10 suggesting depression.

Statistical analysis:

Descriptive and inferential statistical analyses were carried out in the present study. Results on continuous measurements were presented on Mean $\pm$ SD and results on categorical measurement were presented in number (%). Level of significance was fixed at $p = 0.05$. Student t test (two tailed, unpaired) was used to find the significance of study parameters. The Statistical software IBM SPSS statistics 20.0 (IBM Corporation, Armonk, NY, USA) was used for the analyses of the data and Microsoft word and Excel were used to generate graphs, tables

Results

Participant characteristics

Seventy five mothers agreed to participate in this study. The mean age of the mothers was 25.92 ± 4.60 years (range: 18-38 years). The mean duration of married life was 57.63 ± 49.49 months (range: 8-228 months) and the mean EPDS scores were 5.44 ± 4.39 considering a threshold score as 10. (Table 1a)

Table 1a: DEMOGRAPHIC TOOLS AND EPDS SCORES:

VARIABLES	MEAN $\pm$ SD*	RANGE
Age	25.92 ± 4.602	18-38years
Duration of Married life (in months)	57.63 ± 49.496	8-228 months
EPDS score	5.44 ± 4.394	0-17

*SD-Standard deviation

An analysis of some of the variables like education, and religion are shown in Table 1b. 37.3% had attended middle school.

Table 1b: EDUCATION AND RELIGION

VARIABLES	SUB-GROUPS	N	%
Education	Illiterate	6	8.0
	Primary school	2	2.7
	Middle school	18	24.0
	High school	28	37.3
	Higher secondary	11	14.7
	Graduate	10	13.3
Religion	Christian	6	8.0
	Hindu	53	70.7
	Muslim	16	21.3

Table 2: OBSTETRIC VARIABLES:

OBSTETRIC HISTORY	N	PERCENTAGE
Primigravidae	26	34.75%
Multigravidae	49	65.3%
H/o abortions		
yes	20	26.7%
No	55	73.3%
H/o IUFD		
Yes	8	10.7%
No	67	89.3%
Mode of conception		
Spontaneous	74	98.7%
Following treatment	1	1.3%

Among the 75 mothers, 65.3% were multigravidae, 1.3% had conceived following treatment for infertility, 26.7% had past history of abortions and 10.7% had past history of IUFD.

Table 3: PSYCHOSOCIAL VARIABLES:

PSYCHOSOCIAL VARIABLES	N	PERCENTAGE
Social support		
Yes	71	94.7%
No	4	5.3%
Partner support		
Yes	74	98.7%
No	1	1.3%
Living children		
Yes	35	46.7%
No	40	53.3%
Planned pregnancy	31	41.3%
Unplanned pregnancy	44	58.7%
Attitude towards pregnancy		
Ambivalent	6	8%
Unambivalent	67	92%
Emotional investment		
Yes	32	42.7%
No	43	57.3%
Perception of fetal movements		
Yes	36	48%
No	39	52%

On analyses of the psychosocial variables (Table 3), 98.7% perceived their partner to be supportive from the time of diagnosis of IUFD and following delivery. 94.7% perceived to have social support. 53.3% had no living children, 59% expressed their pregnancy to be unplanned. 92% of them had an unambivalent attitude towards the current pregnancy. 43% had emotionally invested in welcoming the unborn and 52% did not perceive fetal movements at diagnosis of IUFD.

Table 4: OBSTETRIC RISK FACTORS

RISK FACTOR	N	%
Hypertensive disease of pregnancy(HDP)	37	49.3%
Antepartum Hemorrhage(APH)	17	22.7%
Gestational diabetes mellitus(GDM)	5	6.7%

Major obstetric risk factors in the study group were HDP (49.3%), APH (22.7%) and GDM (6.7%) (Table 4)

Labour factors: Table 5

Table 5: LABOUR FACTORS: ONSET AND MODE OF DELIVERY

LABOUR FACTOR	N	PERCENTAGE
Spontaneous onset	22	29.3%
Induced labour	39	52%
Vaginal delivery	59	78.7%
Emergency LSCS [#]	16	21.3%

[#]Emergency LSCS-Indications constituted cases of previous LSCS with failed induction, previous LSCS with abruption and others were abruption with IUFD.

Table 6: GENDER DISTRIBUTION OF THE DEAD BABIES DELIVERED:

GENDER	N	PERCENTAGE
Male	36	48%
Female	38	50.7%
Ambiguous genitalia	1	1.3%

Female fetuses were marginally more in number than male fetuses expelled.(Table 6)

Choices of the mother regarding the dead baby delivered: (Table 7)

On analysis, 92% of mothers wished they were given a choice to see their dead baby, and among them only 66.7% saw their baby. 73.3% wished to hold their dead baby, however only 20% mothers had this wish fulfilled. 76% of mothers wished to keep mementos of the baby however only 29.8% took mementos in the form of photographs from their mobile phones (94%) and foot prints of the deceased fetus(6%)

58.7% of mothers received a possible explanation of the cause of IUFD by the treating doctor.

50.6% of the mothers wished to be shifted post delivery into a separate ward where there was no rooming-in

The rest did not wish to be isolated, most of them were multigravidae and expressed that they enjoyed the company of the newborn babies of other mothers in the ward.

Table 7: CHOICES OF THE MOTHER REGARDING THE DEAD BABY THEY DELIVERED

CHOICES OF THE MOTHER	Yes	Fulfilled
Wish to see the baby	69 (92%)	46 (66.7%)
Wish to hold the baby	55 (73%)	11(20%)
Wish to keep mementos	57 (76%)	17 (29.8%) Photos (94%) Foot prints (6%)
Received explanation of possible cause of IUFD	44 (58.7%)	
Wish to be isolated in a separate ward	38(50.6%)	

Factors associated with postnatal depression(Table 8 & 9)

Table 8 and 9 depicts the comparison of EPDS scores with the various variables included in the study and the statistical significance of the variables. It was found that mothers who had past history of abortions and past history of IUFD had higher mean EPDS scores and were found to be statistically significant (**P-value 0.001 and 0.007 respectively**), as the past memories of loss were rekindled by the IUFD in the present pregnancy.

Women who had no living children and who had emotionally invested during the present pregnancy were also found to have higher scores of the mean EPDS, which was also statistically significant.(**P-value 0.024 and 0.005 respectively**).Women who did not perceive to have social support following the diagnosis of IUFD had higher mean EPDS scores and was found to be statistically significant (**P-value 0.017**).

Among the choices of the mother regarding the dead baby she delivered, mothers who wished to spend time with the baby and take mementos were found to have higher mean EPDS scores and was also statistically significant (**P-value 0.088**). Mothers who did not receive a possible explanation of the cause of IUFD and those who wished to be separated in a separate ward post delivery were also found to have higher mean EPDS scores (**5.1 & 4.8 respectively**) and was found to be statistically significant (**P-value 0.009 & 0.049 respectively**)(TABLE 10)

Although not statistically significant, mothers who did not receive their partner's support were found to have higher mean EPDS score 11, in comparison to the mothers who received support of their partner (EPDS 5.3+/-4.3)

Table 8: Comparison of EPDS scores in terms of {Mean (SD)} among using unpaired t test and ANOVA test showing significance/higher scores

VARIABLES	RESPONSE	N	MEAN	STD. DEVIATION	T VALUE	P VALUE
H/O abortions	Yes	20	9.20	4.561	5.195	<0.001**
	No	55	4.07	3.463		
H/O IUFD	Yes	8	9.38	6.116	2.801	0.007*
	No	67	4.97	3.946		
Social support	Yes	71	5.15	4.201	2.446	0.017*
	No	4	10.50	5.323		
Partner support	Yes	74	5.36	4.375	1.279	0.205
	No	1	11.00	-		
Living children	Yes	35	4.23	3.370	2.297	0.024*
	No	40	6.50	4.925		

Table 9: Comparison of EPDS scores in terms of {Mean (SD)} among using unpaired t test and ANOVA test for other factors (Non significant)

Variables	Response	N	Mean	SD	t value	P value
Planned pregnancy	Yes	31	5.06	4.218	0.619	0.538
	No	44	5.70	4.542		
Unplanned pregnancy	Yes	44	5.70	4.542	0.619	0.538
	No	31	5.06	4.218		
Perception of fetal movements	Yes	36	5.00	3.847	0.832	0.408
	No	39	5.85	4.859		
Gestational diabetes mellitus	Yes	5	6.40	4.561	0.503	0.616
	No	70	5.37	4.407		
HDP	Yes	37	5.86	4.535	0.825	0.412
	No	38	5.03	4.271		
Antepartum hemorrhage	Yes	17	5.65	5.545	0.220	0.827
	No	58	5.38	4.052		
Spontaneous labour	Yes	22	5.09	4.461	0.441	0.661
	No	53	5.58	4.400		
Induced labour	Yes	39	5.79	4.479	0.726	0.470
	No	36	5.06	4.329		
Caesarean section	Yes	16	5.19	4.167	0.258	0.797
	No	59	5.51	4.485		
Wish to see	Yes	69	5.70	4.340	1.732	0.088
	No	6	2.50	4.278		
Saw the baby	Yes	46	5.87	4.420	1.067	0.289
	No	29	4.76	4.340		
Spent time with the baby	Yes	11	6.18	4.916	0.604	0.548
	No	64	5.31	4.327		
Took mementos	Yes	17	5.94	4.968	0.532	0.596
	No	58	5.29	4.247		
Photographs of baby taken	Yes	15	5.93	5.257	0.484	0.630
	No	60	5.32	4.192		
Footprints of baby	Yes	1	8.00	-	0.584	0.561
	No	74	5.41	4.413		

Table 10:

VARIABLE	N	MEAN	STD.DEVIATION	T VALUE	P VALUE
Received explanation of cause of IUFD-NO	31	7.00	5.177	2.687	0.009
Wish to be isolated in separate ward-YES	38	6.42	4.813	1.999	0.049

Results of screening postnatal depression (table 11)

Among the 75 mothers who were screened for postnatal depression, 19 women (25%), were found to have EPDS scores ≥ 10 . All of them were referred to the Psychiatrist for further evaluation and management. However, only 4 (21.05%), of them agreed for consultation with the Psychiatrist and the rest (78.94%), refused consultation.

Among the four mothers who consulted the psychiatrist, 3 of them were diagnosed with Grief reaction and one was diagnosed with Moderate Depression and were treated accordingly. Table 10 depicts the details.

Table 11: Psychiatry consultation of participants with EPDS scores ≥ 10

	N	Percentage
Consulted Psychiatrist		
Yes	4	21.05%
No	15	78.94%
Diagnosis by Psychiatrist		
Grief Reaction	3	75%
Moderate Depression	1	25%

Discussion:

We explored various socio demographic, obstetric risk factors, medical risk factors and wishes of the mother with regards to the dead fetus postnatally that could confer increased risk for developing postnatal depression.

In the present study, mothers with past history of abortions were found to have higher mean EPDS scores, with a prevalence of 26.6% and this was proven to be statistically significant (**P-value <0.001**). A study conducted by Mutiso et al to study the prevalence of depression in post abortion cases showed that positive depression screen was found in 34.1% women. This stresses the importance of screening women for depression post abortion.^[13] Furthermore, psychiatric illnesses such as depression, anxiety, post traumatic stress disorder following miscarriages have been shown to be at a higher risk of redeveloping the conditions in subsequent pregnancy^[15]

In the present study it was also found that, past history of intrauterine fetal demise increased the risk of postnatal depression as the mean EPDS scores were high among these women, with a prevalence rate of 10.67%. A similar study done by Blackmore E.R et.al found that the number of previous miscarriages/stillbirths remarkably predicted symptoms of depression and anxiety in a subsequent

pregnancy, independent of key psychosocial and obstetric factors^[10]. This indicates that previous pregnancy losses increase the risks of psychiatric morbidities in the following pregnancy.

In the present study we enquired in the postnatal period regarding the wishes the mother had towards the deceased baby, 92% wished to see the baby, of which 61.3% saw the baby immediately after the baby was born. Among the rest of the mothers, many were denied by their own family members, when they expressed their wish to see the baby before the final rites were performed and some among them believed they never had a right to see the baby they had borne, even for the one last time. 73.3% of the mothers wished to hold the baby and among them surprisingly only 14.7% spent some time with the baby, before the baby was handed over for the final rites.

Furthermore, 76% of mothers expressed that they wished to keep mementos in the memory of the baby they lost unfortunately. Many of them believed and hesitated to ask even their own family members regarding the mementos they wished and regretted after the baby was buried.

Cacciatore et.al conducted a study to determine the association of seeing and holding the stillborn baby with maternal anxiety and depression to estimate the main outcomes, the risk for symptoms of anxiety and depression during a subsequent pregnancy and in the long term. The great majority of the mothers saw (95%) and held (90%) their stillborn babies and very few expressed regret and almost 80 percent of those who did not see and hold the baby regretted that they did not to do so. Seeing the baby was associated with lower levels of anxiety and depression.^[14]

However, there exists evidence that suggests the possible increase in rates of post traumatic stress disorder and depression in women following contact with their stillborn babies^[16]. Hence, the options to let the mother come in contact with her stillborn fetus should be respected, highly individualized, taking into consideration her past obstetric and psychiatric history and the support of her partner and family towards her.

In our study it was found that women who did not perceive to have social support following the diagnosis of IUFD had higher mean EPDS scores and was found to be statistically significant. Similar conclusion was drawn from a study done by Forrest.G.C. et.al that, more intense or prolonged grief was associated with poor social support.^[17]

58.7% of mothers received a possible explanation of IUFD from the treating doctor, while the rest 41.3% women were left unanswered of the possible cause.

All the above mentioned findings suggest that women diagnosed with intrauterine fetal demise be subjected to

pre labour counselling, that involves a possible explanation of the cause, mode of delivery, her choices towards the stillborn following delivery, including a psychiatric assessment.

50.7% women wished they be shifted to a separate ward, where there were no women with healthy newborns. Some of these women were found to sit facing away from the mothers who were experiencing the warmth of the newborn by their side, some expressed that the cry of the newborn babies in the ward, made them startle from their sleep and reminded them of the baby they unfortunately lost. However, the rest of the mothers who delivered still born babies, wished to remain in a ward with the company of other mothers with healthy newborns. This highlights the importance of individualizing every mother who delivers a stillborn, to choose the ward she would like to be shifted to post delivery.

Out of the 19 mothers who were screened to have possible depression suggested by the EPDS scores of ≥ 10 , only 21% of them agreed to consult a Psychiatrist for further evaluation and management. And a surprising 78.9% of mothers refused consultation with the Psychiatrist, possible reasons being the "stigma" around "addressing to one's own psychological needs", and that some of them expressed that they would cope well and recover once they return home and get back to the routine day to day life. However, this could also have been due to the DENIAL phase of grief reaction the mother may be in, following the loss of her child.

An extended effort was made to reach out to the mothers who were a part of the study, through phone calls, advising them for a comprehensive visit to the hospital so that they be screened for postnatal depression. But, only a small number were accessible through phone, however, they were reluctant to give satisfying answers regarding their emotional and mental status.

Limitations and prospects of our study:

- 1) Absence of a control group. Our study did not compare with depression among mothers with live babies
- 2) Screening for postnatal depression in mothers with intrauterine fetal demise within the first postnatal week, may be less yielding with positive results as expected, due to the fact that this period might be too early for an emotional reaction to develop towards the loss. This would need a comprehensive postpartum follow up visit 4-6 weeks later
- 3) The duration of our study was shorter, and that most of the mothers who were a part of the study were referred cases and had regular antenatal visits elsewhere and thus, antenatal care related factors could not be assessed.
- 4) Screening of partners for possible psychological issues was not a part of our study.

Conclusions:

In the unfortunate event of losing a child intrauterine, mothers deserve better care, with a convincing pre delivery counselling session involving the obstetrician and psychiatrist, listening to their feelings of sadness at the loss of a baby, making them aware of the options of coming into contact with their deceased babies, setting up an effective postnatal screening program and a long term follow up to prevent chronic psychiatric morbidities. Its high time, we as Obstetricians, accept this as our responsibility and work towards building a strong framework that takes care of every mother's psychological needs in our day to day practice. Afterall, we are entitled with a great role in every woman's motherhood!

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