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Research Article

Study of Socio Demographic Factors in Women with Stillbirth

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ABSTRACT
Background: To develop preventive strategies, it is crucial to understand the etiology, risk factors, and associated factors leading to stillbirth. The aim of this study was to study the demographic profile of women experiencing stillbirth, to understand the risk factors for stillbirth in low resource settings, and to find the etiology of stillbirth so as to facilitate designing of a stillbirth prevention strategy. **Material and Methods:** Present study was hospital based, prospective, observational, descriptive study, conducted pregnant women with diagnosed stillbirth (birth weight weighing >500 gm and after 20 weeks of complete gestation) before delivery. **Results:** In present study, stillbirth rate of 3.99%. We studied 101 cases of stillbirth. Majority pregnant women were from 25-29 years age group (43.56 %) & from 19-24 years age group (32.26 %), were unbooked (60.40 %), were from rural background (58.42 %) & from Lower middle class (56.43 %). In present study, among 101 patients, majority were from para 2 to para 4 group (50.49 %), from 37-40 weeks gestational age (30.69 %) & delivered vaginally (88 %). Previous still birth was noted in 12 cases, among them 2 had history of ≥2 previous still births. Common fetal birth weight group in present study was 2501-3500 grams (26.01 %) & 501-1000 grams (23.76 %). Common maternal risk factors noted were hypertension (24.75 %), maternal obesity (14.85 %), diabetes (9.90 %), & smoking (1.98 %). While fetal growth restriction (11.88 %) & congenital abnormalities (8.91 %) were common fetal high risk factors noted. **Conclusion:** In still birth cases, majority pregnant women were from 25-29 years age group, were unbooked (60.40 %), were from rural background (58.42 %) & from Lower middle class (56.43 %). Maternal risk factors were identified in 50.4% of cases.

Keywords: Socio Demographic Factors, Stillbirth, Antenatal Care, Congenital Anomalies.

INTRODUCTION

A primary reason for studying the deceased is to gather information to protect the living. Stillbirth refers to the delivery of a fetus after 20 weeks of gestation, weighing 500 grams or more, with no signs of life upon delivery. In the year 2021, an estimated 1.9 million babies at or beyond 28 weeks of gestation experienced a stillbirth, resulting in a global stillbirth rate of 13.9 per 1,000 total births.[1] According to the World Health Organization, [2] stillbirth is a distinctive indicator reflecting the quality of healthcare systems during the perinatal period. [3]

To develop preventive strategies, it is crucial to understand the etiology, risk factors, and associated factors leading to stillbirth. The cause of death should be attributed to stillbirth either clinically or pathologically. Well-documented risk factors associated with stillbirth, without a clear causal pathway, include advanced maternal age, obesity, and smoking. Many classification systems in the literature are based on fetal, maternal conditions, or placental pathology.[4,5] Furthermore, in many maternal conditions, the exact pathophysiology leading to intrauterine death (IUD) remains unclear.[6]

Stillbirth evaluation has always been difficult due to various reasons such as nonavailability of services, religious and social beliefs, and financial limitations. It is observed that there are very large variations and inconsistencies

across countries in the reporting of stillbirths. The aim of this study was to study the demographic profile of women experiencing stillbirth, to understand the risk factors for stillbirth in low resource settings, and to find the etiology of stillbirth so as to facilitate designing of a stillbirth prevention strategy.

MATERIAL AND METHODS

Present study was hospital based, prospective, observational, descriptive study, conducted in department of obstetrics and gynaecology, at Government Medical College & hospital, Chhatrapati Sambhajinagar, Maharashtra, India. Study duration was of 1 year (July 2023 to June 2024). Study was approved by institutional ethical committee.

Inclusion criteria

- Pregnant women with diagnosed stillbirth (birth weight weighing >500 gm and after 20 weeks of complete gestation) before delivery, delivered at our hospital, willing to participate in the study.

Exclusion criteria

- Mothers who have still born baby delivered outside Tertiary Care Center premises.
- Mothers who are not willing to participate in study.
- Stillbirth associated with maternal mortality were not considered as a part of this study

Study was explained to participants in local language & written informed consent was taken. Sociodemographic history (Age, area of living, socio-economic status & Referral), medical History (menstrual, obstetric, past, personal, family history) was collected & noted. All pregnant women underwent general and systemic Examination. Vitals are collected by standardize methods which include pulse rate, respiratory rate and blood pressure. High risk factor detection in the form of anemia, hypertensive disorder, Infection, recurrent pregnancy losses, Maternal data in the form of Gestational age, Onset of labour, mode of induction, mode of delivery, intrapartum events & postpartum complications were noted in proforma.

Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version. Statistical analysis was done using descriptive statistics.

RESULTS

In present study, stillbirth rate of 3.99%. We studied 101 cases of stillbirth. Majority pregnant women were from 25-29 years age group (43.56 %) & from 19-24 years age group (32.26 %), were unbooked (60.40 %), were from rural background (58.42 %) & from Lower middle class (56.43 %).

Table 1: General characteristics

Characteristics	No. of subjects	Percentage
Age group (in years)		
19-24	33	32.26
25-29	44	43.56
30-34	18	17.82
35-39	5	4.95
>39	1	0.99
Booking status		
Unbooked	61	60.40
Booked	40	39.60
Residence		
Urban		
Rural	59	58.42
Socio-economic class		
Upper class	1	0.99
Upper middle class	6	5.94
Lower middle class	57	56.43
Upper lower class	26	25.7
Lower	11	10.89

In present study, among 101 patients, majority were from para 2 to para 4 group (50.49 %), from 37-40 weeks gestational age (30.69 %) & delivered vaginally (88 %). Previous still birth

was noted in 12 cases, among them 2 had history of ≥2 previous still births. Common fetal birth weight group in present study was 2501-3500 grams (26.01 %) & 501-1000 grams (23.76 %).

Table 2: Obstetric characteristics

Characteristics	No. of subjects	Percentage
Parity		
Primipara	43	42.57
P2-P4	51	50.49
>P4	7	6.93
Previous still birth		
1	10	9.9
≥2	2	1.9
Gestational age (in weeks)		
20- 28	24	23.76
28-32	17	16.8
32-37	25	24.7
37-40	31	30.69
>=40	4	3.96
Mode of delivery		
Vaginal deliveries	89	88
• Full term	50	49.5
• Pre term	39	38.6
LSCS	12	12
• Preterm	5	5
• Full-term	7	7
Birth weight (gms)		
500-1000	24	23.76
1001-1500	14	14.53
1501-2000	20	18.99
2001-2500	10	10.10
2501-3000	26	26.01
>3000	7	6.93

In present study, common maternal risk factors noted were hypertension (24.75 %), maternal obesity (14.85 %), diabetes (9.90 %), & smoking (1.98 %). While fetal growth restriction (11.88 %) & congenital abnormalities (8.91 %) were common fetal high risk factors noted.

Table 3: Distribution cases according to Risk Factor

Risk Factor	No. of subjects	Percentage
Hypertension	25	24.75
Maternal Obesity	15	14.85
Fetal Growth Restriction	12	11.88
Diabetes		
Congenital Abnormalities	9	8.91
Smoking	2	1.98

Common maternal causes of still births observed in present study were Preterm rupture of membranes (15.84 %), Oligohydramnios / polyhydramnios (11.88 %), Malpresentation before labour (1.98 %) & other complications of pregnancy (0.99 %). Common complications of placenta, cord, and membrane causing still births observed in present study were other forms of placental separation & hemorrhage (17.82 %), placental dysfunction, infarction insufficiency (14.85 %), prolapsed cord/ other compression of umbilical cord (6.93 %) & placenta previa (0.99 %). Other complication of labour and delivery causing stillbirths were breech delivery and extraction (21.80 %), preterm labour and delivery (12.87

%) & other malpresentation, malposition, disproportion during labour and delivery (1.98 %).

Table 4: Causes of Stillbirth According to ICD PM Classification (M1)

Causes of Stillbirth	No. of subjects	Percentage
Maternal Complication of Pregnancy		
Preterm rupture of membranes	16	15.84
Oligohydramnios / polyhydramnios	12	11.88
Malpresentation before labour	2	1.98
Other complications of pregnancy	1	0.99
Complication of Placenta, Cord, and Membrane		
Other forms of placental separation & hemorrhage	18	17.82
Placental dysfunction, infarction insufficiency	15	14.85
Prolapsed cord/ other compression of umbilical cord	7	6.93
Placenta previa	1	0.99
Other Complication of Labour and Delivery		
Breech delivery and extraction	22	21.80
Preterm labour and delivery	13	12.87
Other malpresentation, malposition, disproportion during labour and delivery	2	1.98

*More than 1 factor may be associated in a single case

DISCUSSION

The substantial healthcare burden of stillbirths in India, reflecting a significant public health challenge, is exacerbated by one of the highest stillbirth rates globally, with millions of pregnancies ending in fetal demise.[7] The burden extends beyond emotional and psychological distress for affected families, impacting healthcare systems with increased demands for resources, specialized care, and interventions.[8]

In study by Santosh Gurjar[9], 19723 births occurred, out of which total stillbirths were 929 (4.7%). Stillbirth rate in this period in our hospital was 47 stillbirths /1000 total births. Out of 929 stillbirths Ante-partum (Macerated) are 384 (41.33%) and Intra-partum (fresh) are 545 (58.66%). Stillbirth rate was highest (6.7%) in teenage patients and then again rise in ≥30 years of age women (5.6%). Risk of stillbirth was higher in primigravidas (7%) and multigravidas ≥ fourth (10%). In our study largest percentage of stillborn babies were preterm (54.7%) between gestational age of 29-36 weeks, 25.3% stillbirths were ≤28 weeks of gestational age. Majority of stillbirths (81.7%) occurred in the Un-booked emergencies, patients having Haemoglobin level <5 gm% & patients from rural areas (84.71%). In 26.48% (n=246) cases exact cause of Stillbirth remain undetermined. Among determined causes commonest cause was placental pathology 192 (20.67%). 112 (12.05%) stillbirths had congenital malformation. Similar findings were noted in present study.

In study by Altijani N et al.,[10] overall rate of stillbirth was 10 per 1000 total births (95% CI 9.8 to 10.3). Indicators of socioeconomic deprivation were strongly associated with an increase in stillbirth: rural residence (adjusted OR (aOR) 1.27, 95% CI 1.16 to 1.39), female illiteracy (aOR 1.43, 95% CI 1.17 to 1.74), low socioeconomic status (aOR 2.42, 95% CI 1.82 to 3.21), schedule caste background (aOR 1.11, 95% CI 1.04 to 1.19) and woman not in paid employment (aOR 1.15, 95% CI 1.07 to 1.24). Women from minority religious groups were at higher risk than the Hindu majority (Muslim (aOR 1.33, 95% CI 1.25 to 1.43); Christian (aOR 1.42, 95% CI 1.19 to 1.70)). While a few women smoked (<1%), around 9% reported chewing tobacco, which was associated with an increased odds of stillbirth (aOR 1.11, 95% CI 1.02 to 1.21). Adverse pregnancy and birth characteristics were also associated with stillbirth: antenatal care visits <4 (aOR 1.08, 95% CI 1.01 to 1.15), maternal age <25 years (aOR 1.29, 95% CI 1.21 to 1.37) and ≥35 years (aOR 1.16, 95% CI 1.04 to 1.29), multigravida (aOR 3.06, 95% CI 2.42 to 3.86), multiple pregnancy (aOR 1.77, 95% CI 1.47 to 2.15), assisted delivery (aOR 3.45, 95% CI 3.02 to 3.93), caesarean section (aOR 1.73, 95% CI

1.58 to 1.89), as were pregnancy complications (aOR 1.42, 95% CI 1.33 to 1.51).

In study by Pradnya Changede et al.,[11] there were 275 stillbirths in this year (SBR 30.3 per 1000 total births). Majority of the mothers were in the age group of 26–30 years (32.7%). Almost all the mothers (98.5%) were from urban areas. As per the modified Kuppuswamy classification for urban India, 195 (71.79%) belonged to the upper lower class. 31.2% were primigravidae, and 54.8% had 3 or more antenatal visits. Maternal conditions (pre-eclampsia, diabetes, pre-existing medical disorders) as a group were the cause of maximum number (42%) of stillbirths either directly or as a contributory risk factor. 78% of the stillbirths occurred in the antepartum period.

In a study by Neetu Singh, Kiran Pandey et al.,[12] 9.45% causes were congenital malformations. Most of stillbirths from congenital malformations were not preventable. These stillbirths can be reduced by timely diagnosis and proper treatment of the cause causing congenital malformation ex. adequate control of blood sugar in diabetics, treatment of hypothyroidism etc. Congenital malformations associated due to chromosomal abnormalities were not preventable they should be terminated after diagnosis by various methods during antenatal period in first trimester or up to 20 weeks of gestation. Neural tube defects can be reduced by giving folic acid during periconceptional period and during first trimester.

Half of all stillbirths occur during labor and birth and could be prevented with improved quality of care. The estimated proportion of intrapartum stillbirths ranges from 10% in developed regions to 50% in South Asia. Additionally, 90% of stillbirths occur in low- and middle-income countries. Major causes of stillbirth include childbirth complications, post-term pregnancy, maternal infections during pregnancy (such as malaria, syphilis, and HIV), maternal disorders (especially hypertension, obesity, and diabetes), fetal growth restriction, and congenital abnormalities.

By Government an integrated use of health informatics is developing for better human resource management, GIS (Geographic information system) applications, mobile health, maintaining patient information in hospitals, nutrition and disease surveillance systems, death reporting, follow-up systems including systematic pregnancy and child tracking in different parts of India.[13]

CONCLUSION

In still birth cases, majority pregnant women were from 25-29 years age group, were unbooked (60.40 %), were from rural background (58.42 %) & from Lower middle class (56.43 %). Maternal risk factors were identified in 50.4% of cases. Early diagnosis and beginning prompt management of medical illnesses diagnosed in pregnancy, such as gestational hypertension, gestational diabetes mellitus, hypothyroidism can prevent majority of stillbirths. More frequent antenatal OPD visits should be advised to mothers with high risk pregnancy such as IUGR, bad obstetric history, maternal medical illnesses and those with history of stillbirths.

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