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Prevalence of stillbirths and its associated factors among antenatal mothers delivering at a Tertiary Care Hospital, Amritsar

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Abstract
Background: Stillbirth is a significant obstetric tragedy with profound health, psychological, and social implications. The majority of stillbirths are preventable with appropriate care and interventions. This study was designed to determine the prevalence of stillbirths and identify the associated maternal and fetal factors in a tertiary care hospital in Amritsar, Punjab, India.
Methods: An epidemiological, hospital-based, observational study was conducted at Bebe Nanki Mother and Child Care Centre, Government Medical College, Amritsar, from January 1 to December 31, 2024. All deliveries (n = 5,892) during the study period were included, with cases delivering stillbirth after 28 weeks of gestation and with a birth weight of 1,000 grams or greater. Data were collected through interviews, medical records, and delivery notes. The ReCoDe Classification was used to identify the cause of stillbirths. Descriptive statistics and Chi-square tests were used to identify significant associations ($p < 0.05$).
Results: The prevalence of stillbirth was 43.1 per 1,000 total births (254 stillbirths out of 5,892 deliveries). Maternal age 20-30 years (55.1%), residence in a rural area (67.7%), primigravida (67.7%), low income (<Rs. 10,000 per month; 17.3%) and poor antenatal care were significantly associated with a higher likelihood of stillbirth ($p < 0.05$). Maternal complications (51.5%), placental abnormalities (19.2%), amniotic fluid abnormalities (11.8%) foetal growth abnormalities (8.6%), umbilical cord abnormalities (1.18%) were identified contributors to the poor outcomes.
Conclusions: Stillbirths remain a major health concern in low-resource settings, reflecting gaps in maternity care and health education. Improvement in antenatal care, high-risk pregnancy identification, patient education, and delivery preparedness are essential strategies to reduce the stillbirth rate. An effective health policy should aim to address these risk factors and provide comprehensive care to all pregnant women, especially in the vulnerable groups.

Keywords: Stillbirth, maternal complications, placental abnormalities, antenatal care, rural area

Introduction

Stillbirth remains a significant obstetric issue with profound public health implications worldwide, often leading to deep emotional trauma to the affected mother and her family. The definition of stillbirth varies across countries, with discrepancies particularly evident between developed and developing nations. To standardize comparisons on an international scale, the World Health Organization (WHO) defines stillbirth as the death of a baby at 28 weeks of gestation or beyond, with a birth weight of at least 1,000 grams or a body length of 35centimeters or more [1]. International Classification of Diseases (ICD) characterize foetal demise as the "death occurring before the complete expulsion or extraction of a foetus from its mother, regardless of the gestational age [2]" Stillbirth continues to pose a significant challenge in low- and middle income countries, particularly India. Globally, an estimated 2.6 million stillbirths occur annually, with the overwhelming majority (98%) happening in low- and middle-income regions, predominantly in South Asia and sub-Saharan Africa. A substantial proportion of these stillbirths (nearly 60%) occur among rural families, who often face extreme poverty and limited access to essential healthcare services, including midwifery, family planning, and emergency obstetric interventions such as caesarean sections [3, 4, 5].

Methods

This hospital-based, epidemiological study was conducted at Bebe Nanki Mother and Child Care Centre, Government Medical College, Amritsar, from January 1 to December 31, 2024. All delivery cases (n = 5,892) were included in the study. Maternal and foetal data was collected through patient interviews, hospital case files, and delivery notes.

Inclusion Criteria

1. The mothers who delivered at or after 28 weeks of gestation.
2. The weight of baby more than 1000gm.

Exclusion Criteria

1. The mothers who delivered at less than 28 weeks of gestation.
2. The weight of the baby less than 1000gm.

The data from the present study was systematically collected, tabulated, compiled and statistically analysed to draw relevant conclusions. Data was analysed using X^2 test. The p value was determined to evaluate the levels of significance. The p- value of <0.05 was considered significant. The results were then analysed and compared to previous studies.

Results

The prevalence of stillbirth was 43.1 per 1,000 total births (254 out of total 5892 participants). The majority of stillbirths (55.1%) were attributed to maternal complications with hypertensive disorders (30%), thyroid diseases (26.3%), and diabetes (18.7%).

Placental abnormalities contributed 19.2%, of this placental insufficiency (51%) and antepartum haemorrhage (48.9%) were the major contributors.

Amniotic fluid problems made up 11.8% with oligohydramnios being the major contributor (20 out of 30 cases) followed by chorioamnionitis which was seen in 10 out of 30 cases.

Foetal abnormalities were also frequently associated with poor outcomes, foetal factors made up 8.6%, umbilical cord issues 1.18%, intrapartum causes 1.9%, uterine rupture 0.78% and 3.9% remain unclassified.

The p- value (<0.05) for age (67.5% of the participants delivering live births and 55.1 % delivering stillbirths belonged to the age group of 20-30 years) and residence (90.6% of the females having live births and 67.7% having stillbirths were residing in the rural areas).

Maternal health care utilization (70.8% females having stillbirth had no iron and folic acid intake throughout pregnancy), number of ANC visits (85.8% stillbirths occurred with <4 ANC visits), maternal education status (51.4% females with stillbirth had no formal education), occupation (93.7% females with stillbirths were homemakers with limited knowledge regarding their health status), residence (67.7 % of females having stillbirths were residing in rural areas with limited access to the healthcare services) and per capita income (65.3% females with stillbirths were living in families with per capita income of 10-20,000 rupees per month) were also significant contributors to foetal deaths as seen in figure 1,2 and 3.

Discussion

Stillbirths remain a significant obstetric challenge in low- and middle-income settings, reflecting both the health of the mother and the functionality of the health care delivery system. Our study found a stillbirth prevalence of 43.1 per 1,000 total births, which is higher than the global average (13.9 per 1,000) [6].

This high prevalence underscores the ongoing vulnerability of women, particularly those from rural backgrounds (67.7%), lower income groups (<Rs. 10,000 per month; 17.3%), primigravida (67.7%). Our data showed a significant association ($p < 0.05$) between these sociodemographic factors and the likelihood of stillbirth, reflecting poor access to health care, limited education, financial constraints, and related health inequalities [7].

Other contributors to stillbirths in this study included antepartum complications (such as placenta abnormalities, antepartum haemorrhage, and anaemia) and foetal disorders (such as growth abnormalities) [8, 9, 10].

These findings align with previous reports stating that poor maternal health and complications during pregnancy significantly contribute to unfavourable perinatal outcomes. Rawat R etal found that the leading cause of stillbirth was pregnancy induced hypertension and antepartum haemorrhage, each accounting for 27.06% of cases [18]. Prasanna S etal found that maternal hypertensive disorders were the leading causes of fetal death (34.63%), which correlates with our study findings (55.1%) followed by intrapartum complications like malpresentation (7.99%), prolonged labor (5.86%), respiratory failure (11.54%), abruption (11.54%), congenital anomalies (4.61%), infections (2.6%), and unknown causes 7.9% [19]. Furthermore, many cases were associated with poor utilization of ANC services, reflecting a missed opportunity for the identification and management of high-risk cases before delivery [13, 14, 15].

The stillbirth rate remains alarmingly high and relatively stagnant, which resonates with many low-resource settings where progress in reducing perinatal mortality is slow [16, 17]. This signals the necessity for strengthening health care delivery, improving health education, and extending specialized care to high-risk groups. Furthermore, there is a need for proper counselling and follow-up care for affected families to aid their psychological recovery and reduce future risk [11, 12].

Overall, this study highlights the critical role of high-risk pregnancy care, proper intrapartum monitoring, neonatal resuscitation, and delivery preparedness in reducing stillbirths. Furthermore, addressing underlying social determinants, improving health care accessibility, and strengthening the health care delivery system are essential for reducing perinatal mortality and improving perinatal outcomes.

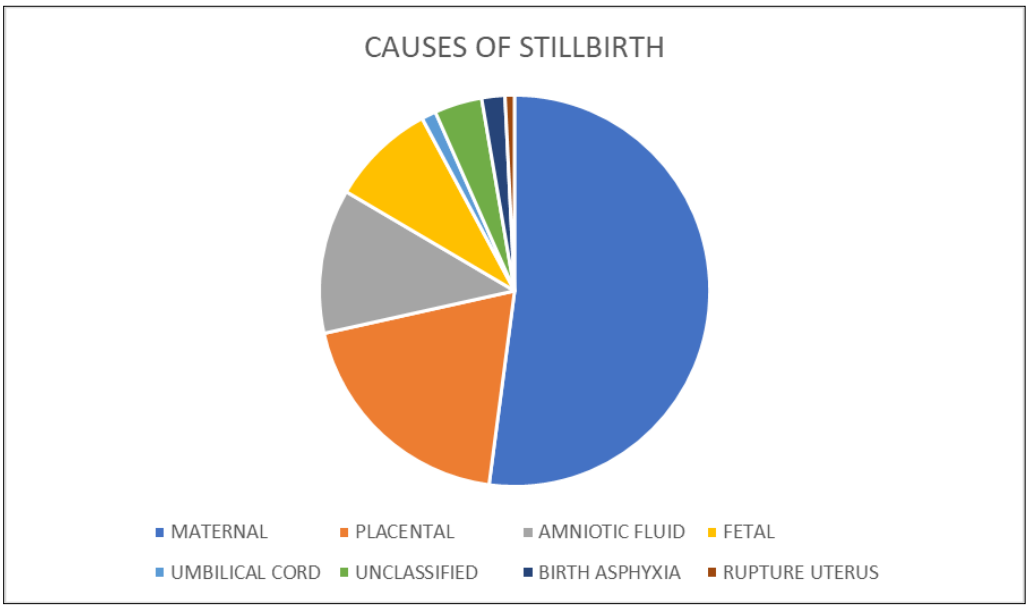
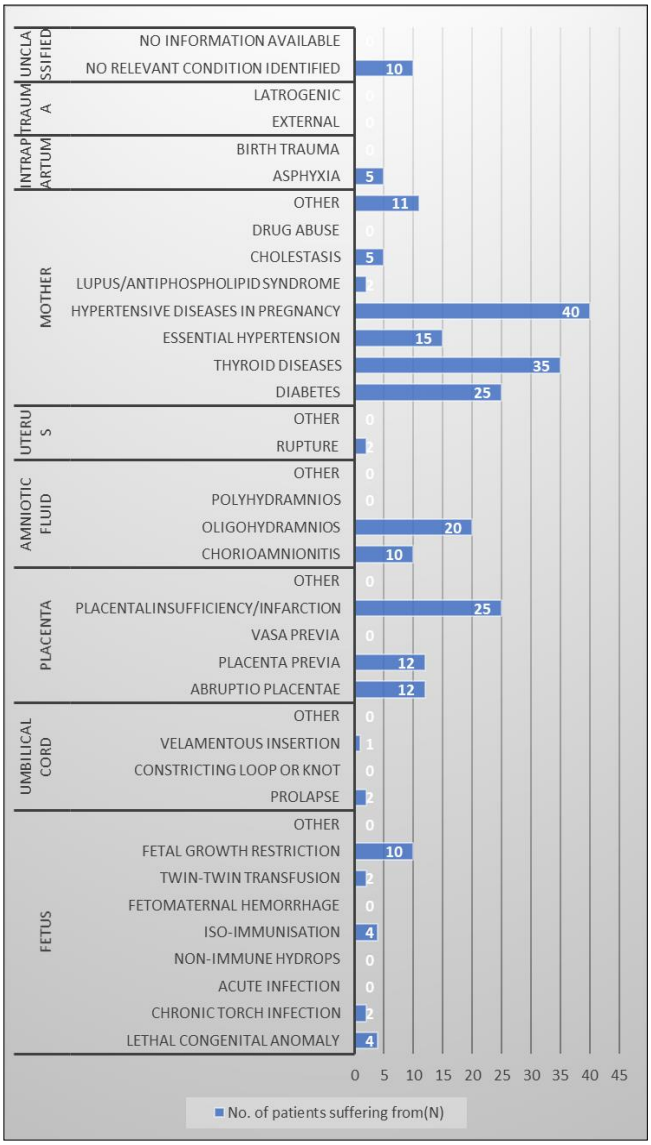


Fig 1: Distribution pattern according to the causes of stillbirth as per ReCoDe Classification

As shown in the above diagram, maternal causes make up 51.5%, placental abnormalities make up 19.2%, amniotic fluid abnormalities make up 11.6%, fetal causes contribute to 8.6%, umblical cord causes make up 1.18%, 3.6% remain unclassified, 1.9% were attributed to birth asphyxia and 0.78% were associated with uterine rupture.



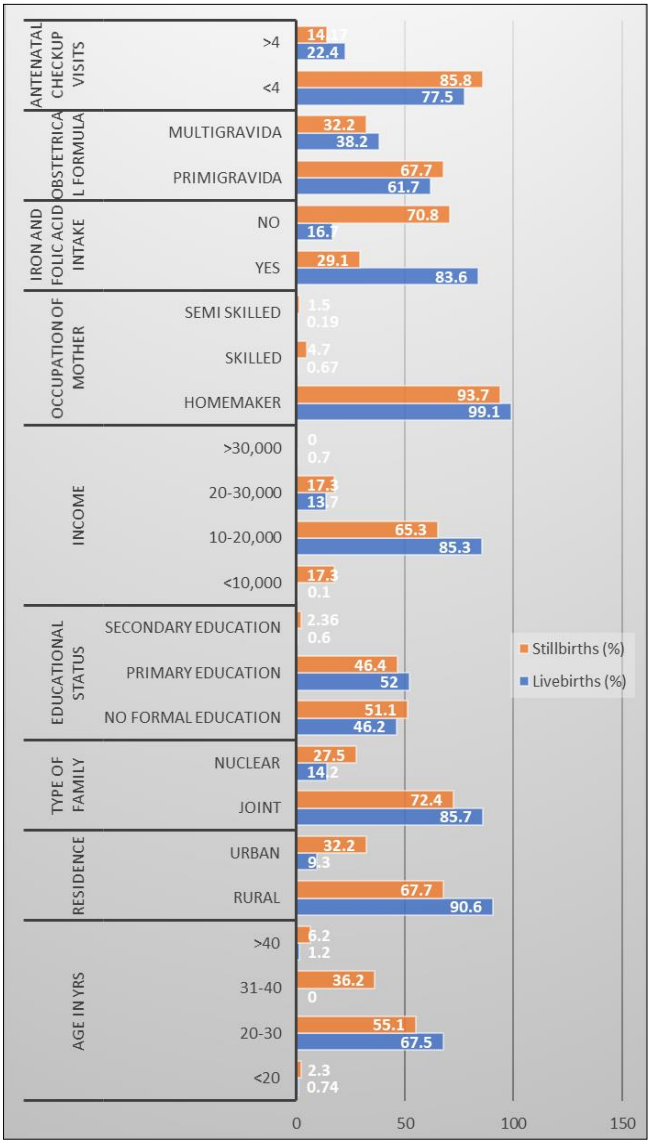


Fig 2: Causes of stillbirths in numbers as per ReCoDe classification
Fig 3: Sociodemographic and other related factors

Conclusion

Stillbirths remain a major health concern in developing countries, reflecting gaps in maternal care, health education, and health service delivery. Improvement in the utilization of ANC, high-risk pregnancy identification, education, and delivery preparedness, alongside appropriate intrapartum care, can aid in reducing the stillbirth rate. Implementing strategies to address these factors and strengthening health care delivery at all levels will be crucial for improving perinatal outcomes.

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