

## Original Article

## Trends and Rates of Stillbirths: An Observational Study in a Tertiary Level Hospital, Faridpur, Bangladesh

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### Abstract:

*Fetal death at any time during pregnancy is a very tragic situation for the parents and treating obstetricians. Pregnancy loss is a distressing problem and retention of dead fetus in utero has its own ill effects on physical, psychological, and social aspects. Mifepristone is commonly used for induction of labour when a fetus dies in the utero. This cross-sectional survey aimed to determine the incidence and trend of intrauterine fetal death and socio-demographic characteristics, maternal obstetric history, health seeking behavior among the women who experience a stillbirth delivery. It will also aim to evaluate the efficacy and safety of using Mifepristone in case of induction of labour. This study was done at the Obstetric & Gynecology department of Bangabandhu Sheikh Mujib Medical College and a total of 219 stillbirth deliveries were recorded out of 4275 total deliveries from January to December 2022, resulting in a stillbirth rate of 51 per thousand live births. The majority of stillbirths were preterm between 28-38 weeks, and more than half were delivered via normal vaginal deliveries. The study revealed poor distribution of prenatal care, with only 9.59% of mothers having had the recommended 4 ante natal care visits, while 29.22% were primiparous. The results underscore the need for effective prenatal care to reduce the incidence of stillbirth and highlight the importance of careful management of intrauterine fetal death cases to mitigate physical, psychological, and social effects. The findings of this study provide valuable information for clinicians, policy makers, and researchers working in the field of obstetrics and gynecology.*

**Key words:** Intrauterine fetal death, Perinatal mortality.

### Introduction:

The single greatest community health indicator known to quantify the quality of health care in every community is perinatal mortality (PNM)<sup>1</sup>. The loss of a

viable pregnancy is a source of grief for both the family and the obstetrician for a long time. Despite advances in medical science and the availability of diagnostic and

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therapeutic modalities, pregnancy wastage continues at an alarmingly high rate. Although perinatal mortality has decreased in recent decades, intrauterine fetal fatalities remain quite high<sup>2</sup>. Early and late fetal deaths

are terms that might be used to describe intrauterine fetal death (IUFD). Stillbirth is defined by WHO/ICD as the death of a fetus who has reached a birth weight of 500 g, or if birth weight is unavailable, gestational age of 22 weeks or crown-to-heel length of 25 cm, and recommends using the higher limit (1000 g/28weeks/35cm) for international comparisons and reporting. ICD divides late fetal fatalities (more than 1000 g or after 28 weeks) from early fetal deaths (less than 1000 g or before 28 weeks) (500 - 1000 g or 22 - 28 weeks)<sup>3</sup>.

Between 2000 and 2015, Bangladesh has the fastest yearly decline in stillbirth rates of any South Asian country<sup>4</sup>. Despite this significant decline, Bangladesh still ranks eighth in the world in terms of total stillbirths, with an estimated 83,000 stillbirths per year and a stillbirth rate of 25.4 per 1000 births<sup>5</sup>. In one research, the stillbirth rate was 26 per 1000 total deliveries in Bangladesh, with 62 percent occurring during the intrapartum interval and 61.4 percent of stillbirths were caused by Obstetric problems<sup>6</sup>. Annually, 3.3 million stillbirths are reported worldwide, with 97 percent of them taking place in underdeveloped nations. In underdeveloped nations, where underreporting is frequent, just 4% of cases are reported. It is estimated that an extra 1 to 2 million stillbirths go unregistered in these developing countries<sup>7</sup>.

The current approach is to induce labor early since many women do not want the dead fetus to remain in the uterus for weeks and because coagulopathy can develop. Medical induction of labor should always be used in cases of intrauterine fetal mortality. The best induction strategy for a stillbirth in the third trimester has yet to be discovered<sup>8</sup>. Stillbirth is treated differently according to the gestational age, the presumed cause, the maternal history of past uterine scarring, and the desires of the mother<sup>9</sup>. One of the commonest indications of Mifepristone is induction of abortion in first and second trimester from past century compared to less is known when the fetus crosses second trimester. Individualized care should be provided, with the lady and her family participating in the decision-making process<sup>10</sup>. Very little is known about the incidence, socio-demographic variations and the maternal and pregnancy complications that are commonly associated with fetal demise. Since there is very little knowledge about the high rates of stillbirth in this region, the etiological factors contributing this, will provide with important findings and how to manage effectively to decrease a tragic event like stillbirth.

## Materials and methods:

This observational cohort study was conducted at Gynaecology and obstetrical department of Bangabandhu Sheikh Mujib Medical College (BSMMCH), Faridpur between January 2022 to December 2022. Pregnant women among all cases of IUFD with gestational age > 28 weeks by dating from naegle's rule or by ultrasonography attending the Obstetrics & Gynecology department at BSMMCH were included in this study. A semi structured; pretested questionnaire was used and several trained physicians were used to collect the data. We provided with a brief introduction to the background, objective, procedures, voluntary nature of participation, declarations of anonymity and confidentiality, and notes for filling in the questionnaire. Pregnant women with abortion or before 28 completed weeks of gestation, participants who did not give consent, women with incomplete or missing data necessary for analysis, were excluded from the study. Detailed history, clinical examination, associated conditions, mode of delivery, fetal conditions, placenta, condition of cord and investigation reports was analyzed. Using frequency distribution, percentage (percent), appropriate graphs and tables was shown socio-demographic characteristics. Where appropriate, it would also be described as mean  $\pm$  SD (Standard deviation). Cross tabulation done for different variables. Descriptive statistics of the score was presented by mean and SD. Data was cleaned, entered, and analyzed by Statistical Package for the Social Sciences (SPSS) software version 23. Prior to the study, the research protocol was approved by the Institutional Review Board of BSMMCH.

## Result:

Regarding socio-demographic characteristics of the study participants, including age group, education level, religion, and occupation. There were 117 participants (36.44%) in the age group of 18-25 years, 152 participants (47.35%) had completed primary education, 230 participants (71.65%) were muslim & 195 participants (60.74%) were was homemaker (Table I).

**Table I:** Distribution of patients according to socio-demographic characteristics (n=312).

Variables	Total number (%)
<b>Age group (in years)</b>	
<18 years	43 (13.39)
18-25 years	117 (36.44)
25-30 years	78 (24.29)
30-35 years	55 (17.13)
>35 years	28 (8.72)

<b>Education</b>	
No formal education	68 (21.18)
Primary completed	152 (47.35)
Secondary completed	84 (26.16)
Graduate and above	17 (5.29)

<b>Religion</b>	
Islam	230 (71.65)
Hindu	91 (28.34)
Christian	00 (00.00)
Buddhist	00 (00.00)
Others	

<b>Occupation</b>	
Student	27 (8.41)
Government employee	22 (6.85)
Non-Government employee	38 (11.83)
Small business	00 (00.00)
Large business	00 (00.00)
Industrial work	39 (12.14)
Homemaker	195 (60.74)
Self employed	00 (00.00)
Unemployment	00 (00.00)

Table II focuses on intrauterine deaths (stillbirths) during the study period. It includes the total number of deliveries, the total number of IUFD, and the stillbirth rate per 1000 live births. In this study, there were a total of 4275 deliveries, with 321 cases of IUFD, resulting in a stillbirth rate of 75 per 1000 live births.

**Table II:** Intrauterine deaths in the study period.

	<b>Total no. of deliveries</b>	<b>Total no. of IUFD</b>	<b>Still birth rate (Per 1000 live birth)</b>
<b>Total</b>	4275	321	75

Table III provides information on maternal obstetric characteristics. There were 82 patients (25.54%) identified as primigravida, 198 patients (61.68%) with a gestational age of 28-36 weeks. Regarding Antenatal Care Visit: patients were categorized based on the number of antenatal care visits (ANC1, ANC2, ANC3, ANC4) and their percentages. For example, there were 79 patients (24.61%) who had ANC1 visits. There were 31 patients (9.65%) with a history of stillbirth.

**Table III:** Distribution according to maternal obstetrics characteristics (n=321)

<b>Variables</b>	<b>Category</b>	<b>No. of patients (%)</b>
Gravidity	Primigravida	82 (25.54)
	Multigravida	239 (74.45)

Gestational age (Weeks)	28 - 36 weeks	198 (61.68)
	37 - 40 weeks	115 (34.82)
	>40 weeks	14 (4.36)
Antenatal Care visit	ANC1	79 (24.61)
	ANC2	118 (36.76)
	ANC3	78 (24.29)
	ANC4	46 (14.33)
Past obstetric history	History of Stillbirth	31 (9.65)
	History of miscarriage	

Table IV focuses on the mode of delivery for the study participants. There were 202 cases (62.9%) of Vaginal Delivery in the study population.

**Table IV:** Distribution of patients according to mode of delivery (n=321)

<b>Mode of delivery*</b>	<b>No. of cases (%)</b>
VD	202 (62.9)
VBAC	71 (22.11)
LSCS	48 (14.95)
<b>Total</b>	<b>321 (100)</b>

\*VD-Vaginal Delivery, VBAC-Vaginal Birth After Cesarean Section, LSCS-Lower Uterine Segment Cesarean Section.

Table V provides information on various maternal complications that occurred during pregnancy. There were 48 patients (14.95%) with placenta previa and 9 patients (2.80%) with abruptio placenta. There were 17 patients (5.29%) with chronic hypertension and 68 patients (21.18%) with pre-eclampsia. There were no cases of pregnancy induced hypertension in this study. Gestational diabetes mellitus was detected among 43 cases (13.32%) in this study.

**Table V:** Distribution according to maternal complications (n=317).

<b>Variables</b>	<b>Category</b>	<b>No. of patients (%)</b>
Antepartum hemorrhage	Placenta Previa	48 (14.95)
	Abruptio Placenta	9 (2.80)
Hypertension in Pregnancy	Chronic HTN	17 (5.29)
	Pregnancy induced HTN	0 (00)
	Pre-eclampsia	68 (21.18)
	Eclampsia	81 (25.23)
Gestational DM		43 (13.32)
Severe Anemia		22 (6.54)

Hypothyroidism	5 (1.55)
Oligohydramnios	25 (7.88)
Polyhydramnios	9 (2.84)
Preterm labour	6 (1.89)
PROM	7 (2.21)
Others	4 (1.26)

This table VI focuses on fetal anomalies detected during the study. The two specific fetal anomalies were reported. There were 9 cases (2.80%) of anencephaly, a severe neural tube defect resulting in the absence of a major portion of the brain, skull, and scalp. And there were 4 cases (1.26%) of Hydrocephaly, a condition characterized by the buildup of cerebrospinal fluid in the brain, leading to an enlarged head.

**Table 6:** Distribution according to fetal anomaly.

Variables	No. of cases (%)
Anencephaly	9 (2.84)
Hydrocephaly	4 (1.26)
No anomaly	304 (95.90)
Total	317 (100)

### Discussion:

The study conducted at the Obstetrics & Gynecology department of BSMMCH sheds light on the significant issue of stillbirths in the region. Contrary to a systematic review<sup>11</sup> there was no significant increase in risk of stillbirth relating to maternal age though we observed a 60% increase in risk for mothers with a parity of 3 or higher, suggesting a U-shaped relation between parity and risk of stillbirth (Table III), as previously reported<sup>12</sup>. However, it identifies a 60% increase in risk for mothers with a parity of 3 or higher. A significant proportion of stillbirths occurred between 28-36 weeks of gestation, highlighting the issue of preterm stillbirths. Our study findings reveal that a significant proportion of stillbirths were preterm, occurring between 28-36 (N=198) 68.61% weeks of gestation. This is consistent with previous research conducted by Chitra K et al. reported 57.8% of IUFD who were preterm<sup>13</sup>. This information underscores the need for interventions and care strategies for preterm pregnancies.

Addressing maternal complications during pregnancy is a key strategy for reducing stillbirth rates. Antenatal hemorrhage including placental abruption has a known association with stillbirth<sup>14</sup>. Antepartum hemorrhage, including Placenta Previa was observed in 14.95% of

patients, while Abruptio Placenta was present in 2.80% of cases. These conditions are known to increase the risk of stillbirth. Implementing measures for early detection, appropriate management, and close monitoring of patients diagnosed with antepartum hemorrhage can significantly contribute to reducing the rates. Hypertension in pregnancy is another critical factor associated with adverse outcomes, including stillbirth.

The high stillbirth rate of 75 per thousand live births. Maleckiene L and Singh N and their colleagues, the rate of Intrauterine Fetal Demise (IUFD) was reported as 40 cases per 1000 pregnancies. The incidence of stillbirth reported from western countries ranges from 4.7% to 12.0%<sup>15-21</sup>. This regional disparity underscores the importance of understanding the specific factors influencing stillbirths in this context. Understanding the factors contributing to stillbirths is crucial for developing effective strategies to reduce their occurrence in the future.

Hypertension in pregnancy is another critical factor associated with adverse outcomes, including stillbirth. Hypertension is the major cause of stillbirths in many other studies<sup>22-24</sup>. The study reveals that 5.29% of patients had Chronic HTN, while Pre-eclampsia was observed in 21.18% of cases. Severe pre-eclampsia and eclampsia were seen 36.7% and 4.8% cases<sup>24</sup> found in a similar study conducted in South east Asian region. In a hospital-based study from Pakistan, hypertensive disease including pregnancy-induced hypertension and eclampsia, accounted for 24% of the stillbirths.

Gestational Diabetes Mellitus (GDM) was identified in 13.32% of patients where as in other studies show that 3.65%<sup>22</sup>, and 3.8%<sup>23</sup> respectively. GDM is associated with an increased risk of stillbirth due to its impact on fetal growth and placental functioning. Effective management of GDM through regular monitoring of blood glucose levels, dietary modifications, and, if necessary, insulin therapy can contribute to reducing the risk of stillbirth.

In terms of mode of delivery, it is notable that a majority of stillbirths 62.9% delivered vaginally compared to Chitra K et al.<sup>25</sup> and Korde NV et al.<sup>26</sup> who had reported vaginal delivery in 89.4% and 73.1% respectively. This is an important indicator of the current healthcare management which is usually less invasive. Appropriate cesarean sections typically reduce the impact of these complications. Although it has been estimated that overall cesarean section rates of about 5% are needed to reduce the morbidity and mortality associated with



prolonged labor, cesarean section rates lower than 1% are found in many developing countries<sup>27</sup>.

Pregnancy losses associated with placental insufficiency and preterm labor are more likely to recur<sup>25</sup>. The low 14.33% of mothers receiving the recommended four antenatal care (ANC) visits is another important finding. Evidence provides that the role of receiving the recommended antenatal interventions in reducing stillbirths<sup>28-31</sup>. Improving access to ANC services, adequate ANC visits allow healthcare providers to monitor the progress of pregnancy, identify and manage any potential complications, and provide necessary interventions to prevent stillbirths. Though necessary for the analysis on quality of care, may reduce the generalizability of the findings.

Few studies have however explicitly examined socioeconomic differentials in low income countries<sup>32</sup>. These conditions can be addressed through early detection, appropriate management, and close monitoring of affected patients' Necessary steps including blood pressure monitoring, dietary modifications, and appropriate pharmacological interventions, can help mitigate the risk of stillbirth in these cases.

Furthermore, the study highlights the need for enhanced reproductive health education and support. The presence of a high number of mothers with a history of miscarriage or abortion around 18% indicates a need for better access to comprehensive reproductive healthcare services, including counseling and support for women who have experienced pregnancy loss. Focusing on preconception care and providing information on healthy lifestyle choices and family planning methods can contribute to reducing the risk of stillbirths in subsequent pregnancies.

### Conclusion:

This study highlights the significant issue of stillbirths in the region and the need for urgent attention and action to improve maternal and child health. The findings of the study provide valuable insights into the factors associated with stillbirths and the areas for improvement in maternal and child health in Faridpur, Bangladesh. The study's limitations include a limited number of participants and a lack of subsequent monitoring of the patients. Additional research should be conducted to identify the exact cause and develop efficient strategies for managing intrauterine fetal death in order to enhance the health outcomes of both mothers and children in this region.

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