Stillbirth Rate and Some Predictors in a Tertiary Hospital in the Niger Delta Area of Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Author OIM conceptualized and designed the study, analysed data and wrote the first draft of the manuscript. Author NO contributed to study design and reviewed the manuscript for intellectual content. Both authors read and approved the final manuscript.

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ABSTRACT

Aim: To determine stillbirth rate and identifiable predictors from a sample of deliveries in our setting.
Study Design: A retrospective analysis of a cross-sectional dataset.
Place and Duration of Study: Study was conducted at the Federal Medical Centre Yenagoa (FMCY), Bayelsa State, Nigeria using data collected between July 2020 and April 2021.
Methodology: A cross-sectional dataset of 584 births at the FMCY was analysed. Variables included in the data were women's age, level of education, booking status, parity, number of fetuses, onset of labour, mode of delivery, urgency of CS, fetal maturity, fetal lie, fetal presentation, fetal sex, birth weight categories and stillbirth or live birth. Stillbirth was defined as a baby born at ≥ 28 completed weeks of gestation or weighing ≥ 1000 grams with no signs of life. Data was analysed using IBM SPSS Statistics version 25.
Results: Of the 584 births during the study period, 53 were stillbirths giving a prevalence of 9.1% and stillbirth rate of 90.8/1000 total births. Unbooked status conferred >4 times higher odd of stillbirth (AOR = 4.36; 95% CI = 2.13 – 8.93; pValue < 0.001) relative to a booked status. Relative to

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delivery by pre-labour caesarean section, odd of stillbirth was about 8.3 times and 15.9 times higher among women in spontaneous labour (AOR = 8.30; 95% CI = 2.27 − 30.36; pValue = 0.001) and women with induced labour (AOR = 15.91; 95% CI = 2.03 − 125.06; pValue = 0.009) respectively. Post-term gestation had 16 times significantly higher odd of stillbirth (AOR = 15.74; 95% CI = 1.35 − 183.91; pValue = 0.028) relative to term gestation.

Conclusion: This study establishes an unbooked status and post-term gestation as predictors of stillbirth in our setting. It also underscores the need to include the status of the fetus at presentation in labour (alive or IUFD) in data collection and analysis when studying the role of labour in incidence of stillbirth.

1. INTRODUCTION

Stillbirth has not been given enough attention despite that stillbirth rate is a sensitive indicator of quality of care in pregnancy and delivery and a marker of the strength of a health system [1]. It is a tragedy when a pregnancy ends in a stillbirth despite the myriads of physical, emotional, psychological and social changes that a pregnant woman and her family had to cope with. Global data from a joint United Nations estimate on stillbirth shows that in 2019, nearly 2 million babies were stillborn at ≥ 28 weeks of gestation. That is, one stillbirth every 16 seconds, nearly four every minute and over 200 every hour. In the last two decades, the progress made in lowering stillbirth rates is slow relative to progress with maternal and neonatal mortality. If the current trend continues, an additional 20 million stillbirths will occur before 2030 [1]. There is a large disparity in stillbirth rates across countries and regions. Low- and lower-middle-income countries currently account for 84% of all stillbirths, most (3 out of 4) of them occurring in Sub-Saharan Africa and Southern Asia. In the 2019 data from the joint United Nations estimate, Nigeria was one of six countries burdened with about half of all stillbirths in the world, including India, Pakistan, Democratic Republic of the Congo, China and Ethiopia [1]. By this time, Nigeria had a national stillbirth rate of 22.25/1000 total births, a lower bound rate of 13.36/1000 total births and an upper bound rate of 35.95/1000 total births at 90% uncertainty interval [2]. Nigeria recorded a 15% increase in the number of stillbirths between 2000-2019 [1].

To address this hitherto neglected stillbirth tragedy, a reduction in stillbirth rate became part of the agenda of the global health community at the United Nations [3] and the World Health Organization (WHO) [4]. Every Newborn Action Plan (ENAP) endorsed by 194 WHO Member States in 2014, set a goal for all countries to reach a target stillbirth rate of ≤ 12/1000 total births by 2030 [4]. This requires use of audit data to track and prevent stillbirths plus an attention to inequalities [4]. Although population-based surveys like the Nigeria Demographic and Health Survey which uses household survey data, and civil registrations are the preferred data sources by the WHO [5], a role for health facility data and other sources of data are also recognized. Population-based surveys are more representative of the prevalence of stillbirths, especially in resource poor countries like Nigeria where a lot of women give birth outside health facilities. However, such surveys are limited by problems of inaccurate and non-uniform measurements and unavailability of clinical data necessary to formulate health systems interventions [1,6]. Hospital studies on the other hand, are capable of identifying socio-demographic, reproductive and clinical risk factors for stillbirths. Within the last decade, several hospital studies (single and multicentre studies) across Nigeria have reported stillbirth rates ranging from 6.1/1000 total births to 180/1000 total births and associated factors [6-17]. Most stillbirths are preventable, hence efforts towards understanding the modifiable risk factors for stillbirth and achieving low rates globally should not relent. At the Federal Medical Centre Yenagoa in Bayelsa State Nigeria, there is paucity of data on the predictors of stillbirth. The objective of this study is to determine the stillbirth rate and identifiable predictors from a sample of deliveries at the Federal Medical Centre Yenagoa.

2. METHODOLOGY

2.1 Study Design

This was a retrospective analysis of a cross-sectional data.

2.2 Study Setting

Yenagoa is the capital city of Bayelsa State; one of the states in the oil-rich Niger Delta of Nigeria. Bayelsa State has a population of about 2,700,000 [18]. Federal Medical Centre Yenagoa is a tertiary level health facility. It is one of only two tertiary hospitals and the only Federal tertiary hospital in the state. Patients present directly and also by referrals from primary and secondary level state-owned health facilities, private hospitals in Yenagoa and its environs, and from traditional birth attendants in Yenagoa and its environs. The department of Obstetrics and Gynaecology conducts an average of 1800 deliveries annually. However, the COVID-19 global pandemic caused a reduction in the patient load received by the department during collection of the data used for this study.

2.3 Eligibility Criteria

All births at the Federal Medical Centre Yenagoa between July 2020 and April 2021 were eligible and included in the study. There was no exclusion criteria.

2.4 Data Collection

Ethical clearance was obtained from the research ethics committee, Federal Medical Centre Yenagoa for the data used in this study. A cross-sectional dataset of 584 births at the Federal Medical Centre Yenagoa between July 2020 and April 2021 was used. Variables included in the data were women's age, level of education, booking status, parity, number of fetuses, onset of labour, mode of delivery, urgency of CS, fetal maturity, fetal lie, fetal presentation, fetal sex, birth weight categories and stillbirth or live birth.

Stillbirth was defined as a baby born at ≥ 28 completed weeks of gestation and/or weighing ≥ 1000 grams with no signs of life [1,4].

2.5 Data Analysis

Data was analysed using IBM SPSS Statistics version 25. Mean and standard deviation of continuous data was determined while categorical data were summarized using frequencies and percentages. Chi Square test was used to determine an association between stillbirth and maternal and fetal characteristics. A binary logistic regression analysis was done to further define the association between stillbirth and the categories of the independent variables.

The independent variables that maintained a significant association with stillbirth were further subjected to a multivariate logistic regression analysis to determine the variable that best predicts stillbirth. Level of significance was set at pValue<0.05.

3. RESULTS

3.1 Characteristics of Parturients

Five hundred and fifty-six (556) parturients were studied. The characteristics of the parturients are shown in Table 1. A large proportion of the parturients (84%) were between the age of 25 and 39 years and the mean age was 31.16 ± 5.4 years. Most (84.2%) had at least a secondary level of education, 37.2% were unbooked, most (46.4%) had at least two previous parous experiences and the median parity was two. About 95% had singleton gestation, while 4.3% and 0.5% had twin and triplet gestations respectively. Labour was of spontaneous onset in 78.8%, 18.5% had pre-labour caesarean section (CS) and only 2.7% had induction of labour. The CS rate was 48.4%, 59.9% were urgent CS and 21.9% were emergency CS. Most parturients delivered at term gestation, while up to 18.8% were preterm and 0.5% post-term. Most parturients had fetuses in longitudinal lie (97.4%), cephalic presentation (87.0%) and birth weight was normal (69.6%) in most of the neonates.

3.2 Stillbirth Rate

There were 584 neonates delivered by the 556 parturients during the study period. Of these, 53 were stillbirths giving a prevalence of 9.1% and a stillbirth rate of 90.8/1000 total births.

3.3 Association between Stillbirth, Maternal and Fetal Variables (Unadjusted Model)

There was a significant association between stillbirth, booking status, number of fetuses, labour and urgency of CS. Relative to a woman booked for antenatal care, the odd of a stillbirth was almost 7 times significantly higher in a woman with an unbooked status (OR = 6.72; 95% CI = 3.45 − 13.10; pValue < 0.001). Triplet gestation had an almost 5 times significantly higher odd of stillbirth (OR = 4.79; 95% CI = 1.16 − 19.74; pValue = 0.030) relative to a singleton gestation. Relative to women who had pre-labour CS, the odd of a stillbirth was higher among

women who were in labour, either by spontaneous onset (OR = 4.31; 95% CI = 1.32 – 14.11; pValue = 0.016) or following an induction of labour (OR = 5.64; 95% CI = 0.86 – 36.94; pValue = 0.071), although not statistically significant among those who had induction of labour in the binary logistic regression model. The odds of stillbirth was higher with emergency caesarean section (OR = 2.04; 95% CI = 0.87 – 4.79; pValue = 0.101) relative to an urgent caesarean section, but this was not statistically significant (Table 2).

Table 1. Maternal and fetal variables of parturients

Maternal	Frequency N = 556	Percent (%)
Age group		
<20 years	14	2.5
20 - 24 years	42	7.6
25 - 29 years	147	26.4
30 - 34 years	191	34.4
35 - 39 years	129	23.2
>40 years	33	5.9
Mean Age ± SD in years	31.16 ± 5.4	
Level of Education		
No Formal education	41	7.4
Primary Education	47	8.5
Secondary Education	233	41.9
Tertiary Education	235	42.3
Booking Status		
Booked	349	62.8
Unbooked	207	37.2
Parity		
0	124	22.3
1	128	23.0
≥2	258	46.4
5 and above	46	8.3
Median Parity (Range)	2 (0 – 6)	
Number of Fetuses		
Singleton	529	95.1
Twin	24	4.3
Triplet	3	0.5
Onset of Labour		
Spontaneous	438	78.8
Induction of Labour	15	2.7
Pre-Labour CS	103	18.5
Mode of Delivery		
Vaginal delivery	287	51.6
Caesarean section	269	48.4
Urgency of CS	N = 269	
Emergency	59	21.9
Urgent	161	59.9
Elective	46	17.1
Scheduled	3	1.1
Fetal	**Frequency N = 584**	**Percent (%)**
Fetal maturity		
<37 weeks	110	18.8
37 weeks – 41^{+6} weeks	471	80.7
≥ 42 weeks	3	0.5
Fetal lie		

Maternal	Frequency N = 556	Percent (%)
Longitudinal	569	97.4
Transverse	14	2.4
Oblique	1	0.2
Fetal presentation		
Cephalic	508	87.0
Breech	62	10.6
Shoulder	14	2.4
Fetal sex		
Male	310	53.1
Female	274	46.9
Birth weight categories		
< 1 kg	2	0.3
1 kg - < 1.5 kg	26	4.5
1.5 kg - < 2.5 kg	84	14.4
2.5 kg - < 4 kg	406	69.6
≥ 4 kg	65	11.1

There was a significant association between stillbirth, fetal maturity, fetal presentation, and birth weight categories. Preterm birth increased the odd of a stillbirth (OR = 3.81; 95% CI = 2.1 – 6.14; pValue < 0.001) significantly, relative to delivery at term. The odds of stillbirth was also significantly higher with a post-term delivery (OR = 30.48; 95% CI = 2.7 – 346.1; pValue = 0.006) relative to delivery at term. A fetus in breech presentation had a significantly higher odd of stillbirth (OR = 2.59; 95% CI = 1.25 – 5.38; pValue = 0.010) relative to a fetus in cephalic presentation. Relative to a normal birth weight baby, there was significant higher odd of a stillbirth among low birth weight babies; almost 3 times higher (OR = 2.79; 95% CI = 1.39 – 5.83; pValue = 0.005) and very low birth weight babies; almost 6 times higher (OR = 5.62; 95% CI = 2.57 – 16.18; pValue < 0.001), Table 3.

3.4 Association between Stillbirth, Maternal and Fetal Variables (Adjusted Model)

After adjusting for confounding variables, a higher odd of stillbirth was significantly maintained only among women with unbooked status, women in labour by spontaneous onset or induction of labour and women with a post-term gestation. A woman who was unbooked for antenatal care maintained an over 4 times higher odd of a stillbirth (AOR = 4.36; 95% CI = 2.13 – 8.93; pValue < 0.001) than a booked woman. The odd of stillbirth was about 8.3 times and 15.9 times higher among women in spontaneous onset of labour (AOR = 8.30; 95% CI = 2.27 – 30.36; pValue = 0.001) and women who had

induction of labour (AOR = 15.91; 95% CI = 2.03 – 125.06; pValue = 0.009) respectively, relative to women who delivered by pre-labour CS. Post-term gestation maintained almost 16 times significantly higher odd of stillbirth (AOR = 15.74; 95% CI = 1.35 – 183.91; pValue = 0.028) relative to term gestation (Table 4).

4. DISCUSSION

From this study, there were 584 total births and 53 stillbirths during the study period, giving a prevalence of 9.1% and a stillbirth rate of 90.8/1000 total births. The odd of a stillbirth is high in women with unbooked status and post-term gestation.

The timing of collection of the dataset used is a limitation of this study, in that it was during the COVID-19 pandemic which limited the sample size. Despite the fact that the study centre was taking an average of 1800 deliveries before COVID-19, only 584 neonates were delivered over the 10 months of data collection. Any further study on this subject should strongly consider a larger sample size.

The stillbirth rate in this study is higher than the upper bound of the national stillbirth rate which was 35.95/1000 total births at 90% uncertainty interval [2]. This is also higher than the stillbirth rate of 47.4/1000 total births recorded for the year 2020 from a previous study [13] that assessed perinatal outcome in our centre and the 6.1/1000 total births [17], 48.4/1000 total births [9] and 67.5/1000 total births [16] also reported out of the south-south geopolitical zone of Nigeria within the last decade. A possible reason for this high stillbirth rate in our study is

that data for the study was collected during the time our centre started scaling up our services again, having responded to the high impact of COVID-19 pandemic by scaling down services. It is known that health service delivery and access was weakened during the high impact period of the COVID-19 pandemic, and this did not exclude antenatal care and hospital delivery with a consequence of higher stillbirth rate [19,20]. It is likely that the high stillbirth rate recorded in this study is a result of the impact of COVID-19 on our health system.

Table 2. Association between stillbirth and maternal variables

Variables	Mortality Outcome		χ^2 (pValue)	OR (95%CI)	pValue
	Stillbirth N = 53 (%)	Live Birth N = 531(%)			
Age group					
< 20 years	0 (0.0)	16 (100.0)	9.29 (0.098)		
20 - 24 years	9 (20.5)	35 (79.5)		3.09 (1.25 – 7.61)	0.014*‡
25 - 29 years	15 (9.7)	139 (90.3)		1.30 (0.61 – 2.74)	0.499
30 - 34 years	15 (7.7)	180 (92.3)		1	
35 - 39 years	11 (8.1)	125 (91.9)		1.06 (0.47 – 2.38)	0.895
≥ 40 years	3 (7.7)	36 (92.3)		1.00 (0.28 – 3.63)	1.000
Level of Education					
No Formal education	6 (14.6)	35 (85.4)	5.43 (0.143)	2.14 (0.80 – 5.77)	0.131
Primary Education	8 (15.7)	43 (84.3)		2.33 (0.95 – 5.69)	0.064
Secondary Education	20 (8.1)	228 (91.9)		1.10 (0.56 – 2.13)	0.785
Tertiary Education	18 (7.4)	225 (92.6)		1	
Booking Status					
Booked	12 (3.3)	352 (96.7)	39.10 (0.000*)	1	
Unbooked	41 (18.6)	179 (81.4)		6.72 (3.45 13.10)	0.000*
Parity					
0	10 (7.5)	123 (92.5)	2.10 (0.552)	1	
1	11 (8.3)	121 (91.7)		1.12 (0.46 – 2.73)	0.806
≥2	24 (9.3)	245 (90.7)		1.26 (0.58 – 2.70)	0.560
5 and above	7 (14.3)	42 (85.7)		2.05 (0.73 – 5.73)	1.171
Number of Fetuses					
Singleton	50 (9.5)	479 (90.5)	11.10 (0.004*)	1	
Twin	0 (0.0)	46 (100.0)			
Triplet	3 (33.3)	6 (66.7)		4.79 (1.16 19.74)	0.030*‡
Onset of labour					
Spontaneous	48 (10.5)	408 (89.5)	7.14 (0.028*)	4.31 (1.32 –14.11)	0.016*
Induction of labour	2 (13.3)	13 (86.7)		5.64 (0.86 36.94)	0.071
Pre-Labour CS	3 (2.7)	110 (97.3)		1	
Mode of delivery					
SVD	27 (9.2)	265 (90.8)	0.02 (0.885)	1.04 (0.59 – 1.83)	0.885
CS	26 (8.9)	266 (91.1)		1	
Urgency of CS					
Emergency	10 (16.9)	41 (83.1)	10.29 (0.016*)	2.04 (0.87 – 4.79)	0.101
Urgent	16 (9.1)	160 (90.9)		1	
Elective	0 (0.0)	54 (100.0)			
Scheduled	0 (0.0)	3 (100.0)			

Statistically Significant; ‡ No overall statistical significance; CS – Caesarean Section; OR – Odd Ratio; SVD – Spontaneous Vaginal Delivery. Shaded categories were not included in the logistic regression analysis since category did not have the dependent variable

The result of this study demonstrates that beyond known pregnancy complications that causes stillbirth like obesity; diabetes in pregnancy; hypertensive disorders in pregnancy; maternal infections; intrauterine growth restriction; congenital anomalies; placenta abruption etc., and intrapartum complications like cord prolapse; obstructed labour; fetal hypoxia etc. [21-23], in the population studied, certain maternal and fetal characteristics of parturients increases the odd of stillbirth. Unbooked status, triplet gestation, having been in labour either spontaneously or following induction of labour instead of pre-labour CS, emergency caesarean section, preterm delivery, post-term delivery, breech presentation and low birth weight were found to be associated with an increased odd of stillbirth. Each of these factors is known to have associated complications during pregnancy or labour and delivery. Giving the possible interplay between all the maternal and fetal variables associated with an increased odd of stillbirth, we conducted a multivariate logistic regression analysis to control for the effect of confounding variables. With the odds adjusted, only an unbooked status, labour by spontaneous onset or following induction of labour and post-term gestation maintained a significantly increased odd of a stillbirth.

Besides not benefiting from antenatal care services, another implication of an unbooked status in the study setting is being in labour without the care of a skilled attendant. In Nigeria, especially in rural areas and more likely in unbooked women, parturients tend to have been in labour at home usually supervised by a traditional birth attendant (TBA) [24]. Many eventually present to the hospital with increased risk of or established maternal or fetal complications including intrauterine fetal death (IUFD). The study centre being a tertiary and referral hospital receives several of such women in labour and the finding from this study also further emphasizes the role of antenatal care and skilled attendants at birth. Evidence-based interventions for the prevention of stillbirth and lowering stillbirth rate include access to basic antenatal care and advanced antenatal care including detection and management of hypertensive disorders in pregnancy, diabetes in pregnancy, intrauterine growth restriction and induction of labour for post-term pregnancies etc. Others are skilled birth attendant in labour and emergency obstetric care [1,25]. Various antenatal interventions at basic and advanced levels are capable of effecting reduction in antepartum ± intrapartum stillbirths up to 82% [25]. Skilled attendant at birth, basic emergency obstetric care and comprehensive emergency obstetric care have been estimated to reduce intrapartum still birth by 23%, 45% and 75% respectively [25]. Beyond availability, these services must also function efficiently to be effective.

Table 3. Association between stillbirth and fetal variables

Variables	Mortality Outcome		χ^2 (pValue)	OR (95%CI)	pValue
	Stillbirth N = 53 (%)	Live Birth N = 531 (%)			
Fetal maturity					
<37 weeks	22 (20.0)	88 (80.0)	32.83	3.81 (2.1 – 6.14)	0.000*
37 weeks – 41^{+6} weeks	29 (6.2)	442 (93.8)	(0.000*)	1	
≥ 42 weeks	2 (66.7)	1 (33.3)		30.48 (2.7 – 346.1)	0.006*
Fetal lie					
Longitudinal	50 (8.8)	519 (91.2)	2.75 (0.253)	1	
Transverse	3 (21.4)	11 (78.6)		2.83 (0.76 – 10.48)	0.119
Oblique	0 (0.0)	1 (100.0)			
Fetal presentation					
Cephalic	39 (7.7)	469 (92.3)	9.44 (0.009*)	1	
Breech	11 (17.7)	51 (82.3)		2.59 (1.25 – 5.38)	0.010*
Shoulder	3 (21.4)	11 (78.6)		3.28 (0.88 – 12.25)	0.077
Fetal Sex					
Male	26 (8.4)	283 (91.6)	0.36	1	
Female	27 (9.9)	247 (90.1)	(0.546)	1.19 (0.68 – 2.09)	0.547

Variables	Mortality Outcome		χ² (pValue)	OR (95%CI)	pValue
	Stillbirth N = 53 (%)	Live Birth N = 531 (%)			
Birth weight categories					
< 1 kg	2 (100.0)	0 (0.0)	38.38	2.46x10¹⁰ (0.000-)	0.999
1 kg - < 1.5 kg	7 (26.9)	19 (73.1)	(0.000*)	5.62 (2.57 – 16.18)	0.000*
1.5 kg - < 2.5 kg	13 (15.5)	71 (84.5)		2.79 (1.39 – 5.83)	0.005*
2.5 kg - < 4 kg	25 (6.2)	381 (93.8)		1	
≥ 4 kg	6 (9.2)	59 (90.8)		1.55 (0.61 – 3.94)	0.357

*Statistically significant; OR – Odd Ratio. Shaded categories were not included in the logistic regression analysis since category did not have the dependent variable

Table 4. Predictors of stillbirth

Variables	B-coefficient	Adjusted OR	95%CI for Adjusted OR		pValue
			Min	Max	
Booking Status					
Booked		1			
Unbooked	1.47	4.36	2.13	8.93	0.000*
Onset of labour					
Spontaneous	2.12	8.30	2.27	30.36	0.001*
Induction of labour	2.77	15.91	2.03	125.06	0.009*
Pre-Labour CS		1			
Fetal maturity					
<37 weeks	1.14	3.13	0.76	12.97	0.115
≥ 42 weeks	2.76	15.74	1.35	183.91	0.028*
37 weeks – 41⁺⁶ weeks		1			
Fetal presentation					
Cephalic		1			
Breech	0.60	1.80	0.75	4.25	0.187
Shoulder	0.73	2.07	0.46	9.40	0.347
Birth weight categories					
< 1 kg	21.86	3.13x10⁹	0.000	-	0.999
1 kg - < 1.5 kg	0.67	1.96	0.35	10.95	0.443
1.5 kg - < 2.5 kg	0.17	1.19	0.30	4.71	0.808
2.5 kg - < 4 kg		1			
≥ 4 kg	0.64	1.90	0.71	5.13	0.204

*Statistically significant; CS – Caesarean Section; OR – Odd Ratio

Besides suggesting that pre-labour CS reduces risk of perinatal mortality, other possible explanations for the higher odd of stillbirth among women in labour relative to pre-labour CS in this study include IUFD present at presentation in labour and intrapartum IUFD. Data for this study did not include the status of the fetus at presentation (alive or IUFD) among the women in labour either by spontaneous onset or following induction of labour. This limits the interpretation of the odd of stillbirth among women in labour in the study setting. Further studies that will include the live status of the fetus at presentation in labour in data collection and analysis are required to increase understanding of the relationship between labour and stillbirth in our setting.

Post-term pregnancy by itself may be associated with IUFD before onset of labour or complications, e.g., oligohydramnious, fetal macrosomia, placenta insufficiency, intrauterine growth restriction, high risk of umbilical cord compression etc., which already compromises the fetus and increases risk of intrapartum stillbirth. There is a 69% increase in stillbirth rate for every pregnancy that advances beyond 40 to 41 weeks and much higher after 42 completed weeks of gestation [26]. In our facility, post-term gestation is prevented in women receiving

antenatal care by planned delivery at 41 weeks. An unbooked status thus appears to be overarching as a predictor of stillbirth in this study, as an interaction is very likely to exist with post-term gestation in the risk of stillbirth.

To further the understanding of the predictors of stillbirth in our setting, larger studies should document and analyse data on identified obstetric complications and sociodemographic characteristics of women with stillbirths. In addition, further studies should assess the socioeconomic and demographic characteristics of unbooked parturients, the challenges and expectations of the antenatal care attendee and the hospital facility-associated contributors to low uptake of antenatal care services and in-hospital delivery.

5. CONCLUSION

This study establishes unbooked status and post-term gestation as predictors of stillbirth in the study setting. It also underscores the need to include the status of the fetus at presentation in labour (alive or IUFD) in data collection and analysis when studying the role of labour in incidence of stillbirth.

CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

Ethical clearance was obtained from the research ethics committee, Federal Medical Centre Yenagoa for the data used in this study.

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COMPETING INTERSTS

Authors have declared that no competing interests exist.

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Risks of stillbirth and neonatal death with advancing gestation at term: A systematic review and meta-analysis of cohort studies

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