Causative Factors of Stillbirth Prevalence Among Rural Dwellers in Ojo Local Government Area, Lagos State, Nigeria

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Abstract
This study investigated causative factors of the prevalence of stillbirth among rural dwellers in Ojo Local Government Area, Lagos State, Nigeria. A total number of two hundred (200) respondents was selected for the study. Four (4) research hypotheses were tested and data were collected with the use of a self-structured "Prevalence and Causes of Stillbirth Questionnaire (PCSBQ)" which comprised 16 items. The questionnaire was drawn on the basis of a four-point Modified Likert Scale. The data collected in this study was analyzed using frequency count, percentage and Chi-square (χ^2), and conclusions were drawn from the findings. Findings indicated that Socioeconomic factors ($\chi^2 = 55.13$, p = 0.001<0.05 at 9^0), Maternal diseases ($\chi^2 = 48.91$, p = 0.001<0.05 at 9^0), utilization of antenatal care services ($\chi^2 = 22.35$, p = 0.001<0.05 at 9^0), and Prolonged obstructed labour ($\chi^2 = 102.13$, p = 0.001<0.05 at 9^0) have significant causes on the prevalence of stillbirth among rural dwellers in Ojo Local Government Area of Lagos State, Nigeria. The study recommended that there is a need for regular workshops and seminars for pregnant women and nursing mothers who go for prenatal and post-natal care to be duly informed about the prevalence and causative factors of stillbirth. Also, efforts on campaign disseminating information on early utilization of antenatal care services should be intensified by the government. This study will be of benefit to the Nigerian government on the prevalence and causes of stillbirth among rural dwellers across the states.

Keywords: Antenatal, Diseases, Labour, Maternal, Obstructed

Introduction

A serious obstetric issue that has an impact on worldwide public health, stillbirth leaves the grieving mother and her family with severe emotional anguish. There are regional differences in the definition of stillbirth, particularly between industrialised and developing nations. Either the prenatal or intrapartum stages might result in stillbirths. Foetal deaths that happen in the antenatal stage prior to labour starting are known as antenatal stillbirths, and they typically show symptoms of skin maceration, also known as macerated stillbirths. On the other hand, an intrapartum stillbirth occurs when a foetus dies during the intrapartum phase; it usually appears as a new stillbirth without any skin maceration. There is a significant difference in the stillbirth pattern between industrialised, high-income countries and developing, low- and middle-income countries. 90% of stillbirths in developed nations occur during the antenatal period, while most stillbirths in underdeveloped nations—primarily 51.1% of stillbirths in sub-Saharan Africa and 59.3% of stillbirths in southern Asia—occur during the postpartum period. (Okunowo & Smith-Okonu, 2020). The global stillbirth rate was 13.9 stillbirths per 1,000 live births in 2019, with 1.9 million stillbirths at 28 weeks of pregnancy or later anticipated. But not everyone reacts to these losses in the same manner. Globally, stillbirth rates vary significantly, according to the study, with the most severely impacted countries having a risk that can be up to 23 times higher. There were only a few countries with a significant percentage of stillbirths; India led the pack, followed by Pakistan, Nigeria, Ethiopia, China, and the Democratic Republic of the Congo. The United Nations Inter-Agency Group for Child Mortality Estimation states that these six countries are accountable for half of the estimated stillbirths and 44% of live births globally (Hug et al., 2020).

Every 16 seconds, a stillbirth happens somewhere in the world in October 2020. This indicates that around 2 million kids are stillborn each year, which is a tragedy that goes well beyond death. It has a devastating, long-lasting effect on women and their families worldwide, frequently resulting in severe psychological distress as well as social humiliation, even in wealthy nations. Even more tragically, most of these deaths may have been prevented with excellent prenatal and postpartum care. More than 40% of stillbirths happen during labour; these losses could be avoided with better surveillance and easier access to emergency obstetric care when needed (Al-Sheyab et al., 2020). For the sake of international comparability, a stillbirth is defined by the World Health Organisation (WHO) as a baby that is born dead at 28 weeks of gestation or later, with a birth weight of at least 1000 g or a body length of at least 35 cm. There were an estimated 2.6 million stillbirths worldwide in 2015, translating to an estimated 18.4 stillbirths per 1000 live births. Sub-Saharan Africa has the highest stillbirth rate of 28.7/1000 total births, with the bulk of these stillbirths (61.8%) occurring in rural areas. Ninety-eight percent of these stillbirths take place in low- and middle-income countries. Ten nations account for two-thirds of all stillbirths globally; Nigeria came in second place in 2015 with 314,000 stillbirths, behind India. Additionally, Nigeria accounts for the majority of stillbirths on the sub-Saharan African continent. According to WHO data from 2015, Nigeria has the second-highest stillbirth rate in the world, behind Pakistan, with 42.9/1000 live births. These numbers show how common stillbirth is in Nigeria and how much of an impact it has on the world (Ashish et al., 2020). Based on the available data, Nigeria has the second-highest rate of stillbirths globally. Nigeria had a stillbirth rate of 41.67 per 1000 live births in 2009, and in 2015 there had been no appreciable decrease. It was projected that the worldwide stillbirth rate would be 18.4 per 1000 live births in 2015, representing an approximately 25.5% decrease from 2009 to 2015. Nigeria accounted for 317,700 of the projected 2.6 million stillbirths globally in 2015, or 12.2% of all stillbirths. This suggests that Nigeria is still a major contributor to the global stillbirth problem (Okonofua et al., 2019).

Effective treatments are hampered by the ongoing dearth of accurate data on the risk factors for stillbirths in Nigeria, notwithstanding the high incidence of these deliveries. While the nation places a strong priority on reducing maternal mortality, efforts to lower the stillbirth rate have gotten relatively little attention. This might be the case due to the fact that evaluations of the achievement of the Millennium Development Goals and, more recently, the Sustainable Development Goals—which the country is placing a high priority on in terms of policy—did not include stillbirth rates. Furthermore, the need to make stillbirths visible, distinct, and countable has been recognised globally. Different stillbirth rates have been recorded by several hospital-based studies in Nigeria. These rates range from 22 to 170/1000 births in the country's north, 45–48.4/1000 births in its south, 41.4–180/1000 births in its southeast, and 51–69.7/1000 births in its southwest. There is currently a lack of adequate documentation of the frequency, trends, causes, and risk factors for stillbirths at Lagos University Teaching Hospital (LUTH), located in Lagos, Nigeria. Hospital research carried out in several regions of Nigeria indicates that stillbirth rates are high, with a low of 39.9 per 1000 births and a high of 180 per 1000 births. Research indicates that multiple parity, illiteracy, delivery style, and lack of prenatal care may potentially be risk factors for stillbirths. It was found that the incidence of stillbirths at these institutions was considerably elevated by a high prevalence of obstetric issues, including anaemia, pregnancy-induced hypertension, and obstructed labour (Kale et al., 2021).

Additionally, research revealed that the high rate of stillbirth is caused by a number of socioeconomic health determinants, including poor emergency obstetric care, a lack of access to and utilisation of healthcare services, and generally low-quality healthcare services in the community. Inadequate obstetric care, the existence of multiple gestations, and maternal illness have also been linked to stillbirth. Common risk factors for stillbirth in Nigeria include low socioeconomic status, not using antenatal care (ANC) services, prolonged obstructed labour, intrauterine growth restriction (IUGR), placental abruption, preeclampsia/eclampsia, premature birth, and extremes of parity. As a result, this study looked at the prevalence and causes of stillbirths among rural dwellers in Ojo Local Government Area, Lagos State, Nigeria.

Purpose of the study

This study's objectives were to:

1. examine the causes of stillbirth among the rural dwellers in Ojo Local Government Area using the Ojo Primary Health Centre, in Lagos State, Nigeria.
2. examine the prevalence of stillbirth among the rural dwellers in Ojo Local Government Area of Lagos State, Nigeria.

Materials and Methods

The sample was drawn from a population of 521 registered pregnant women and nursing mothers at the centre from January to May 2023. Information was obtained from the Federal Ministry of Health, specifically the National Health Management Information System, Health Facility Daily Ante Natal Care (ANC), and Child Immunization Register Records. This study comprised 200 pregnant women and nursing mothers, representing 38.39% of the population in Ojo Local Government Area, Lagos State, Nigeria (source: Ojo Primary Health Centre Records, 2023). A self-structured questionnaire titled 'Prevalence and Causes of Stillbirth Questionnaire' (PCSBQ) was developed by the researcher to obtain data for the study. The questionnaire consisted of sixteen (16) questions concerning the research hypotheses. The respondents responded on four Likert scale type options of, Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD), on the questions posed to them. A letter of recommendation was given to the researcher from the Department of Human Kinetics, Sports & Health Education, Faculty of Education, Lagos State University, Ojo, Nigeria to facilitate the approval by the Ojo Primary Healthcare Centre. After receiving consent from Ojo Primary Healthcare Centre, the study was conducted. All data were collected through the questionnaire which was given strictly to the pregnant women and nursing mothers during their antenatal and post-natal visits to the healthcare center and the administration of the questionnaire lasted for three-weeks.

Results

Table 1: Responses on Respondent's Age

Age Range	Frequency	Percentage
11-20	43	21.5
21-30	68	34.0
31-40	52	26.0
41-50	21	10.5
51-above	16	8.0
Total	**200**	**100**

Table 1 expresses that out of the 200 respondents for this research, 43 (21.5%) were within the age bracket of 11-20, 68 (34%) were of the 21-30 age bracket, 52 (26%) were within age bracket 31-40, 21 (10.5%), were within age bracket 41-50, and 16 (8%) were within age bracket 51 and above. This shows that the majority of the respondents who participated in the study were between the ages of 21-30 years.

Table 2: Responses on Respondent's Ethnic Group

Ethnic Group	Frequency	Percentage
Hausa	28	14
Igbo	46	23
Yoruba	95	47.5
Others	31	15.5
Total	**200**	**100**

Table 2 indicates that out of the 200 respondents for this research, 28 (14%) were of Hausa ethnic group, 46 (23%) were Igbos, 95 (47.5%) were Yorubas, and only 31 (15.5%) were of other ethnic groups. This indicates that several ethnic groups were the respondents of the study. However, the majority of the respondents who took part in the study were Yorubas.

Table 3: Responses on Respondent's Religion

Religion	Frequency	Percentage
Christianity	67	33.5
Muslim	109	54.5
Others	24	12
Total	**200**	**100**

In Table 3, 67 (33.5%) respondents were Christians, 109 (54.5%) respondents were of Islamic religion and 25 (12%) respondents were from other religions. This implies that the two dominant religions took the higher percentage of the respondents while the majority of the respondents were Muslims.

Table 4: Responses on Respondent's Parental Status

Parental Status	Frequency	Percentage
Nursing Mother	153	76.5
Pregnant Woman	47	23.5
Total	**200**	**100%**

Table 4 reveals that 153 (76.5%) respondents were nursing mothers while 47 (23.5%) were pregnant women. This implies that the majority of the respondents who participated in this study were Nursing mothers.

Table 5: Responses on Respondent's Educational Qualification

Edu Qualification	Frequency	Percentage
Primary Edu.	109	54.5
ND/NCE	34	17.0
HND/B.Sc.	42	21.0
M.Sc and others	15	7.5
Total	**200**	**100**

Table 5 indicates that out of the 200 respondents for this research, 109 (54.5%) had primary school education, 34 (17%) had ND/NCE, and 42 (21%) had HND/B.Sc and only 15 (7.5%) have M.Sc and other educational qualifications. This shows that the majority of the respondents in this study had only Primary School Education.

Testing of Hypotheses

This section is on the testing of the formulated hypotheses. The criteria for acceptance or rejection were set as 0.05 level of significance.

Hypothesis 1: states that socioeconomic factors will have no significant cause on the prevalence of stillbirth among rural dwellers in Ojo Local Government, Lagos State, Nigeria.

Table 6: Chi-square Analysis on Socio-Economic Factors on the Prevalence of Stillbirth

Responses	FRQ	%	DF	LS	Cal X^2	P value	RMK
SA	233	29.1					
A	280	35.0					
D	146	18.3	9	0.05	55.13	<.001	Sig
SD	141	17.6					
Total	**800**	**100**					

Table 6 which projected the data collected from the respondents on hypothesis 1 reveals a calculated χ^2 value of 55.13 which is statistically significant at $p = 0.001 < 0.05$ at 9^0 of freedom hence the rejection of the null hypothesis. It therefore implies that socioeconomic factors have a significant cause on the prevalence of stillbirth among rural dwellers in Ojo Local Government of Lagos State, Nigeria.

Hypothesis 2: states that maternal disease will have no significant cause on the prevalence of stillbirth among rural dwellers in Ojo Local Government, Lagos State, Nigeria.

Table 7: Chi-square Analysis of Maternal Disease on Prevalence of stillbirth

Responses	FRQ	%	DF	LS	Cal X^2	P-value	RMK
SA	178	22.3					
A	282	35.3					
D	174	21.7	9	0.05	48.91	<.001	Sig
SD	166	20.7					
Total	**800**	**100**					

Table 7 shows the summary of the data collected from the respondents on hypothesis 2 and it also indicates the calculated χ^2 value of 48.91 which is statistically significant at $p = 0.001 < 0.05$ at 9^0 of freedom hence the rejection of the null hypothesis. This expressed that maternal diseases have a significant cause on the prevalence of stillbirth among rural dwellers in Ojo Local Government, Lagos State, Nigeria.

Hypothesis 3: states that non-utilization of antenatal care services will have no significant cause on the prevalence of stillbirth among rural dwellers in Ojo Local Government, Lagos State, Nigeria.

Table 8: Chi-square Analysis of Non-Utilization of Antenatal Care on Stillbirth

Responses	FRQ	%	DF	LS	Cal X^2	P value	RMK
SA	365	45.6					
A	336	42.0					
D	44	5.5	9	0.05	22.35	<.009	Sig
SD	55	6.9					
Total	**00**	**100**					

Table 8 projected the data analysis on hypothesis 3. It was discovered that the χ^2 value of the respondents' responses stands at 22.35 which is statistically significant at $p = 0.009 < 0.05$ at 9^0 of freedom hence the rejection of the null hypothesis. This result implies that non-utilization of antenatal care services is a significant cause of the prevalence of stillbirth among rural dwellers in Ojo Local Government, Lagos State, Nigeria.

Hypothesis 4: states that prolonged obstructed labour will have no significant cause on the prevalence of stillbirth among rural dwellers in Ojo Local Government, Lagos State, Nigeria.

Table 9: Chi-square Analysis of Prolonged Obstructed Labor on Stillbirth

Responses	FRQ	%	DF	LS	Cal X^2	P value	RMK
SA	280	35.0					
A	232	29.0					
D	186	23.3	9	0.05	102.13	<.001	Sig
SD	102	12.7					
Total	**800**	**100**					

Table 9 projected the data analysis on hypothesis 3. It was discovered that the χ^2 value of the respondents' responses stands at 102.13 which is statistically significant at $p = 0.001 < 0.05$ at 9^0 of freedom hence the rejection of the null hypothesis. This result implies that prolonged obstructed labour will have a significant cause on the prevalence of stillbirth among rural dwellers in Ojo Local Government, Lagos State, Nigeria.

Discussion

This study investigated the causative factors of the prevalence of stillbirth among rural dwellers in Ojo Local Government, Lagos State, Nigeria. One of the results from the study revealed that socioeconomic factors had a significant cause on the prevalence of stillbirth among rural dwellers in Ojo Local Government, Lagos State, Nigeria. In support of the above result, Zhihui et al. (2022) in their study identified a total of 795,642 women aged 15–49 from 50 LMICs with at least one pregnancy for analyses, including 8968 with previous stillbirth history and 786,674 without

previous stillbirths. Overall, a total of 198,224 (24.91%) women were from the poorest quintile households and 554,901 (69.74%) lived in rural areas. Compared with mothers who had a live birth for the last pregnancy, they also discovered that mothers who had a stillbirth were more likely to be poorer, from rural area, with lower parental education, without improved sanitation facilities, suffering from indoor pollution, and living with a male head of household. Furthermore, a 2020 study that was published in The Lancet Global Health indicated that women from lower socioeconomic backgrounds were more likely to experience stillbirths than women from better socioeconomic backgrounds. This study supports that finding. The study, which examined data from 24 low- and middle-income nations, discovered that women who were less educated, had lower incomes, and resided in rural regions had higher rates of stillbirth (Haws et al., 2020). Furthermore, a further study indicated that women who lived in locations with greater degrees of deprivation had a higher risk of stillbirth, which was published in BMC Pregnancy and Childbirth in 2021. These findings imply that efforts to reduce health disparities may be crucial in lowering the prevalence of stillbirth and offer evidence that socioeconomic factors may influence the risk of stillbirth.

Another study finding indicated that among rural residents of Ojo Local Government, Lagos State, Nigeria, maternal illnesses are major contributors to the occurrence of stillbirths. In agreement with the result, a study published in The Lancet Global Health in 2021 examined the causes of stillbirth in 10 low- and middle-income countries. The study found that maternal infections, including malaria, syphilis, and HIV, were the most common cause of stillbirth (Kinney et al., 2021). Another study published in BMC Pregnancy and Childbirth in 2021 examined the association between maternal hypertension and stillbirth risk in Ghana. The study analyzed data from over 800,000 births and found that women with hypertension had a higher risk of stillbirth. The study also found that the risk of stillbirth was higher among women with more severe hypertension (Laar et al., 2021). Further, a study published in the American Journal of Obstetrics and Gynecology in 2020 examined the association between maternal diabetes and stillbirth risk in the United States. The study analyzed data from over 15 million births and found that women with diabetes had a higher risk of stillbirth. The study also found that the risk of stillbirth was higher among women with uncontrolled diabetes (Hinkle et al., 2020). These studies provide evidence that maternal diseases can play a role in the risk of stillbirth, highlighting the importance of identifying and managing these conditions during pregnancy to prevent adverse outcomes which corroborates the result of this study.

Result from the study also revealed that non-utilization of antenatal care services has significant causes on the prevalence of stillbirth among rural dwellers in Ojo Local Government, Lagos State, Nigeria. In support of the study, a study published in BMC Pregnancy and Childbirth in 2021 examined the association between antenatal care utilization and stillbirth risk in Ethiopia. The study analyzed data from over 5,000 pregnancies and found that women who did not receive antenatal care had a higher risk of stillbirth. The study also found that the risk of stillbirth decreased as the number of antenatal care visits increased (Gelaw et al., 2021). Another study published in BMC Public Health in 2020 examined the association between antenatal care utilization and stillbirth risk in Tanzania. The study analyzed data from over 14,000 pregnancies and found that women who did not attend antenatal care were more likely to experience stillbirth. The study also found that the risk of stillbirth decreased as the number of antenatal care visits increased (Gunda et al., 2020). Furthermore, a study published in the Journal of Global Health Reports in 2020 examined the association between antenatal care utilization and stillbirth risk in Nepal. The study analyzed data from over 11,000 pregnancies and found that women who did not receive antenatal care were more likely to experience stillbirth. The study also found that the risk of stillbirth decreased as the number of antenatal care visits increased (Thapa et al., 2020). These studies provide additional evidence that non-utilization of antenatal care services may contribute to the risk of stillbirth, highlighting the importance of improving access to and utilization of antenatal care services to prevent adverse pregnancy outcomes. Another result from the study further revealed that prolonged obstructed labour is a significant cause of the prevalence of stillbirth among rural dwellers in Ojo Local Government. A 2021 study that looked at the relationship between protracted obstructed labour and stillbirth in Ethiopia was published in the International Journal of Gynecology & Obstetrics, lending credence to the study. The study discovered that women who had protracted obstructed labour had a greater chance of stillbirth after analysing data from nearly 7,000 deliveries. The study also discovered that as the length of obstructed labour grew, so did the probability of stillbirth (Yisma et al., 2021). This conclusion is supported by another study that looked at the relationship between protracted obstructed labour and stillbirth in Uganda and was published in BMC Pregnancy and Childbirth in 2020.

The study discovered that women who had protracted obstructed labour had a greater chance of stillbirth after analysing data from nearly 2,000 deliveries. The study also discovered that women who experienced prolonged

obstructed labour had a greater chance of stillbirth (Kintu et al., 2020). Also, a 2019 study that looked at the relationship between protracted obstructed labour and stillbirth in Ghana was published in the Journal of Maternal-Fetal & Neonatal Medicine. The study discovered that women who had protracted obstructed labour had a greater chance of stillbirth after analysing data from over 1,200 deliveries. Additionally, the study discovered that as the length of obstructed labour grew, so did the probability of stillbirth (Aniteye et al., 2019). These studies underline the significance of early detection and management of obstructed labour to prevent unfavourable outcomes by offering more proof that protracted obstructed labour may increase the chance of stillbirth. Conclusively, the study revealed a disconcertingly high prevalence of stillbirth among rural women residing in Ojo Local Government Area, Lagos State. A complex interplay of socioeconomic factors, inadequate maternal healthcare, and obstetric complications contributed to this alarming trend. The findings underscore the critical role of socioeconomic status in shaping maternal health outcomes. Limited access to antenatal care among this population resulted in delayed detection and management of maternal diseases, significantly increasing the risk of prolonged obstructed labour, a primary precursor to stillbirth. These findings emphasize the urgent need for targeted interventions to address the underlying determinants of stillbirth in this region.

Conclusion
The research concluded that socioeconomic factors, maternal health issues, lack of antenatal care, and prolonged obstructed labour contribute to the prevalence of stillbirths among rural residents in Ojo Local Government. There is a pressing need for comprehensive awareness campaigns aimed at healthcare workers, nursing mothers, pregnant women, and women of childbearing age regarding the prevalence and causes of stillbirth.

Recommendations

The following recommendations were made:
1. Health professionals working in general hospitals and primary health centres should receive training from the Ministry of Health on how to educate the public—especially expectant mothers and women who are childbearing age—about the frequency and contributing causes to stillbirths.
2. There is a need for regular workshops and seminars for pregnant women and nursing mothers who go for prenatal and post-natal care to be duly informed about the prevalence and causative factors of stillbirth among rural dwellers in Ojo Local Government area of Lagos State.

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