



ORIGINAL ARTICLE

**UNDERSTANDING THE DETERMINANTS OF STILLBIRTH IN RURAL SOUTH AFRICA: PERSPECTIVES FROM FRONTLINE MATERNAL HEALTHCARE PROVIDERS**

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**Abstract**

**Background.** Stillbirth remains a significant public health concern in South Africa, particularly in rural districts where maternal healthcare systems face critical challenges. Understanding the determinants of stillbirth from the perspectives of frontline healthcare providers is essential for improving pregnancy outcomes.

**Materials and methods.** This qualitative exploratory study was conducted in the Lejweleputswa District. In-depth interviews were carried out with midwives, professional nurses, and medical officers working in antenatal and obstetric care units. Thematic analysis was applied to the interview transcripts to identify key factors influencing stillbirth.

**Results.** Findings revealed a multifaceted interplay of socio-economic disparities, inadequate healthcare infrastructure, staff shortages, late antenatal booking, and systemic delays in emergency responses. Participants also noted the influence of traditional beliefs and patient non-compliance as indirect contributors to stillbirth risk.

**Conclusion.** The study highlights the need for a multidimensional framework that addresses both health system deficiencies and community-level barriers to reduce stillbirth rates and improve maternal health outcomes. These findings have important implications for policy development, targeted healthcare provider training, and the redesign of maternal health interventions in underserved rural regions.

**Keywords:** Economic, Lejweleputswa, Management, Maternal Healthcare, Public

## INTRODUCTION

Stillbirth remains a major public health problem in South Africa, with rates disproportionately high in rural areas where maternal health systems are underfunded and face critical constraints. Despite efforts to reduce perinatal mortality within the framework of the global Sustainable Development Goals, persistent socioeconomic inequalities, limited health infrastructure, staff shortages, and delayed access to emergency obstetric care continue to undermine maternal and fetal health outcomes<sup>1</sup>. In addition, the risk of stillbirth is increased by cultural beliefs and patient behaviors, including late prenatal booking and non-compliance with care recommendations. However, much of the available research focuses on clinical or population-level data, with little research on primary care providers' perspectives on stillbirth factors in rural areas. Understanding these lived experiences is crucial when designing contextual interventions. Therefore, this study aims to investigate and contextualize the key factors and risk factors that contribute to stillbirths as perceived by maternal health care providers in the Lejweleputswa region. The specific objectives are to identify the systemic, socio-economic and cultural factors that influence stillbirths, and to generate knowledge that can inform policy and programmatic strategies to reduce stillbirths in rural areas of South Africa.

Stillbirth the birth of a baby with no signs of life at or after 28 weeks of gestation remains one of the most devastating outcomes of pregnancy, with far-reaching emotional, psychological, and socio-economic consequences for affected families<sup>2</sup>. Globally, an estimated 2 million stillbirths occur each year, the majority of which are preventable and disproportionately concentrated in low- and middle-income countries (LMICs), particularly in sub-Saharan Africa and South Asia<sup>3</sup>. Despite being a key indicator of maternal and newborn health system performance, stillbirth has long been overlooked in public health discourse, receiving less attention and fewer resources than neonatal and maternal mortality. This neglect contributes to its persistence, even as global efforts under the

Sustainable Development Goals (SDGs) aim to reduce preventable perinatal deaths.

In South Africa, the burden of stillbirth continues to be a major challenge, with rural districts like Lejweleputswa reporting some of the highest rates in the country. Although national figures suggest a gradual decline, the progress has been uneven, with rural, impoverished communities facing persistent structural and systemic barriers to quality maternal healthcare<sup>4</sup>. These include inadequate antenatal care (ANC) access, delayed emergency obstetric responses, poor infrastructure, and shortages of skilled health personnel, and socio-cultural factors that discourage timely healthcare utilization. Women in these areas often present late for ANC, miss critical health screenings, and experience long waiting times or referral delays during labor and delivery—factors that significantly elevate the risk of stillbirth.

The problem is further compounded by high levels of socio-economic inequality, a legacy of apartheid-era spatial planning, and continued disparities in resource allocation between urban and rural health systems<sup>12</sup>. Health facilities in underserved districts often struggle with unreliable transport systems, insufficient equipment such as fetal monitoring devices, stock-outs of essential medications, and limited human resources—particularly midwives and obstetricians<sup>5</sup>. These deficits compromise the ability to provide effective, timely, and respectful maternal healthcare, especially during obstetric emergencies. In such contexts, preventable stillbirths occur not solely due to medical complications, but as a result of cumulative failures within the health system and broader socio-economic environment.

Despite these well-documented challenges, stillbirth has remained a relatively under-researched issue in South Africa, particularly from the perspective of healthcare providers working at the frontline of maternal and neonatal care<sup>16</sup>. Most existing studies like have focused on clinical data or population-based statistics, often overlooking the experiential knowledge and practical insights of midwives, nurses, and general practitioners who interact directly with pregnant women across the care continuum<sup>6</sup>. These providers hold critical perspectives on the multifaceted causes of stillbirth, the

systemic gaps within health facilities, and the behavioral patterns of healthcare users.

Against this backdrop, this study seeks to investigate the key determinants and risk factors contributing to stillbirth in the Lejweleputswa District, as perceived by maternal healthcare providers. Exploring their experiences and observations, the study aims to generate grounded insights that can inform context-specific interventions and policy reforms<sup>7</sup>. Understanding the lived realities of providers—those who navigate the intersection of clinical care, system constraints, and patient behavior—is vital to designing comprehensive strategies to reduce stillbirth and improve maternal health outcomes in rural South Africa.

### MATERIALS AND METHODS

A qualitative, exploratory design was adopted to capture the in-depth experiences and insights of healthcare providers regarding stillbirth determinants. The study was conducted in the Lejweleputswa District, Free State Province, South Africa<sup>8</sup>. Purposive sampling was used to recruit 32 healthcare professionals, including midwives, nurses, and general practitioners involved in maternal and neonatal services. Semi-structured interviews were conducted using a flexible interview guide, and data were recorded, transcribed, and analyzed using Braun and Clarke’s thematic analysis approach.

**Study Setting and Objects:** Participants comprised professional nurses and midwives working in public healthcare facilities within the Lejweleputswa District Municipality, an under-resourced rural area in South Africa. Inclusion criteria required participants to be registered professional nurses or midwives with at least two years of experience in maternal healthcare<sup>9</sup>. Additionally, local area managers and team leaders for Community Healthcare Workers (CHWs) involved in antenatal, intrapartum, and postnatal care services were included to provide comprehensive perspectives.

#### Study Area

This study is conducted in the Lejweleputswa District Municipality; The Lejweleputswa District Municipality is a Category C municipality situated in the north-western part of the Free State.

The district makes up almost a third of the province and consists of the following five local municipalities, with approximately 18 towns (Allanridge, Boshof, Bothaville, Brandfort, Bultfontein, Dealesville, Hennenman, Hertzogville, Hoopstad, Odendaalsrus, Soutpan, Theunissen, Ventersburg, Verkeerdevlei, Virginia, Welkom, Wesselsbron and Winburg) distributed throughout Masilonyana, Tokologo, Tswelopele, Matjhabeng, and Nala, (Municipalities of South Africa 2023). The Lejweleputswa District is located in the Free State Province of South Africa, covering a predominantly rural area with a population characterized by socio-economic challenges, including high unemployment rates and widespread poverty<sup>10</sup>. The district consists of several smaller towns and villages, with mining and agriculture forming the backbone of its economy. The healthcare system in Lejweleputswa, like many rural districts in South Africa, faces significant constraints, such as limited healthcare infrastructure, staffing shortages, and inadequate access to specialized maternal healthcare services.



**Fig.1** Lejweleputswa District Municipality

**Source:** Adopted from Lejweleputswa DM (2025)

#### Sample

The inclusion criteria for participants in this study were: being a registered professional nurse or midwife, having at least two years of experience in maternal healthcare,

local area managers, and Team leaders for Community Healthcare Workers, currently practicing in a public healthcare facility within the Lejweleputswa District. A purposive sampling method was used to recruit healthcare providers directly involved in antenatal, intrapartum, and postnatal care services <sup>11</sup>. Additional participants were identified through snowball sampling based on recommendations from initial respondents. No participants from tertiary or private healthcare facilities were included in the study due to inaccessibility and time constraints. All participants were provided with both written and verbal information about the study, and informed consent was obtained prior to participation in the interviews.

*Data Collection*

Thirty two professional nurses and midwives were interviewed between October and November 2024. All interviews were conducted face-to-face, using a semi-structured format and were of sufficient audio quality to be included in the study. All interviews were audio-recorded with consent, and verbatim transcriptions were produced from the recordings for subsequent thematic analysis.

Equipment and Standards of Observation: Interviews were conducted using audio-recording devices compliant with standard qualitative research protocols to ensure accurate capture of participant responses. Transcriptions were produced verbatim to maintain the fidelity of the data.

*Data Analysis*

Transcripts were analyzed using qualitative manifest content analysis. Following the approach outlined, the researchers initially read each transcript several times to gain a comprehensive understanding of the data. After familiarization, the text was examined in detail, and meaning units relevant to the research questions were identified. These meaning units were then condensed, abstracted, and labeled with appropriate codes <sup>12</sup>. The generated codes were reviewed and grouped into eight sub-categories, which were further organized into three main thematic categories reflecting perceptions on infrastructure, staffing, and service delivery in maternal healthcare. To

ensure trustworthiness, analyst triangulation was applied by involving a second coder during the analysis process. Additionally, an inquiry audit was conducted with the support of an external qualitative research expert to validate the coding structure and interpretation of findings.

**RESULTS**

In six main themes emerged from interviews with 32 participants (professional nurses and midwives). The detailed thematic structure, including the associated risk factors (sub-themes), is summarized in Table 1 as follows <sup>13</sup>.

**Table 1. Themes and Sub-themes of Stillbirth Determinants**

Theme	Sub-themes
Theme 1: Inadequate Access to Quality Maternal Healthcare Services	1.1 Late Booking and Unbooked Cases 1.2 Poor Antenatal Follow-up 1.3 Inaccessibility of Health
Theme 2: Socioeconomic Barriers	2.1 Poverty and Low Socioeconomic Status 2.2 Lack of Education
Theme 3: Health System Inefficiencies	3.1 Staff Shortages and Skills Deficit 3.2 Infrastructure and Equipment Deficits 3.3 Poor attitudes of staff
Theme 4: Medical and Obstetric Conditions	4.1 Hypertension and Preeclampsia 4.2 Infections 4.3 Chronic Illnesses (Diabetes, HIV, Obesity)
Theme 5: Maternal and Lifestyle Factors	5.1 Substance Abuse (Alcohol, Smoking, Drugs) 5.2 Maternal Age
Theme 6: Cultural and Behavioral Factors	6.1 Traditional Beliefs and Herbal Remedies 6.2 Behavioral Delays in Seeking Care

- Total Participants: 32 maternal healthcare providers
- Total Risk Factors (Sub-themes): 15 across 6 broad themes

This table encapsulates the breadth of determinants influencing stillbirth risk identified during interviews with participants in rural South Africa.

## Theme 1: Inadequate Access to Quality Maternal Healthcare Services

Many participants cited challenges in accessing healthcare services. Late booking, poor antenatal follow-up, and poor attitudes of staff were commonly reported.

### Sub-theme 1.1: Late Booking and Unbooked Cases

Many participants noted that women often book late or not at all for antenatal care (ANC), limiting opportunities to identify and manage complications early in pregnancy.

“Late bookings for antenatal care by pregnant women.” (Participant 1)

“Unbooked antenatal cases.” (Participant 1)

“Unbooked cases.” (Participant 27)

Late booking and unbooked pregnancies hinder timely interventions for conditions such as preeclampsia, infections, and fetal growth abnormalities<sup>14</sup>. It is found that unbooked pregnancies in South Africa are associated with a threefold increase in the risk of stillbirth. These findings highlight systemic barriers to maternal care access, including limited health literacy and facility accessibility.

### Sub-theme 1.2: Poor Antenatal Follow-up

Lack of consistent antenatal follow-up increases the risk of undetected complications that could result in stillbirth.

“Poor antenatal follow-up.” (Participant 10)

“Poor adherence for patients on Rx (e.g., HTP Rx).” (Participant 23)

It stresses the importance of consistent ANC to monitor fetal growth, detect abnormalities, and manage maternal conditions like hypertension. When follow-up is poor, warning signs go unnoticed, leading to adverse outcomes.

### Sub-theme 1.3: Inaccessibility of Health Services

Structural challenges such as broken medical equipment, and lack of transport disincentivize women from accessing care.

“Inaccessibility of delivery site due to unavailability of EMS cars.” (Participant 9)

“Sonar broken now and then.” (Participant 15)

These barriers reflect broader health system deficits in rural South Africa. It is argued that resource availability and respectful care are essential components of quality maternal health services. Poor staff attitudes further alienate patients, contributing to underutilization of ANC services.

## Theme 2: Socioeconomic Barriers

Participants described how poverty and lack of education delays their ability to seek timely healthcare.

### Sub-theme 2.1: Poverty and Low Socioeconomic Status

Poverty reduces women’s ability to access transportation, nutritious food, and timely healthcare, all of which are critical for safe pregnancies.

“Poverty.” (Participant 32)

“Low socio-economic status whereby women from low-income backgrounds have limited access to quality healthcare.” (Participant 6)

It is found that women in low-income settings are disproportionately affected by maternal and fetal complications due to limited access to services. Financial insecurity results in delayed care and compromises maternal nutrition, increasing the risk of stillbirth.

### Sub-theme 2.2: Lack of Education

Limited awareness of pregnancy risks and danger signs delays help-seeking behavior, contributing to poor pregnancy outcomes.

“Lack of education amongst pregnant women.” (Participant 1)

“Lack of education to pregnant clients about factors that can lead to stillbirth.” (Participant 22)

In emphasize the role of maternal education in reducing stillbirths. Women who are unaware of ANC importance or symptoms of complications are less likely to seek timely care.

### Theme 3: Health System Inefficiencies

Many women expressed dissatisfaction with the healthcare system due to staff shortages, infrastructure and equipment deficits, and poor attitudes of health professionals.

#### Sub-theme 3.1: Staff Shortages and Skills Deficit

Shortages of trained personnel compromise the ability to manage pregnancy complications effectively.

“Shortage of skilled professionals at antenatal facilities as well as delivering sites.” (Participant 1)

“Skills shortage of midwifery.” (Participant 20)

Studies show a direct link between healthcare workforce shortages and poor maternal outcomes. In found that the presence of skilled birth attendants significantly reduces stillbirth rates<sup>15</sup>. In Lejweleputswa, a critical midwifery shortage limits safe delivery and monitoring services.

#### Sub-theme 3.2: Infrastructure and Equipment Deficits

Breakdowns in essential infrastructure and transport contribute to missed diagnoses and delayed care for high-risk pregnancies.

“Sonar broken now and then.” (Participant 15)

“Inaccessibility of delivery site due to unavailability of EMS cars.” (Participant 9)

In argue that quality maternal care relies on diagnostic tools and emergency transport. Poor infrastructure, especially in rural districts, results in avoidable stillbirths due to late referrals and undetected fetal distress.

#### Sub-theme 3.3: Poor Staff Attitudes

Several participants indicated that negative attitudes among healthcare providers discourage pregnant women from seeking necessary medical care, leading to delayed interventions and increased risks of stillbirth.

“Staff attitude is also a contributing factor that leads to patients opting to book late for antenatal care.” (Participant 1)

Attitudes and behavior of healthcare providers are key in reducing the stillbirth rate. Poor attitudes and behavior make clients not visit clinics.” (Participant 4)

“Our clients regard our clinics as a nuisance. The sooner they finish, the better. That’s why they book for maternal care so late.” (Participant 22)

“Bad attitude of healthcare providers undermines the culture of safety within the clinic or hospital.” (Participant 32)

When healthcare workers exhibit unwelcoming behaviors, patients may perceive healthcare facilities as hostile, resulting in poor engagement with ANC services. In found that mistreatment by healthcare workers, including neglect, rudeness, and dismissiveness, discourages pregnant women from seeking timely medical assistance. To mitigate this, interventions such as compassionate care training and workplace accountability measures should be implemented to address poor provider attitudes<sup>16</sup>. In suggest that policies ensuring respectful maternity care can significantly improve maternal health outcomes and encourage healthcare utilization.

### Theme 4: Medical and Obstetric Conditions

Participants and healthcare workers identified pre-existing medical conditions and pregnancy-related complications as common causes.

#### Sub-theme 4.1: Hypertension and Preeclampsia

Hypertension and preeclampsia are major contributors to adverse pregnancy outcomes, including stillbirths. Preeclampsia is associated with placental insufficiency, fetal growth restriction (FGR), and increased perinatal mortality<sup>17</sup>. Participants in this study emphasized that poor management of hypertension during pregnancy leads to fetal distress and stillbirth, a finding consistent with research showing that undiagnosed or untreated hypertensive disorders increase the risk of intrauterine fetal demise.

Hypertension, including pregnancy-induced hypertension (PIH) and preeclampsia, was identified as a leading cause of stillbirths. Poor management of these conditions was frequently noted.

“Poor management of hypertension in pregnancy when the client has booked before 20 weeks.” (Participant 7)

“Hypertension disorder of pregnancy.” (Participant 10)

Hypertension leads to placental insufficiency and fetal growth restriction, increasing stillbirth risk. This is especially dangerous in under-resourced settings where follow-up is irregular.

#### Sub-theme 4.2: Infections

Infections, including maternal, placental, and fetal infections, were identified as contributing factors to stillbirth.

“Fetal infection or placental infection.” (Participant 5)

“Unexplained infection.” (Participant 19)

Infections such as syphilis, malaria, and bacterial vaginosis are known causes of stillbirth, especially in low-resource settings.

#### Sub-theme 4.3: Chronic Illnesses (Diabetes, HIV, Obesity)

Chronic diseases in pregnancy, especially when unmanaged, increase stillbirth risk due to complications like fetal hypoxia and placental failure.

“Clinical and medical-related conditions such as hypertension/diabetes mellitus.” (Participant 1)

“HIV with low CD4 count.” (Participant 32)

In emphasize that maternal HIV and diabetes require close monitoring. In rural areas, lack of chronic disease management services increases stillbirth risk.

#### Theme 5: Maternal and Lifestyle Factors

Maternal factors such as maternal age and lifestyle factors like alcohol abused were identified as a determinant to stillbirths.

#### Sub-theme 5.1: Substance Abuse (Alcohol, Smoking, Drugs)

Substance abuse, particularly alcohol consumption and smoking during pregnancy,

emerged as a significant risk factor. Research has shown that alcohol consumption during pregnancy is linked to fetal alcohol syndrome and intrauterine growth restriction (IUGR), both of which increase stillbirth risks<sup>18</sup>. Smoking has been found to cause placental abnormalities and fetal hypoxia, leading to increased perinatal mortality.

"Abuse of alcohol during pregnancy." (Participant 3)

"Smoking during pregnancy." (Participant 6)

"Substance abuse including alcohol." (Participant 24)

#### Sub-theme 5.2: Maternal Age

Both advanced maternal age (>35 years) and teenage pregnancies (<20 years) were identified as risk factors for stillbirths. Studies have shown that advanced maternal age is associated with an increased risk of chromosomal abnormalities, preeclampsia, and gestational diabetes, all of which contribute to fetal demise<sup>19</sup>. Teenage pregnancies, on the other hand, are linked to higher risks of cephalopelvic disproportion (CPD) and preterm labor, which increase perinatal mortality.

"Maternal age less than 16 and older than 37." (Participant 25)

"Maternal age falling pregnant above 35 years." (Participant 29)

#### Theme 6: Cultural and Behavioral Factors

Some participants held beliefs or lacked knowledge that delayed their decision to seek care.

#### Sub-theme 6.1: Traditional Beliefs and Herbal Remedies

Traditional medicine is sometimes used in place of medical care, leading to complications like uterine rupture and fetal distress.

“Cultural beliefs, e.g., using muti concoctions to accelerate the progress of labor.” (Participant 1)

In report that herbal remedies are often unregulated and potentially dangerous during pregnancy. These practices are common in areas with limited access to health education.

## Sub-theme 5.2: Behavioral Delays in Seeking Care

Some women ignore or delay responding to danger signs, reducing the chances of timely interventions.

“Pregnant women reacting late on danger signs in pregnancy.” (Participant 4)

“Antenatal clients not cooperative in maternal ward.” (Participant 22)

In highlight that behavioral factors, such as denial or fear, delay care-seeking and lead to adverse outcomes. This underscores the need for community-level education on recognizing pregnancy danger signs.

## DISCUSSION

The visual representation provided by the word cloud offers valuable insight into the dominant themes emerging from the dataset concerning maternal healthcare and stillbirth prevention<sup>20</sup>. The frequent appearance of core terms such as "maternal healthcare," "antenatal care," "services," and "care" reflects a strong thematic emphasis on improving both access to and the quality of antenatal services as a critical intervention to reduce stillbirths in rural settings.

A key finding relates to the shortage of trained healthcare professionals, especially midwives and skilled birth attendants. The recurring words "staffing," "training," "staff," and "skilled" underscore the challenges associated with human resource capacity in maternal healthcare. These challenges are particularly pronounced in resource-constrained settings like the Lejweleputswa District, where healthcare workers often operate under intense pressure due to high patient volumes and limited support. This aligns with broader literature indicating that shortages in skilled personnel can significantly compromise care quality and delay timely interventions, ultimately increasing the risk of adverse maternal and fetal outcomes.

Additionally, economic and financial barriers are revealed as major impediments to effective maternal care. The prevalence of terms such as "economic," "income," "funding," and "financial" points to the need for greater investment in maternal health services. Financial constraints not only affect the operational capacity of healthcare

facilities but also limit pregnant women's ability to access care, particularly when transport costs and user fees are considered. These findings support existing research that links socio-economic disadvantage with reduced antenatal care utilization and poor pregnancy outcomes.

Infrastructure and equipment limitations also emerged as prominent concerns. Words like "facilities," "resources," "equipment," and "availability" suggest that many healthcare centers struggle with inadequate and poorly maintained physical resources. This can significantly hinder effective service delivery, especially in emergency obstetric situations where time-sensitive interventions are crucial. Improving facility conditions and ensuring the availability of essential equipment must, therefore, be a key priority in strengthening maternal healthcare systems.

Beyond the healthcare setting, the word cloud emphasizes the role of community involvement and education. The frequent mention of terms such as "community," "education," "knowledge," and "awareness" highlights the importance of information dissemination and capacity-building among both healthcare providers and community members.

Educating pregnant women on early antenatal care initiation, warning signs during pregnancy, and birth preparedness can empower them to make informed decisions that improve maternal and neonatal outcomes.

Finally, the discussion is rounded out by the focus on risk assessment and prevention strategies. Words like "risk," "factors," "high," and "rate" reflect ongoing efforts within healthcare systems to identify and address the underlying causes of stillbirths. Targeted risk stratification, combined with context-specific interventions, could help reduce stillbirth rates and improve maternal health outcomes, particularly in high-burden rural districts.

## CONCLUSION

This study highlights that stillbirth in rural South Africa is driven by systemic issues including healthcare staff

shortages, inadequate infrastructure, socio-economic barriers, and cultural factors affecting care-seeking. Central to prevention is improving antenatal care quality and accessibility through workforce strengthening, enhanced infrastructure, and community education. A multifaceted framework integrating health system strengthening, culturally sensitive outreach, and targeted interventions for high-risk groups is essential. Addressing both medical and socio-structural determinants can reduce stillbirth rates and improve maternal and neonatal outcomes in resource-constrained rural districts like Lejweleputswa.

## DECLARATIONS

### FUNDING

None.

### ETHICAL CONSIDERATION

Approval of the study was obtained from the Durban University of Technology-Institutional Research Ethics Committee (ref. no. IREC 056/24), gatekeeper's approval was obtained from Free State Department of Health, and participants provided informed consent.

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