Reasons and contributing factors for low health facility delivery in Bor, South Sudan

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ABSTRACT

Introduction: South Sudan has one of the highest maternal mortality ratios globally, at 692 deaths per 100,000 live births in 2023. The key contributors include infection, haemorrhage, and obstructed labour. Delivery in a health facility attended by skilled birth attendants can reduce the high maternal mortality. This study investigated the reasons for the low health facility delivery in Bor town in South Sudan.

Method: Qualitative and quantitative methods were used. Data were collected using a structured questionnaire designed to capture socio-demographic characteristics and other relevant data. Key informant interview data were transcribed, coded, and thematically analyzed to extract key themes and patterns.

Results: Of the 70 participants enrolled, 90% had given birth, with the majority delivering in non-health facilities (60.3%). The primary reasons for not giving birth at a health facility include the distance or transportation issues (65.8%), facility closure at the time of delivery (21%), and financial constraints (13.2%). Some of the proposed solutions for better services include food for patients, establishing more facilities near the communities, and employing more SBA.

Conclusion: Despite the commitment made by the Ministry of Health and its partners to reduce maternal mortality by three-quarters in 2015, deaths of women during labour remain a significant problem. Collaboration among various stakeholders is key to addressing this trend.

Keywords: maternal health, facility delivery, maternal mortality, South Sudan

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Introduction

South Sudan has one of the highest maternal mortality ratios globally at 692 deaths per 100,000 live births in 2023.[1] Key contributors include infection, haemorrhage, and obstructed labour. Delivery in a health facility attended by skilled birth attendants (SBAs) can reduce the high maternal mortality. Poor perception of childbirth risks and entrenched social norms have hindered the use of SBAs and the overall health facility delivery rates among mothers in the region.

Efforts led by organisations such as USAID, UNICEF, and the UK's Foreign,

Commonwealth and Development Office have fostered significant advances over the past decade.[2,3] The proportion of mothers delivering in health facilities has increased from 16.2% to 41.8%, alongside a rise in deliveries attended by skilled health personnel from 22.1%to 39.8% between 2011 and 2020.[2] These improvements stand in stark contrast to the ongoing dire circumstances for mothers and children in South Sudan. Contributing factors include low female literacy rates, high instances of gender-based violence, and limited access to quality healthcare.[3] It is imperative that every mother and child not only survive but also thrive in this challenging environment.[4,5,6]

The primary objective of this study is to examine the reasons for low health facility delivery for women of reproductive age in Bor Town and its surrounding villages, identify barriers that restrict access to skilled care, and propose strategies to increase health facility deliveries.

Method

This research employed qualitative and quantitative methodologies. It was conducted in five residential areas within Bor: Total, Langbaar, Tharagok, Pakuau, and Kondai. These were selected due to their rural characteristics and population density, representing the demographics of the five Payams in Bor County. As of 2010, it was estimated that there were approximately 27,314 women of childbearing age in this area. Quantitative data were collected using a structured questionnaire designed to capture socio-demographic characteristics and other relevant data.

A sample size of 139 was calculated using the Kish Leslie formula. However, considering the limited budget, time, and resources, the sample size was adjusted to 70. Questionnaires were distributed randomly among women of various reproductive ages in the selected areas. Data was analysed using SPSS software.

In-depth interviews were conducted with key informants to explore their perspectives on the barriers and identify possible solutions. Qualitative data were transcribed, coded, and thematically analyzed to extract key themes and patterns.

All participants provided informed consent.

Results

The majority (80.0%) were married (polygamous or monogamous), signalling enrolment of a population with significant birth experiences; 15.7% were widowed while only 4.3% were never married.

A significant portion of the participants (71.4%) had no formal education, while smaller proportions had attained primary (20.0%), secondary (7.1%), and university (1.4%) levels of education.

Most (90.0%, n=63) (Table 2) of the respondents reported having given birth before, indicating prior experiences that could influence their current birthing decisions. In contrast, only 10.0% (n=7) had not given birth. Additionally, a high proportion of deliveries took place outside of health facilities, with 39.7% (n=25) of women delivering at health facilities compared to 60.3% (n=38) who delivered in non-health facilities.

Among those who delivered outside of health facilities, accessibility emerged as the main reason cited by 65.8%

Table 1. Population demographic characteristics (N=70)

Characteristics		n (%)
Age (years)	15-19	5(7.1
	20-24	15(21.4)
	25-29	11(15.7)
	30-34	9(12.9)
	35-39	11(15.7)
	40-44	3(5.7)
	45-49	3(4.3)
	50 and over	12(17.1)
Marital status	Single	3(4.3)
	Married	56(80.0)
	Widowed	11(15.7)
Educational level	None	50(71.4)
	Primary	14(20.0)
	Secondary	5(7.1)
	Tertiary	1(1.4)
Occupation	Farming	30(42.9)
	Housewife	28(40.0)
	Business	7(10.0)
	Military service	2(2.9)
	Professional skills	2(2.9)
	Other occupations	1(1.4)

Table 2. Relation between women's past birth experiences and their decision on delivery options (N=70)

Past birth experience		n (%)
Having given birth before	Yes	63(90.0)
	No	7(10.0)
Delivery location if delivered previously	Health facility	25(39.7)
	Non-health facility	38(60.3)
Reason for non-health facility delivery if delivered previously	Accessibility	25(65.8)
	Hospital closure	8(21.0)
	Financial constraints	5(13.2)
Belief in culture that promotes non health facility delivery	Yes	8(11.4)
	No	62(88.6)
Relationship between health-care provider and women of childbearing age	Very Good	24(34.3)
	Good	25(35.7)
	Not Good	21(30.0)
Risk associated with non-health facility delivery	Infections	31(47.7)
	Newborn problem	3(4.6)
	Bleeding	20(30.8)
	Obstetric labour	11(16.9)

Table 3. Suggested solutions to increase delivery in a health facility (N=70)

Solutions	n (%)
Removal of delivery fees	4(5.7)
Training of TBAs & health education programs	3(4.3)
Establishment of more health facilities	11(15.7)
Need for mobile health facilities (HFs)	2(2.9)
Opening or rehabilitation of roads in rural areas	7(10.0)
Better services at HFs: more medicines, feedings for patients, sanitation and hygiene	19(27.1)
Employ more health workers and motivate them well	7(10.0)
Peace, security, and development	5(7.1)
More screening services	3(4.3)
Establish blood banks	3(4.3)
Better attention at HFs	1(1.4)
Provide women with grants or loans to start micro-businesses	2(2.9)
Establish free hotlines for expectant mothers to seek obstetric care	2(2.9)
Stop early and forced marriages	1(1.4)

(n=25). Other factors included hospital closure reported by 21.0% (n=8) and financial constraints mentioned by 13.2% (n=5).

The data revealed that cultural beliefs play a minimal role in hindering health facility deliveries, with only 11.4% (n=8) of respondents affirming a cultural belief that promotes non-health facility delivery.

The quality of the relationship between health care providers and women of, and above, childbearing age varied. Responses indicated that 35.7% (n=25) rated their relationship as good, 34.3% (n=24) as very good, while 30.0% (n=21) described it as not good, affecting women's willingness to seek care at health facilities.

Participants identified various negative health outcomes linked to non-health facility deliveries, with infections cited as the most common concern by 47.7% (n=31). Other reported outcomes included bleeding (30.8%, n=20), obstetric labour complications (16.9%, n=11), and newborn problems (4.6%, n=3).

Most, 63 (90%) of the respondents, said that they were willing to participate in awareness campaigns or programmes to promote health facility delivery. The small number not willing to participate cited older age or being too busy.

Respondents suggested a variety of solutions for increasing health facility delivery (Table 3).

Discussion

Our cohort was predominantly young. Almost a fifth (17.1%) were aged 50 and above, suggesting varied reproductive experiences. Age distribution of the participants influenced their utilisation of health facility delivery services and subsequent maternal and neonatal outcomes.

A study in sub-Sahara Africa among reproductive-age women showed that probability of health facility delivery declined with increasing age, with women aged 20-24 years commonly delivering at health facilities (67.9%).[7] Marital status influenced decision-making around seeking healthcare services, as well as the potential impact of

social and familial dynamics on maternal and neonatal outcomes. Women's choice of health facility delivery relies partly on permission being granted by their partners.[7] A concerning 71.4% had no formal education, which likely influenced health-seeking behaviours. Education level impacts the understanding of maternal and neonatal health issues, and ability to navigate healthcare systems and make informed decisions.

These findings align with previous studies putting illiteracy rates among the adult South Sudanese population at 65% with enrolment at primary, secondary, and university levels of education alarmingly low.[8] The probability of delivering at a health facility increases with a higher level of education.[9]

Alarmingly, 60.3% of women reported delivering outside health facilities. This is similar to a value from Chad at 77%.[7] According to the World Health Organization, Chad and South Sudan are the most dangerous places for a woman to give birth in sub-Saharan Africa.[10] In a 2007 South Sudan household survey, most births (81%) occurred at home, with only 11.5% of deliveries taking place at health facilities.[3]

The low utilisation of a health facility for delivery is a trend linked to a lack of access due to distance or transportation issues (65.8%), facility closure at the time of delivery (21%), and financial constraints (13.2%). These factors can lead to a preference for home births or deliveries in traditional birth attendants' care, which are often cheaper alternatives.[10] Another report in sub-Sahara Africa found that women who did not have a major problem, in terms of the distance to the health facility (72.9%) and financial difficulties for treatment (71.9%), often preferred a health facility delivery.[7]

A large proportion of women (60.3%) delivered in non-health facilities, indicating a need to address accessibility and quality of health services. Non-health facility deliveries pose serious risks, as the majority of respondents pointed to infections (47.7%) and other complications such as bleeding (30.8%) as significant concerns. Findings from a Kenyan study emphasized the necessity for health facilities to be properly equipped for emergency obstetric care.[9] Without such infrastructure, the reduction of maternal mortality rates remains elusive.

Additionally, the quality of relationships between healthcare providers and women is a crucial determinant of delivery location. In this study, only 35.7% of respondents reported having a "good" relationship with healthcare providers, while 30% rated the relationship as "not good". This highlights the importance and impact of healthcare provider attitudes on women's willingness to seek institutional care. A WHO study[10] found that women are often deterred from seeking care due to fear of abuse or medicalization. A supportive and respectful approach can alter this perception and encourage women to seek professional assistance during childbirth.[10]

The most frequently suggested strategy (27.1% - see Table 3) is better services at health facilities, including more medicines, improved sanitation, and nutrition. This finding suggests that women are not simply resistant to facility births; rather, they face tangible structural barriers that compel them to seek alternatives. Health facilities must not only be accessible but must also provide a satisfactory level of care to attract expectant mothers.

The findings also indicate a demand for the establishment of more health facilities (15.7%). This is supported by a study indicating that community mobilisation and reduced health costs are essential for enhancing facility deliveries.[7] As evidenced by the current study, women are eager for systemic changes that will facilitate their access to safe and effective maternal healthcare.

The data reveal that other crucial factors, such as economic considerations, contribute significantly to a woman's decision-making process regarding where to deliver. With 42.9% of respondents identifying farming as their occupation and 40% being housewives, the financial burden associated with healthcare can be a barrier to accessing obstetric services. Grants or loans for micro-businesses may improve women's economic status and contribute indirectly to better maternal health outcomes.

The need for mobile health facilities (2.9%), Table 3) and road improvements in rural areas (10.0%, Table 3) underscores the geographical accessibility issues that many women face. In line with a 2016 study, the introduction of antenatal services can play a crucial role in bridging the gap between women and healthcare providers, thereby increasing the likelihood of professional assistance during childbirth.[10]

A minority (11.4%) of participants reported that they were influenced by cultural beliefs or practices. A specific example is "Cuier" namely the belief that touching the blood of a woman who has miscarried could lead to miscarriage by the person who touched the blood. Cultural beliefs and practices are widely recognised as a hinderance to a woman's choice of health facility for delivery.

Most of the pregnant women reported having a good

or very good relationship with healthcare providers, suggesting a supportive healthcare environment for maternal care in Bor. The healthcare environment influences a woman's choice of a delivery location. It was found that some women preferred home delivery using Traditional Birth Attendants (TBAs) because TBAs were considered as being more friendly and caring than skilled birth attendants (SBAs).[7]

Further research in other counties or states could explore the reasons and impact of low health facility delivery, highlighting differences that could inform the development of targeted interventions.[11] By addressing these areas, the Ministry of Health can gain valuable insights to improve maternal and neonatal outcomes among reproductive age women in low health facility delivery settings.

Conclusion

The findings from Bor reflect one of the lowest rates of health facility deliveries in South Sudan, contributing to a high maternal and neonatal morbidity and mortality. This crisis necessitates a collaborative approach involving community education, active engagement of healthcare workers, and supportive policy-making to promote facility-based deliveries. By implementing comprehensive strategies focused on education and cultural transformation, South Sudan can make significant strides toward reducing maternal morbidity and mortality and improving overall health outcomes for women.

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