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Original Article

Predictors of Pre-Term Births Among Women Delivering at Migori County Referral Hospital, Migori, Kenya

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ABSTRACT

Introduction: Preterm birth is defined as babies born before 37 completed weeks of pregnancy or fewer than 259 days since the first day of a woman's last menstrual period. Globally, approximately 15 million children are born pre-term, and the WHO has estimated a global pre-term prevalence of between 4-16%. In 2020 it is estimated that more than one million neonates died due to complications of preterm birth and millions more survived with lifelong disabilities. Sub-Saharan Africa (SSA) and Southern Asia account for 60% of pre-term birth prevalence, and most of these countries lack reliable data on the burden and predictors of pre-term birth. This study investigated the prevalence and predictors of pre-term birth at Migori County Referral Hospital (MCRH) in Kenya. **Method:** This was a cross-sectional study conducted in MCRH where a systematic sampling method was used to enrol 692 mothers who delivered at the hospital between April and June 2023. Hospital records were reviewed, and an online semi-structured questionnaire was used to collect maternal, fetal and institutional characteristics. The prevalence of preterm births was calculated, and binary logistic regression was performed to identify the predictors of preterm births. 95% CI and P-values <0.05 were used to identify significant predictors of preterm birth. **Results:** The prevalence of preterm births was found to be 15.4%. Previous history of preterm births (AOR 2.5, 1.2-5.4), and syphilis in pregnancy (AOR 6.3, 1.5-2.7) were significant predictors of preterm births. Attending ANC was found to be a protective factor against preterm births by 87% (AOR = 0.13 (0.02– 0.71), p = 0.018). **Conclusion:** The prevalence of preterm births at MCRH was high, underscoring the significance of addressing this issue within the community. History of preterm births and syphilis were predictors of preterm births. ANC attendance was identified as a protective factor against preterm birth.

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INTRODUCTION

Pre-term birth (PTB) is defined by the World Health Organization (WHO) as births occurring before 37 weeks of gestation or fewer than 259 days since the first day of a woman's last menstrual period. [1].Approximately 13.4 million babies were born pre-term in 2020. That is more than 1in 10 babies [2.] WHO has estimated a global prevalence of 4-16% [2]. The majority of preterm babies are born in Asia and SSA[3]. PTB is a significant factor in neonatal mortality, in 2020 it is estimated that more than one million neonates died due to complications of preterm birth and one million more survived with lifelong disabilities [3]. Preterm birth is still a major global problem, with 60% of preterm births occurring in sub-Saharan Africa and South Asia [4].12% of babies born in the SSA and South Asian countries are premature, compared with 9% in higher-income countries [5]. Complications associated with preterm births remain the leading cause of neonatal death[6.] Globally rates of preterm births are still increasing in many countries.

Complications associated with pre-term births are considered one of the significant determinants for neonatal deaths. Pre-term babies suffer from conditions like neonatal jaundice, sepsis, feeding difficulties, anaemia of prematurity, retinopathy of prematurity, respiratory distress syndrome (RDS) and necrotizing enterocolitis NEC [7]. Such infants may also experience long-term complications such as chronic lung disease, vision and hearing loss, intellectual impairment and cerebral palsy. These conditions exert a high toll on the neonates, their families and their communities. Pre-term births come with significant cost implications because of preliminary hospital stay, neonatal intensive care and long-term, multifaceted health requirements prompted by the subsequent incapacities [8]**.** Complications as a result of prematurity are still the leading causes of under 5 deaths globally accounting for 15% of all deaths and about 35% of all neonatal deaths. Most admissions in neonatal intensive care units are preterm babies.

In low-income countries, preterm birth accounts for more than 60% of all births. Global preterm prevalence rates are still increasing, despite having a challenge in determining trends of preterm birth in the majority of LMIC due to inaccurate data [9]**.** SSA countries have high preterm rates 10.4% in Ethiopia [6] .23.7% in Nigeria [10] and 16.3% in Malawi [11]. The prevalence rate of preterm birth in Kenya is 18.3% [8]. There is a high rate of infant and neonatal mortality in Kenya with 41 and 21 deaths per 1000 live births respectively [12]. Complications of preterm birth are the leading cause of these deaths. In the Nyanza region, the preterm prevalence rate is 11.3%.

The complications as a result of a baby being born preterm result in major costs to the health sector in terms of providing quality care to the preterm. These costs also strain the parents and society at

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large. The ability to predict and prevent preterm birth is a major healthcare priority [13]. Global efforts to meet sustainable development goal 3 target 3.2 by 2030 demand urgent action to address preterm birth. However, it is a complex multifactorial process associated with diverse pathogenic mechanisms and the prevalence of preterm delivery is one of the strongest predictors of neonatal mortality in most countries. During the neonatal period, preterm babies are at a higher risk of serious illness or death. Those who survive preterm delivery without proper care are at great risk of chronic impairment and poor quality of life [14]**.**

Studies conducted regionally and globally indicate that there are many predictors of preterm birth, and these predictors can be categorized into 3. The first category is maternal social demographic factors where predictors in this category are maternal age, maternal education, tobacco smoking, alcohol intake, gender-based violence, maternal income and marital status. In the maternal obstetric predictors' category preterm birth can occur because of antepartum haemorrhage, pregnancy-induced hypertension, premature rupture of membranes, previous history of preterm birth, infections, and anaemia among other predictors. Under the health-related factors, the following have been documented to play a part in the preterm birth, distance to the hospital, quality of service at the health facility during antenatal contacts and presence or absence of effective referral mechanism from the community [15,16].

Therefore, PTB remains an important public health problem globally. Majority of low-income countries, Kenya included, less emphasis is given to PTB intervention to reduce both neonatal and infant mortality. Healthcare workers and other key healthcare stakeholders need data related to predictors of preterm birth so that they can develop interventions to reduce the prevalence and manage babies born preterm. In Kenya the studies conducted about the predictors of preterm birth were minimal. Although few studies have been done in some regions in Kenya the magnitude and possible risk factors of PTB vary by area. Several methodological issues are addressed in our study such as having a bigger sample size and sampling technique, that were not used in previous studies. Most studies focused on prevalence rather than predictors of PTB. Determining PTB prevalence and related predictors will guide key health stakeholders and policymakers to develop indicators for monitoring preterm birth strategy and applying necessary preventive and appropriate measures to decrease preterm birth. Therefore, the key objective of this study was to determine the prevalence and associated predictors of preterm birth.

MATERIALS AND METHODS

Study design

This was a hospital-based cross-sectional study design that was conducted using an interviewer-administered Semi-structured questionnaire. Additional information was obtained from the medical records of the mothers and babies. The study was conducted over three months between April to June 2023 at Migori County Referral Hospital (MCRH). This design is useful to comprehensively analyze predictors associated with PTB [17].

Study setting

The study was conducted at Migori County Referral Hospital (MCRH) in Kenya. The hospital is the largest public level of care hospital in Migori County, Kenya providing maternal and child health care services. It has a catchment population of 6,436. Administratively, the county has ten sub-counties. Each sub-county has community units linked to community health volunteers that create demand for hospital MNH services at the household level. The hospital serves the Migori municipality catchment population of 1,160 pregnant women. and receives all emergency obstetrics referrals from all the ten Sub-County hospitals within Migori County.

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Study Participants

All mothers who gave birth at Migori County referral hospital between April and June 2023

were our study population. Mothers who were deaf and those who delivered on their way to the hospital (Born before arrival) were excluded from this study.

Sampling Technique and Sample Size Calculation

The researchers used a systematic sampling technique in this study. The sample was arranged based on the average deliveries in the facility three months before the data collection period by referring to the hospital's maternity delivery register and monthly delivery summary records. To calculate K, the summation of the three-month delivery report for the hospital was 1250.Then K=N/n, 1250/690=1.8≈2. Where k=interval, N=total population, n=sample size. Every second the mother was interviewed, the gestational age of the newborn was calculated based on the mother's LNMP, ultrasound result or where the two were missing we used finnistrom scoring chart.

The study sample was calculated using the Fishers formula where n=Z2pq/d2 where n=the desired sample size, Z=standard normal deviation corresponds to 95% confidence interval (1.96), p=proportion of pre-term birth at 11% in Kenya (KDHS 2015), q=1-p, and d=the desired level of accuracy set at 0.025 an adjustment of 15% of sample size was made to mitigate attrition and non-response. The final total sample size was 692. Once the mother had delivered her baby, she was selected to participate in the study at every two intervals using a systematic sampling technique

Data collection and analysis

Eligible mothers were informed about the study and requested to participate by giving informed consent. Data collection was done by administering a detailed electronic semi-structured questionnaire measuring anthropometrics, and their babies were examined for gestational age using an obstetric wheel (LMP) and ultrasound results. Where the two were missing Finnstrom scoring chart was used to determine gestational age. Two research assistants were trained by the primary investigator as research assistants using a pretested semi-structured questionnaire developed from previous studies on PTB in low and middle-income countries. Data collection tools were pretested at Awendo Sub-County Hospital to ensure clarity, validity, and reliability. Validity was ensured through translation into Swahili and back-translated to English.

Data collected was downloaded in Microsoft Excel, cleaned, and stored on a password-protected laptop by the principal investigator. Statistical analysis was done in SPSS version 28 statistical software. The primary outcome was pre-term birth, while the independent variables were maternal sociodemographic, obstetric factors, health facility-related predictors of preterm birth and preterm prevalence. Data analysis was done using R 4.1.3. The data was presented using graphs and frequency tables. Predictors of preterm birth were determined using binary logistic regression. The research team used both bivariate and multivariate analysis. In the bivariable analysis, independent variables with a p-value of less than 0.05 were put on the multivariable analysis. An adjusted odds ratio with a 95% confidence level was used to examine the degree of relationship between independent and dependent variables, and variables with a p-value of 0.05 were considered statistically significant.

This research was approved by the JKUAT Postgraduate Board (Ref: JKU/10/01/051), Masinde Muliro University Research Ethics Committee (Ref: MMU/COR:403012Vol 6 (01) and a research permit was obtained from NACOSTI (Ref No:529512). The researcher obtained authorization from the participants and respondents were assured of confidentiality.

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RESULTS

The response rate for this study is reported at 97%, (671/692) and was sufficient to answer the research questions. Also, 2 medical officers, 2 midwives, 2 clinical officers, and 1 obstetrician participated in this study as Key Informants.

Prevalence of preterm births at Migori Hospital

A total of 103 out of 671 births, comprising 15.4% in the hospital, were preterm births.

Socio-demographic characteristics of the women

A majority of the respondents (n=387, 57.7%) who were delivered at the Migori County Referral Hospital were between the ages of 21-30 years. Most of the study participants had secondary education (n=355, 52.9%). 507 (75.6%) of the respondents were married. As for religion majority were Christians (n=666, 99.3%). A total of 331 (49.3%) of the respondents were unemployed. The majority of the respondents (n=662, 98.7%) had no history of tobacco smoking. In terms of alcohol intake, the majority (603, 89.1%) had no history of alcohol consumption. (Table 1).

Table 1: **Sociodemographic Characteristics of the Women**

Variable	Categories	Frequency (n=671)	Percentage (n=100%)	COR	95%CI		P-Value
Age (years)	<20	175	26.1	1			
	21-30	387	57.7	0.889	0.539	1.467	0.645
	31-40	100	14.9	1.203	0.625	2,315	0.58
	>40	9	1.3	4.385	1.106	17.383	**0.035***
Education level	Primary	209	31.1	1			
	Secondary	355	52.9	0.777	0.484	1.248	0.297
	Tertiary	107	16	1.243	0.623	2.096	0.666
Marital status	single	164	24.4	1			
	Married	507	75.6	1.011	0.62	1.649	0.965
Religion	Christians	666	99.3	1			
	Muslims	5	0.7	1.382	0.153	12.494	0.773
Maternal occupation	Unemployed	331	49.3	1			
	Self-employed	262	39	0.861	0.585	1.438	0.707
	Formal employment	78	11.6	0.917	0.427	1.738	0.676
Smoking	No	662	98.7	1			
	Yes	9	1.3	1.587	0.325	7.749	0.568
Alcohol	No	603	89.9	1			
	Yes	68	10.1	0.409	0.16	1.043	0.061

Association between maternal socio-demographic predictors and PTB in Migori (Bivariate analysis)

In the bivariate analysis using binary logistic regression with individual maternal socio-demographic factors as independent variables and the gestation age at birth as the dependent variable, only age was associated with preterm births at Migori County Hospital. Women above 40 years of age were four times more likely to have preterm births compared to those less than 20 years (COR 4.4 (1.1 – 17.4), p=0.035). Women with a history of smoking during pregnancy were 1.6 times to have preterm birth compared to those who did not smoke, although this was not statistically significant (COR = 1.6 (0.3 – 7.7), p = 0.568). Marital status, religion, employment and alcohol use were not associated with preterm births (p>0.05). (Table 1)

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Maternal obstetric characteristics of women attending delivery services at Migori Hospital (frequencies)

The majority of women who gave birth at Migori County Hospital had a parity of 1-5 (395, 58.9%). The inter-pregnancy interval was more than 2 years for 243 women (36.2%). Most of the women had no history of preterm births and low birth weight (568, 84.6% and 586, 87.3% respectively). The majority delivered vaginally (475, 70.8%), and most babies born were female (340, 50.7%). 99.1% of the mothers attended antenatal care with the majority attending more than four visits (464, 69.2%). VDRL was nonreactive for 646 women (96.3%), and 598 women tested negative for HIV (89.1%). The women had a haemoglobin level of more than 10g/dl (587, 87.5%), with time intervals between haemoglobin measurements of more than four weeks for 436 women (65%). There was no history of hypertension, or PET/eclampsia for 641 women (95.5%). Additionally, there was no history of APH, PROM, and UTI for 643 (95.8%), 601 (89.6%), and 426 (63.5%) women, respectively.

Table 2: Maternal obstetric characteristics (Frequencies and proportions)

Variable	Categories	Frequency (n=671)	Percentage (n=100%)
Parity	0+0	228	34.0
	Para 1 – 5	395	58.9
	Para 5+	12	1.8
	Para_+abortion	36	5.4
Inter-pregnancy interval	never been pregnant	228	34
	<2yrs	200	29.8
	>2yrs	243	36.2
History of preterm births	No	568	84.6
	Yes	103	15.4
History of LBW	No	586	87.3
	Yes	85	12.7
Mode of delivery	Vaginal	475	70.8
	C/S	196	29.2
Sex of baby	Male	331	49.3
	Female	340	50.7
Attended ANC	No	6	0.9
	Yes	665	99.1
ANC visits attended	0	6	0.9
	1	24	3.6
	2-3 visits	177	26.4
	4+	464	69.2
VDRL	Unreactive	646	96.3
	Reactive	3	0.4
	Unknown	22	3.3
HIV	Negative	598	89.1
	Positive	59	8.8
	Unknown	14	2.1
Hb	<10g/Dl	84	12.5
	>10g/Dl	587	87.5
Time Hb taken	less than 2 weeks ago	159	23.7

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Variable	Categories	Frequency (n=671)	Percentage (n=100%)
	2-4 weeks ago,	76	11.3
	>4 weeks ago,	436	65.0
History of hypertension /PET/Eclampsia	No	641	95.5
	Yes	30	4.5
History of APH	No	643	95.8
	Yes	28	4.2
History of PROM over 18hrs	No	601	89.6
	Yes	70	10.4
UTI in pregnancy	No	426	63.5
	Yes	245	36.5

Association between maternal obstetric predictors and preterm births at Migori County Hospital (Bivariate analysis)

Binary logistic regression analysis was done using odds ratios (OR) and 95% CI. In the bivariate analysis respondents with a history of preterm births were three times more likely to have PTB (COR = 3.4 (2.1 – 5.4), P<0.001) similar to those with a history of LBW (COR = 3.3 (2.0 – 5.6), P<0.001). Women with a history of hypertensive disorders in pregnancy, including pre-eclampsia and eclampsia, were 2.5 times more likely to have PTB (COR = 2.5 (1.1 – 5.6), p = 0.027) as well as those with a history of PROM over 18 hours (COR = 2.5 (1.4 – 4.4), p = 0.002). Attending ANC and haemoglobin levels over 10g/dL were protective of PTB. Those who attended ANC had reduced chances of PTB by 82% (COR = 0.18 (0.04 – 0.9), p = 0.036), while those with haemoglobin over 10g/dL by 47% (COR = 0.53 (0.3 – 0.9), p = 0.027). (Table 3)

Table 3: Association between maternal obstetric factors and preterm births at Migori County Hospital

Factor	Categories	COR	95%CI		P-value
Parity	Primi	1			
	Para 1 - 5	1.276	0.799	2.038	0.307
	Para >5	2.200	0.564	8.588	0.257
	Para (abortion)	1.320	0.507	3.437	0.570
Inter-pregnancy interval	<2 years	1			
	>2 years	0.874	0.529	1.445	0.599
History of preterm birth	No	1			
	Yes	3.354	2.068	5.440	**0.000**
History of LBW	No	1			
	Yes	3.347	2.003	5.591	**0.000**
Pregnancy outcome	Singleton	1.000			
	Multiple	2.134	0.815	5.589	0.123
Sex of baby	Male	1.000			
	Female	1.138	0.747	1.733	0.548
Mode of delivery	SVD	1.000			
	C/S	0.995	0.627	1.580	0.984
Attended ANC	No	1			
	Yes	0.177	0.035	0.889	**0.036**
ANC visit times	0	1			

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Factor	Categories	COR	95%CI		P-value
	1	0.333	0.053	2.115	0.244
	2-3 visits	0.301	0.059	1.551	0.151
	4+	0.129	0.025	0.655	**0.014**
VDRL	Negative	1			
	Positive	8.856E-10	2.799E-10	2.802E-09	**0.000**
	Unknown	1.645	0.593	4.561	0.339
HIV	Negative	1			
	Positive	0.740	0.326	1.681	0.472
	Unknown	2.200	0.676	7.164	0.191
Haemoglobin	<10g/Dl	1			
	>10g/Dl	0.527	0.303	0.916	**0.023**
History of hypertension/PET/eclampsia	No	1			
	Yes	2.494	1.108	5.611	**0.027**
History of APH	No				
	Yes	1.535	0.607	3.884	0.365
History of PROM >18hrs	No	1.000			
	Yes	2.496	1.415	4.405	**0.002**
History of UTI in Pregnancy	No	1			
	Yes	0.712	0.452	1.121	0.143

**p<0.05 considered statistically significant*

Health facility characteristics

The majority of the community is covered by CHVs528 (78.7%).650(96.9%) of the respondents rated the MNH services as good. The majority of the respondents reported waiting time was less than thirty minutes 627(93.4%). Study participants had a good relationship with the healthcare providers during ANC visits 648(96.6%)

Association between Health facility predictors and PTB

At bivariate analysis, health facility factors, including availability of CHVs in the community, self-rating of the quality of MNH services, waiting time, and relationship with the healthcare workers, were not statistically associated with PTB at the county referral hospital. Although those who rated the quality of MNH services and the relationship with healthcare workers had reduced odds for PTB, these were not statistically significant (Table 4)

Table 4: **Association between health facility predictors and preterm birth at Migori County Hospital**

Factor	Categories	COR	95%CI		P-value
CHVs in community	Absent	1			
	Present	0.612	0.339	1.103	0.102
	Don't know	0.487	0.195	1.215	0.123
MNH services rating	Poor	1			
	Good	0.764	0.252	2.317	0.634
Waiting time	<30 minutes	1			
	>30 minutes	1.046	0.453	2.416	0.915
Relationship with HCWs	Poor	1			
	Good	0.857	0.285	2.571	0.782

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Multivariate analysis

From the multivariate analysis, women with a history of preterm birth were 2.5 times more likely to deliver a preterm birth (AOR = 2.5, 1.2 – 5.4, p=0.02). Women who attended ANC were 87% less likely to have preterm births (AOR = 0.13, 0.02 – 0.7, p=0.018). A positive VDRL test was associated with preterm births (AOR =6.3,1.49-2.67, P=<0.001) although the sample size of those who tested positive was small in the study. (Table 5)

Table 5: Multivariate logistic regression of factors associated with preterm births at Migori Hospital

Factor	Categories	AOR	95%CI		P-value
Age (yrs)	<20 (ref)	1			
	21-30	0.771	0.461	1.288	0.320
	31-40	0.890	0.438	1.811	0.749
	>40	2.711	0.522	14.065	0.235
History of preterm birth	No	1			
	Yes	2.490	1.151	5.386	**0.020**
History of LBW	No	1			
	Yes	1.532	0.668	3.516	0.314
Attended ANC	No	1			
	Yes	0.129	0.024	0.709	**0.018**
VDRL	Negative	1			
	Positive	6.297E-10	1.488E-10	2.665E-09	**<0.001**
	Unknown	1.120	0.403	3.111	0.828
Haemoglobin	<10g/Dl	1			
	>10g/Dl	0.659	0.368	1.181	0.161
History of hypertension/PET/eclampsia	No	1			
	Yes	1.499	0.670	3.353	0.325
History of PROM >18hrs	No	1			
	Yes	1.482	0.707	3.108	0.298

DISCUSSION

The study was conducted to assess the burden of PTB and its associated predictors at Migori County Referral Hospital in Western Kenya. The study found that PTB accounted for 15.4% of all births in the hospital. This was greater than the global preterm birth rate (9.9%) and Sub-Saharan Africa (10.1%) [18]**.** It was also more than the preterm birth prevalence reported in Kenya,11% which was reported by Kenya Demographic Health Survey 2014 [19]**.** Compared to other studies conducted in Kenya the prevalence of PTB was lower than the other two cross-sectional studies done at Kenyatta National Hospital at 18.3% and 20.2% [8,20]**.** These discrepancies may be due to geographical differences and the level of the two hospitals as the two studies were done in an urban set-up and in the largest teaching and referral hospital which handles more complicated deliveries of which a big proportion are preterm. In contrast, this study was done in a rural set-up and a medium-level health facility. The prevalence of preterm was also higher than that of most high-income countries. The preterm birth rate from the study conducted in the United Kingdom which was estimated to be 8% is good evidence [21]. The low preterm birth rate observed in developed nations, such as the United Kingdom, can be attributed to the high socio-demographic status of the population and the availability of advanced preconception and antenatal care (ANC) services. These services play a crucial role in the early identification and prevention of risk factors associated with preterm births. By investing in similar healthcare initiatives globally, we can significantly enhance maternal and

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infant health outcomes, ultimately striving for a healthier future for all communities.

This study revealed that Mothers who had a history of preterm birth were 2.5 times more likely to deliver preterm birth compared to those who had no prior history of preterm birth., Our findings are similar to other studies done in Kenyatta National Hospital, Kenya [8,20,] Southern Ethiopia [22]. Bengal India [23] and Western Maharashtra [24]. The mechanism for this has not been well understood; however, the likelihood of such experience among women with prior spontaneous labour as well as those with inducing preterm birth is rising [25]. This study reported an association between parity and preterm births albeit not statistically significant. This is similar to the findings of a study conducted in the Netherlands on the association between parity and spontaneous preterm birth, where it was demonstrated that mothers with a parity ≥4 were 4 times more likely to deliver prematurely [26]. Due to uterine alterations such as myometrial stretching from prior pregnancies, high parity is expected to increase the risk of preterm delivery. Some of the mothers with high parity may also have had a poor obstetric history, which may have been caused by unknown reasons that persisted into subsequent pregnancies [27,28].

There was an association between syphilis as a predictor of preterm birth in the current study. Mothers who tested positive for syphilis were 6 times more likely to give birth to a preterm baby compared to those who tested negative. The findings are consistent t with other studies done in the United States and, early preterm birth due to PPROM [29,30,31]. This finding contradicted another study done in California (Heumann et al 2017) which may be due to the limited sample size in the two studies. The mechanisms linking maternal STIs, and preterm birth are still not fully understood. A potential shared mechanism is inflammation. Syphilis, which spreads through the bloodstream, can lead to systemic infection and an inflammatory response in the placenta. As a result, these reactions can cause inflammation and trigger the immune system of the mother and the fetus, which is a known factor in premature birth [32,33].

ANC attendance was another factor found in this study to reduce the chances of PTB. Mothers who attended ANC were 87% less likely to give birth to PTB compared to those who did not attend. These findings agree with a similar study conducted on Association between antenatal care visits and preterm birth in rural Bangladesh at Kenyatta National Hospital Kenya [8,34]. ANC visits provide opportunities for risk identification, health education and promotion, and the prevention and management of pregnancy-related or concurrent diseases [35]. Therefore, improving and strengthening ANC services is crucial in reducing preterm birth. These findings are contrary to the findings of the study conducted in Western Kenya on Outcomes for preterm babies during the neonatal period [36]. These differences may have been caused by the differences in the geographical locations, which could also affect access to health facilities.

Anaemia in pregnancy had been associated with preterm birth in some studies [37,38] but not in others,[39,40]. The current study revealed that an HB level exceeding 10g/dl was not statistically significant in preventing preterm delivery. UTI in pregnancy was not associated with premature birth in this study. This was contrary to the findings of studies in Iran, Nigeria and Egypt [40-42].

A review of pregnancy data in six countries showed that APH is associated with PTB [43]. In India, APH increased the rate of PTB to 65% [44], while in a Kenyan study, APH increased the risk of PTB by 2-fold [8]. This study did not show any relationship. A review of pregnancy data in countries showed that APH is associated with PTB at risk ratio of 5 (95%CI 4-6) [43]. In a study done in India APH increased the rate of PTB [17] This study, however, did not show any association.

Limitations

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The limitation of this study was that the sample size for the mothers who tested positive for syphilis was small and therefore our findings should be interpreted with caution.

CONCLUSION

This study revealed several key findings, shedding light on the multifaceted factors associated with preterm deliveries and proposing effective strategies for risk mitigation. The following conclusions can be drawn from the study: The prevalence of preterm births at Migori County Hospital was 15.4%, underscoring the significance of addressing this issue within the community. Various maternal obstetric predictors, such as a history of preterm births and syphilis, were statistically associated with preterm deliveries. Attending ANC significantly reduces the likelihood of preterm births. While health facility factors, including the presence of Community Health Volunteers (CHVs), positive ratings for MNH services, short waiting times, and good relationships with healthcare workers, were not statistically associated with preterm births, their importance in providing quality care was highlighted. There is a need to implement better interventions to manage obstetric complications and conduct more research to better understand how the preterm birth predictors cause preterm birth.

Recommendations

The study recommends implementing targeted health education programs to raise awareness about preterm birth risks, emphasizing previous preterm birth history and screening for sexually transmitted infections, especially syphilis. It encourages early and regular attendance at Antenatal Care (ANC) clinics and advocates for establishing preconception care clinics, particularly for those with a history of preterm births and syphilis. These clinics can assess mothers' fitness for pregnancy and provide necessary guidance. The study calls for developing a comprehensive program to identify high-risk pregnancies for effective preterm birth prevention interventions. Additionally, it suggests conducting further research to understand the high facility-based preterm prevalence and develop interventions to reduce it.

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