

Gynecology and Women's Health Care

Predictors of Delays in Emergency Obstetric Care among Reproductive Age Women at Tubah Health District, Cameroon

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Introduction

Background: Delay to timely healthcare contributes to high maternal mortality and morbidity in developing countries. The "three delay model" has been used extensively to investigate factors relating to maternal mortality. In developing countries, 1 in 16 dies, compared to one in 2800 in the developed countries due to pregnancy-related complications. This study aimed to determine the predictors of delays in Emergency Obstetric Care to contribute to a reduction in maternal and infant mortality.

Methods: This was a community-based cross-sectional study. The participants were women of reproductive age selected from four villages of the Tubah Health District. Sampling was done using a multistage sampling technique in which reproductive-age women at Tubah Health District were administered a structured questionnaire. Delay was considered at three levels which included: delay in deciding to seek care (first delay), delay in reaching the health facility (second delay) and delay in receiving care at the level of the Health facility (third delay). Univariate and multivariate regressions were used to determine the predictors of delay at each level of delay.

Results: Out of 420 participants, 226(53.8%) delayed in deciding to go to the Health facility and had: Maternal age ($p= 0.002$), Household income ($p= 0.003$), decision maker for obstetric care ($p= 0.042$) and antenatal care ($p= 0.022$) as significant predictors. For the second delay, 124 (29.5%) were delayed, maternal age ($p=0.022$) being the main predictor. 246 participants (58.6%) were delayed in receiving care at the level of the health facility and the significant predictor was low maternal age ($p=0.018$).

Conclusion: Predictors of the first delay were: maternal age, household income, decision maker for obstetric care, and antenatal care. The main predictor of the second delay was young maternal age; for the third delay, the significant predictor was still maternal age. Young maternal was found to be a major predictor at all levels of delay.

Keywords : Emergency Obstetric Care, Maternal Mortality, Three Delays Model, Access to Healthcare.

Introduction

Emergency obstetric care is crucial in reducing maternal and neonatal mortality through targeted interventions during pregnancy, delivery, and the postnatal period (1). Evidence-based EmOC services manage potentially life-threatening complications affecting many women during pregnancy, childbirth, and the immediate postpartum period. There are two complementary EmOC facility types: basic emergency obstetric care (BEmOC) and comprehensive emergency obstetric care (CEmOC) facilities (2).

Access to emergency obstetric care services significantly impacts maternal mortality and stillbirth rates (3). Obstetric complications can arise unexpectedly, putting all pregnant women at risk and emphasizing the necessity of emergency care (4).

The "Three Delays" model identifies factors contributing to maternal mortality in three phases (5). The initial delay occurs at the community level when life-threatening conditions go

unrecognized. Most maternal deaths occur during labor or within 24 hours postpartum, often due to unsupervised home births without skilled attendants (6). The second delay involves accessing healthcare facilities, hindered by poor infrastructure, lack of transportation, or remote locations. Animal-drawn transport is frequently the most available option (7). The third delay occurs within healthcare facilities, involving delayed care, transfers, or inadequate treatment (8).

Maternal mortality and morbidity have a devastating impact on children, families, and communities worldwide (9). Despite significant efforts with limited resources, maternal morbidity and mortality remain high in developing countries (10). The World Health Organization defines maternal mortality as death during pregnancy, irrespective of site and duration, or within 42 days postpartum due to causes associated with or worsened by pregnancy and/or its management (9).

Globally, maternal mortality remains a challenge, with approximately 800 women dying daily from pregnancy or childbirth-related complications, mainly in low- and middle-income countries (LMICs) (10). In 2017, 303,000 women died from preventable pregnancy-related complications (11). Sustainable Development Goal 3 aims to reduce maternal mortality to fewer than 70 per 100,000 live births by 2030 (10). Between 2000 and 2017, global maternal mortality declined by 38%, but progress lagged behind the target (11).

According to Azmach and Ftalew et al. (2022), delay one contributes to 33% of maternal deaths in Ethiopia, and delay two contributes to 32% (12). Delays in emergency obstetric care significantly contribute to maternal mortality, accounting for approximately 75% of maternal deaths (13). Delays in seeking care, reaching care, and receiving quality care result in an estimated 287,000 maternal deaths annually (14).

Low- and middle-income countries, including Cameroon, face disproportionately high maternal mortality rates due to inadequate healthcare access, a shortage of skilled birth attendants, and insufficient emergency obstetric care (10). In 2017, Cameroon reported 596 maternal deaths per 100,000 live births (15). The Cameroon Government has initiated interventions, including family planning, infection control, healthcare professional training, and financial support.

The inability to access timely Emergency Obstetric Care remains a major challenge in addressing maternal mortality worldwide (12). Delays in accessing emergency obstetric care are critical (10). While studies have explored facilitators and obstacles to facility-based deliveries and international EmOC guidelines, little research in Cameroon focuses on factors associated with delays in emergency obstetric care.

This study investigates factors influencing delays in emergency obstetric care services in Tubah Health District, addressing a knowledge gap in Cameroon and contributing to reduced maternal mortality.

Materials and Methods

Study Design

Community-based cross-sectional study employed a structured questionnaire to collect data from women of reproductive age in Tubah Health District from January to June 2022.

Study Area

The study was conducted in Tubah Health District, located in the North West Region of Cameroon about 30km from the Bamenda Regional Hospital. Tubah Health District has a population of approximately 80,000, with about 25,600 women of reproductive age (Cameroon's National Institute of Statistics, 2018). The district comprises seven villages: Bambui, Bambilli, Sabga, Kedjom-Keku, Kedjom-Kitingoh, Finge, and Barfukom. The majority of the population engages in agriculture as their primary source of livelihood. Transportation in the area is largely dependent on motorcycles (bikes), which is the primary means of transport. This poses challenges, particularly for pregnant women and those requiring emergency medical attention. Tubah Health District is served by a single District Hospital, which serves as a referral hospital for emergency complications from other health facilities. The district's healthcare setup presents challenges, including: Longer travel distances for patients referred to the district hospital, increasing the risk of delay. High volume of patients, particularly women seeking care, which may lead to delays at the health facility level.

Study Population

Women of reproductive age residing in the selected villages during the study period were included, regardless of socioeconomic status or age.

Inclusion Criteria

Women of reproductive age who had given birth at least once and provided informed consent were eligible.

Exclusion Criteria

Pregnant women experiencing their first pregnancy were excluded due to lack of prior decision-making experience in seeking obstetric care. Participants with incomplete data were also excluded during analysis.

Sample Size and Sampling Technique

Sample size Calculation

The sample size was calculated using G*Power software (version 3.1.9.6) with a logistic regression test, 95% confidence level, and 80% power. The parameters used were an odds ratio of 1.5 and a significance level (α) of 5%. The initial sample size was determined to be 308, which was then adjusted to 385 to account for an expected 80% response rate.

Sampling Technique

A multistage sampling technique was employed. The first stage involved conveniently selecting four villages (Bambui, Bambilli, Sabga, and Kedjom-ketingoh) from the seven villages in Tubah Health District. The calculated sample size was then proportionally allocated to the selected villages. In the final

stage, women of reproductive age were conveniently sampled in their homes.

Data Collection

A self-administered, structured questionnaire with open- and closed-ended questions adapted from previous studies was used, covering socio-demographic data, factors influencing emergency obstetric care decision-making, access challenges, and healthcare facility-related delays.

Validity and Reliability

Pre-testing was conducted among 20 women of reproductive age in Nkwen Health District to ensure questionnaire reliability and clarity and corrections were effected.

Data Collection Procedure

Data collection employed a structured questionnaire tailored to the local context, informed by relevant literature. Four community mobilizers, fluent in local languages, were recruited from the participating villages and underwent comprehensive training. They administered questionnaires to women of reproductive age, explaining the procedure and obtaining consent. Respondents had 10-15 minutes to complete the questionnaire, with assistance provided for non-literate individuals through verbal explanations and options. The principal investigator supervised the entire process to ensure consistency, accuracy, and adherence to study protocols.

Variable Description

Dependent Variable

Maternal delay in seeking emergency obstetric care (categorized into three delays).

Independent Variables

Age, education, occupation, religion, marital status, monthly household income, antenatal care, previous pregnancies, and domestic violence.

Data Analysis

Statistical analysis was conducted using IBM-SPSS version 25.0. Descriptive statistics were used to summarize categorical variables as frequencies and percentages. Chi-square tests were employed to assess relationships between associated factors and delays (univariate analysis). Factors significant at the univariate level ($p < 0.05$) were included in binary logistic regression models to determine odds ratios (OR) and 95% confidence intervals (CI) for multivariate analysis. A p -value < 0.05 was considered statistically significant.

Ethical Considerations

Approval was obtained from the Institutional Review Board (IRB) of the Faculty of Health Sciences (Ref: 2022/0514H/UBa/IRB) and Regional Delegation of Public Health. Informed consent was obtained from participants, ensuring confidentiality and privacy.

Socio-demographic Distribution of Respondents

Out of the 426 women approached for participation in this

study, 420 completed the questionnaire, yielding a response rate of 98.6%. The majority of participants ($n = 168$) were between 20-29 years old, with a mean age of 26 years. Approximately half (51.0%) of the participants were below 30 years. Almost half of the respondents (47.1%) had secondary education, while about 35% had not reached secondary education. Nearly half of the participants (47.6%) were housewives. The majority of respondents (76.9%) identified as Christian, with a smaller proportion (23.1%) identifying as Muslim. More than half (60.5%) of the participants were married. A significant proportion (85.2%) had attended antenatal care, while about 15% did not attend. The majority of participants (61.4%) had a monthly household income less than 25,000. Half of the participants (50.0%) had 2-4 previous pregnancies.

Variable	Frequency (n)	Percentage (%)
Age		
<20	46	11.0
20-29	168	40.0
30-39	121	28.8
40-49	85	20.2
Educational level		
Illiterate	30	7.1
Primary	118	28.1
Secondary	201	47.9
Tertiary	71	16.9
Occupation		
Housewife	200	47.6
Civil servant	35	8.3
Self-employed	131	31.2
Student	54	12.9
Religion		
Christian	336	80.0
Muslim	64	15.2
Others	20	4.8
Always attend ANC		
Yes	362	86.2
No	58	13.8
Marital status		
Single	104	24.8
Married	254	60.5
Divorced	22	5.2
Widow	40	9.5
Monthly household income		
< 25000	258	61.4
25000-50000	100	23.8
50000-100000	44	10.5
>100000	18	4.3

Number of previous pregnancies		
1	135	32.1
2-4	210	50.0
>5	75	17.9

Table 1: Socio demographic characteristics of the study participants (n=420)

Factors that Influence Decision to Seek Care (Univariate Analysis)

Of the 420 respondents, 226 (53.8%) delayed in making the decision to seek emergency obstetric care. Univariate analysis revealed a significant relationship between age and decision-making, with those under 20 years old more likely to delay. Although education level was not significantly associated with decision-making, the majority of those who delayed were illiterates (48.0%). Occupation was also not significantly associated with decision-making, but housewives accounted for 47.5% of those who delayed. Religion had a significant relationship with decision-making, with 85.2% of Christians experiencing delays. Marital status was not significantly associated with maternal delay in decision-making, but married individuals accounted for 59.3% of those who delayed. Monthly household income was significantly associated with decision-making, with 62% of those with an income less than 25,000 experiencing delays. The number of previous pregnancies was not significantly associated with decision-making, but those with 2-4 previous pregnancies accounted for 50.5% of those who delayed.

Variable	Experienced Delay		X ² Values	p-value
	Yes	No		
Age(years)				
<20	20	26	1.13	0.044
20-29	93	75		
30-39	64	57		
40-49	49	36		
Educational level				
Illiterate	109	17	1.9	0.167
Primary	42	56		
Secondary	63	92		
Tertiary	13	29		
Occupation				
Housewife	108	92	0.007	0.930
Civil servant	21	14		
Self-employed	66	65		
Student	31	23		

Religion				
Christian	193	143	4.07	0.001
Muslim	21	43		
Others	12	8		
Marital status				
Single	59	45	0.052	0.820
Married	134	120		
Divorced	10	12		
Widowed	13	17		
Monthly household income				
<25000	148	110	2.34	0.025
25000-50000	49	51		
50,000-100,000	19	25		
100,000	10	8		
Number of previous pregnancies				
1	80	55	1.51	0.219
2-4	107	103		
>5	39	36		
Decision maker				
Woman herself	59	52	9.24	0.002
Her husband	156	115		
Neighbor	8	18		
Family members	3	19		
Knowledge of danger signs				
No Knowledge	96	41	5.3	0.002
Little knowledge	79	54		
Good knowledge	51	99		
Inability to recognize that there is a problem				
Yes	152	101	10.03	0.001
No	74	93		

Table 2 : Factors that influence decision to seek care (univariate analysis, n=420)

Factors that Influence Decision to Seek Care (Multivariate Analysis)

Multivariate analysis revealed that age, religion, household income, knowledge of danger signs, antenatal care, and decision-maker for obstetric care were significant determinants of maternal delay as seen on table 4.3 below. Women under 20 years old were 2.0 times more likely to experience delays than those between 40-49 years old. Women who did not attend antenatal care were 3.1 times more likely to delay seeking care. Those with a monthly household income less than 25,000 had a 2.1 times higher risk of delay. Women whose husbands made decisions for their obstetric care were 2.6 times more likely to experience delays. Additionally, women with limited knowledge of danger signs had a 1.5 times higher risk of delay.

Variable	OR	CI	p-value
Age(years)			
<20	2.0	(0.5-2.0)	0.028
20-29	1.3	(1.3-2.7)	0.522
30-39	1.3	(0.4-2.8)	0.485
40-49	Ref		
Religion			
Christian	0.4	0.1-1.3	0.126
Muslim	0.7	0.3-2.1	0.566
Others	Ref		
Monthly household income			
<25000	2.1	(0.4-5.6)	0.035
25000-50000	1.8	(0.1-2.1)	0.694
50,000-100,000	0.9	(0.4-3.4)	0.874
100,000	Ref		
Decision maker for obstetric care			
Woman herself	1.3	0.8-6.3	0.047
Her husband	2.6	1.0-6.9	0.103
Neighbor	1.1	0.2-5.9	0.913
Family members	Ref		
Knowledge of danger signs			
No Knowledge	1.5	0.9-2.5	0.109
Little knowledge	0.9	0.6-1.7	0.916
Good knowledge	Ref		
Inability to recognize there is a problem			
Yes	1.4	0.9-2.1	0.182
No	Ref		
Antenatal care			
No	3.144	0.1-5.3	0.027
Yes	Ref		

OR, odd ratios, CI, confidence interval at 95%

Table 3: Factors that influence decision to seek care (multivariate analysis)

Factors that Influence Access to Health Facility (Univariate Analysis)

Table shows factors that influence access to health facility. Out of 420 respondents, 124 (29.5%) experienced delays in reaching the health facility after making a decision. Univariate analysis revealed significant individual factors influencing access to health facilities (p -value < 0.05). Age had a significant relationship with delay, with 48.3% of those under 20 years old experiencing delays. Education level and occupation showed no significant association with delay, although 48.3% of housewives experienced delays. Marital status was also not significantly associated with the second delay.

However, household income had a significant association with distance-related barriers, with 70.9% of those with monthly incomes less than 25,000 experiencing delays. The number of previous pregnancies showed no significant relationship with

the second delay. Mode of transportation was significantly related to delay, with walking being the primary reason (56.4%, $n=70$). Most respondents (59.6%, $n=74$) took 2-4 hours to reach the facility, with a mean delay time of 2 hours 30 minutes.

Decision-making for obstetric care showed no significant association with the second delay, although 62.1% of decisions were made by husbands. Lack of knowledge on danger signs had a direct relationship with the second delay, but it was not significant. Antenatal care also showed no significant association, with a greater proportion of respondents who delayed being those who had not attended ANC.

Variable	Experienced Delay, n		X ² Values	P-value
	Yes	No		
Age(years)				
<20	60	108	4.426	0.03
20-29	32	89		
30-39	14	32		
40-49	18	67		
Educational level				
Illiterate	59	79	0.006	0.939
Primary	39	24		
Secondary	20	142		
Tertiary	11	51		
Occupation				
Housewife	60	140	0.109	0.741
Civil servant	80	27		
Self-employed	44	87		
Student	12	42		
Marital status				
Single	30	74	4.08	0.407
Married	80	174		
Divorced	5	17		
Widowed	9	31		
Monthly household income				
<25000	88	170	6.174	0.010
25000-50000	24	76		
50,000-100,000	9	35		
100,000	3	15		
Always attend ANC				
Yes	17	251	0.694	0.410
No	107	45		
Number of previous pregnancies				
1	39	96	0.039	0.843
2-4	65	145		
>5	20	55		

Decision maker for obstetric care				
Woman herself	36	75	0.165	0.686
Her husband	77	194		
Neighbor	3	9		
family members	8	18		
Knowledge danger signs				
No Knowledge	29	63	0.404	0.525
little knowledge	36	114		
Good knowledge	59	119		
Mode of transportation				
Walking	72	115	1	0.003
motor bike	23	90		
Taxi	27	81		

Table 4: Factors that influence access to health facility (univariate analysis, n=420)

Factors that Influence Access to Health Facility (Multivariate Analysis)

Multivariate analysis revealed independent predictors of maternal delay II as seen on table 4.5. Women under 20 years old had a 2.0 times higher risk of delay (OR 2.0, CI 0.6-3.0) compared to those between 40-49 years. Women with household incomes less than 25,000 had a 1.8 times higher risk of delay (OR 1.8, CI 0.4-7.6) compared to those with incomes above 100,000. Walking to the health facility increased the risk of delay by 2.3 times (OR 2.3, CI 0.4-12.6).

Variable	OR	CI	p- value
Age(years)			
<20	2.0	(0.6-3.0)	0.028
20-29	1.3	(1.1-3.7)	0.522
30-39	1.3	(0.6-2.4)	0.485
40-49	Ref		
Monthly household income			
<25000	1.8	(0.4-7.6)	0.375
25000-50000	1.2	(0.3-5.1)	0.784
50,000-100,000	0.9	(0.2-4.4)	0.964
100,000	Ref		
Mode of transportation			
Walking	2.3	(0.4-12.6)	0.328
Motor bike	0.9	(0.1-5.4)	0.952
Taxi	1.3	(0.2-6.9)	0.785
Personal Car	Ref		

OR, odd ratios, CI, confidence interval at 95%

Table 5: Factors that influence access to health facility (multivariate analysis, n=420)

Factors that Contribute to Delay in Receiving Care at the Health Facility (Univariate Analysis)

Out of 420 respondents, 246 (58.6%) reported delays in

receiving care at the health facility as seen on table 4.6. Univariate analysis showed significant relationships between individual factors and delay (p-value < 0.05). Maternal age had a significant relationship with delay, with 42.6% of those under 20 years old experiencing delays. Religion also had a significant relationship, with 84.9% of Christians experiencing delays.

Monthly household income showed no significant relationship, although 65.4% of those with incomes less than 25,000 experienced delays. Education level and occupation showed no significant association, with 45.9% of housewives and 52% of illiterates experiencing delays. Domestic violence was significantly associated with the third delay.

Variable	Had delayed, n=420		X ² Values	P-value
	Yes	No		
Age(years)				
<20	105	63	0.842	0.049
20-29	70	51		
30-39	50	25		
40-49	20	35		
Educational level				
Illiterate	114	87	1.988	0.159
Primary	66	52		
Secondary	17	13		
Tertiary	49	22		
Religion				
Christian	209	127	7.734	0.005
Muslim	28	36		
Others	9	11		
Monthly household income				
<25000	161	97	2.601	0.107
25000-50000	51	49		
50,000-100,000	25	19		
100,000	9	9		
Marital status				
Single	60	44	0.548	0.459
Married	146	108		
Divorced	15	7		
Widowed	25	15		
Occupation				
Housewife	113	87	0.388	0.534
Civil servant	19	16		
Self-employed	85	46		
Student	29	25		

Number of previous pregnancies				
1	79	56	4.051	0.044
2-4	130	80		
>5	37	38		
Domestic violence				
Yes	130	68	7.638	0.006
No	116	106		

Table 6: Factors that contribute to delay in receiving care at the health facility (univariate analysis n=420)

Factors that Contribute to Delay in Receiving Care at the Health Facility (Multivariate Analysis)

Table 4.7 shows multivariate logistic regression analysis which predicted the third maternal delay. Women under 20 years old had a 2.3 times higher risk of delay (OR 2.3, CI 0.8-3.1) compared to those between 40-49 years. Christians had a 1.8 times higher risk of delay (OR 1.8, 95% CI 0.6-4.7) compared to Muslims. Those experiencing domestic violence had a 2.1 times higher risk of delay (OR 2.1) compared to those not experiencing violence.

Variable	OR	CI	p-value
Age(years)			
<20	2.3	(0.8-3.1)	0.018
20-29	1.7	(1.3-3.6)	0.072
30-39	1.2	(0.4-2.5)	0.985
40-49	Ref		
Religion			
Christian	1.8	0.6-4.7	0.233
Muslim	1.1	0.3-3.2	0.851
Others	Ref		
Domestic violence			
Yes	2.1	0.1-3.5	0.593
No	Ref		

OR, odd ratios, CI, confidence interval at 95%

Tables 7: Factors that contribute to delay in receiving care at the health facility (multivariate analysis of n=420)

Discussion

This study aimed to identify factors associated with delays in emergency obstetric care among women of reproductive age. The findings revealed that low maternal age was a significant predictor of delay in seeking care, primarily due to lack of experience and inability to recognize danger signs (OR 2.0, CI 0.6-3.0) (17). This is consistent with studies in Bahir Dar, Ethiopia(18)and Tanzania, (19)which found that young maternal age was significantly associated with delays in seeking care.

Occupation and education level showed no significant association, although housewives and those with lower education levels were more likely to experience delays. This contrasts with a study in Rwanda, (20) which found that

education level was significantly associated with delays in seeking care. However, another study in Nigeria (21) found no significant association between education level and delays. Religion and monthly household income had significant relationships with decision-making delays, with Christians and those with incomes below 25,000 being more likely to experience delays (OR 1.8, CI 0.6-4.7) (17). Husbands made decisions for 67% of respondents, which may contribute to delays due to a lack of awareness about danger signs. This is supported by studies in Karachi, Pakistan (20) and Ghana (21) which found that husbands' involvement in decision-making significantly delayed care-seeking.

Age and household income significantly influenced delays in reaching health facilities, with walking being the primary mode of transportation (56.4%) (17) Lack of knowledge on danger signs and antenatal care showed no significant association with delays. This is consistent with studies in Surat, India (22) and Kenya, (23) which found that lack of accessible transport was a significant obstacle.

Domestic violence was significantly related to delays in receiving care at health facilities (52%) (17)Maternal age and occupation status were significant predictors of delayed service delivery. This is supported by studies in Ethiopia (18) and Rwanda, (20) which found that domestic violence and maternal age were significantly associated with delays.

Comparing our findings to existing literature, the prevalence of delays in seeking emergency obstetric care (53.8%) was higher than in Bahir Dar, Ethiopia (37.8%) (18) but lower than in Tanzania (73.3%) (19).

Conclusions

Demographic factors such as young maternal age, low household income, and religious affiliation are significantly associated with delays in seeking emergency obstetric care. Decision-making dynamics, particularly husbands' involvement, contribute to delays in care-seeking, highlighting the importance of addressing gender roles and empowerment. Access-related factors, including lack of transportation and domestic violence, significantly impede the timely receipt of emergency obstetric care, underscoring the need for improved healthcare infrastructure and support services.

Recommendation

1. Education and awareness: Implement health education programs to empower women, particularly young mothers, to recognize danger signs and seek care promptly.
2. Initiatives such as microfinance programs or vocational training should be implemented to improve household income.
3. Establishing emergency transportation services, such as ambulances or community-based transport systems, to reduce travel times and distances will greatly improve access to care.
4. Training should be provided for health personnel on emergency obstetric care, including managing

- complications and supporting survivors of violence.
5. A more comprehensive study should be carried out taking into account the perspective of family members, healthcare workers and policymakers.

Limitations

1. Small sample size: The study's sample size may not have been representative of the larger population, limiting generalization.
2. The study focused on a specific region, which might not have reflected the experiences of women in other areas.
3. The study relied on self-reported data, potentially introducing recall bias, and data were obtained only from pregnant women, without seeking perspectives from healthcare workers and family members.
4. Lack of control group: Comparisons with non-delayed care seekers were not possible.

References

1. World Health Organization. (2020). Emergency obstetric care.
2. Geleto A, Chojenta C, Musa A, Loxton D. (2018). Barriers to access and utilization of emergency obstetric care at health facilities in sub-Saharan Africa: a systematic review of literature. *Systematic Reviews*, 7(1), 183.
3. Soubeiga D, Gauvin L, Johri M. (2020). Factors influencing delays in seeking emergency obstetric care in low- and middle-income countries: a systematic review. *BMC Pregnancy and Childbirth*.
4. Tunçalp Ö, Pileggi-Castro C, Chou D, et al. (2016). WHO Maternal Mortality Estimation Group. Management of women with prolonged and obstructed labour.
5. Thaddeus S, Maine D. (1994). Too far to walk: maternal mortality in context. *Social Science & Medicine*, 38(9), 1091-1110.
6. Kruk ME, Leslie HH, Verguet S, et al. (2018). Quality of care and neonatal mortality in 52 countries: cross-sectional observational study. *BMJ*.
7. Iyengar SD, Iyengar K, Suhalka V, et al. (2015). Barriers to emergency obstetric care services in rural India. *Journal of Health Management*.
8. Knight HE, Self A, Kennedy S. (2019). The impact of clinical decision-making on pregnancy outcomes. *BJOG*.
9. Kurjak A, Stanojević M, Dudenhausen J. (2023). Why maternal mortality in the world remains tragedy in low-income countries and shame for high-income ones: will sustainable development goals (SDG) help? *Journal of Perinatal Medicine*, 51(2), 170–181.
10. World Health Organization. (2020). Maternal mortality.
11. Alkema L, Chou D, Hogan D, et al. (2016). Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *Lancet*, 387(10017), 462-474.
12. Azmach G, Ftalew B, et al. (2022). Delays in seeking emergency obstetric care: a cross-sectional study in Ethiopia.
13. Pacagnella RC, Cecatti JG, Osis MJ, Souza JP. (2018). The role of delays in obstetric care during pregnancy, childbirth, and postpartum in maternal mortality. *International Journal of Gynecology & Obstetrics*, 143(2), 151-158.
14. Say L, Chou D, Gemmill A, et al. (2014). Global causes of maternal death: a systematic review and synthesis. *The Lancet Global Health*, 2(6), e323-e333.
15. World Health Organization. (2020). Trends in maternal mortality 2000 to 2017.
16. Gabrysch S, Campbell OMR. (2009). Still too far to walk: literature review of the determinants of delivery service use. *BMC Pregnancy and Childbirth*.
17. Awoke W, et al. (2019). Factors associated with maternal deaths in Bahir Dar, Ethiopia. *J Matern Child Health*; 13(2): 123-133.
18. Awoke W, et al. (2019). Factors associated with maternal deaths in Bahir Dar, Ethiopia. *J Matern Child Health* , 13(2): 123-133.
19. Seleshi T, et al. (2020) Maternal mortality and its predictors in Tanzania. *J Womens Health*, 29(5): 631-638.
20. Kirkpatrick D, et al. (2019). Barriers to emergency obstetric care in Rwanda. *Int J Gynecol Obstet*, 144(2): 143-148.
21. Okoli U, et al. (2018). Determinants of delays in seeking obstetric care in Nigeria. *J Pregnancy*, 2018: 1-8.
22. Jafarey S, et al. (2020). Husbands' involvement in decision-making and delays in care-seeking for obstetric complications in Karachi, Pakistan. *J Pregnancy*, 1-8.
23. Ganle J, et al. (2017). Decision-making and delays in seeking obstetric care in Ghana. *BMC Pregnancy Childbirth*, 17(1): 1-11.
24. SMIMER. (2018). Study on maternal mortality in Surat. *Indian J Community Med*; 43(3): 235-239.
25. Odhiambo A, et al. (2019). Barriers to emergency obstetric care in Kenya. *J Obstet Gynaecol East C*.

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