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Contextual Approaches to Curbing Maternal Mortality the Women Perspective, Case of the Mifi Health District of Cameroon: A Cross Sectional Study

Jumo Olga Mankfu Ngafeeson[1*], Mary Bi Suh Atanga[2], Calvin Bisong Ebai[3]

[1]Department of Nursing & Midwifery, Public School of Health Personnel, Faculty of Health Sciences, University of Bamenda-Bamenda, Cameroon
[2]Department of Nursing & Midwifery, Faculty of Health Sciences, University of Bamenda-Bamenda, Cameroon
[3]Department of Laboratory Sciences, Faculty of Health Sciences, University of Bamenda-Bamenda, Cameroon
Email: *lgjumo@gmail.com

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Abstract

Introduction: Maternal mortality remains a significant public health challenge in Cameroon, despite various interventions, including the Emergency Obstetric and Neonatal Care (EmONC) strategy. It increased from 430 per 100,000 live births in 1991 to 782 in 2011, with a recent reduction to 406 per 100,000 live births in Cameroon remaining higher than SDG highest targets of 140 per 100,000 live births. This led to this study which aimed to develop a contextual approach to curbing maternal mortality in the MIFI Health District by analyzing the challenges, roles and perceptions of key women. **Methods:** The sampling technique was non-probabilistic by convenience sampling for the recruitment of participants. The study population consisted of women at post-partum. The instruments for data collection were well-structured questionnaires. The data analysis was done using R for quantitative data. **Results:** The results showed that women's population, main challenges were, late ANC attendance which was significantly associated with maternal challenges (p = 0.033). Women's roles were identified as attending ANC (Antenatal Care) regularly, following counseling and advice, educating peers, and participating in community awareness programs. Their perceptions, 87.74% believed women can help curb maternal mortality (p = 0.0016). **Conclusion:** The outstanding challenges were lack of ANC attendance, bad ANC timing for those who attend. Distance to health facilities was significant (p = 0.004). Women living farther away (5 hours) experienced more challenges confirming the "Three Delays Model", Delay in deciding to seek care, Delay in reaching care, Delay in receiving care.

Keywords

Maternal Mortality, Curbing Strategies, Women, Perspective, Contextual Approaches, MIFI Health District

1. Introduction

According to the 2019 WHO report, more than 810 mothers die daily during pregnancy or childbirth, causing 295,000 maternal deaths (WHO, 2017). Available evidence indicates that there are several factors that predispose a woman to a greater risk of maternal death. The 53 low-income nations with a gross national income (GNI) per capita of $905 or less account for nearly all maternal mortality (UNICEF, 2018). Sub-Saharan Africa accounts for more than half (60%) of these nations (Ugochukwu et al., 2022; UNICEF, 2018; UNFPA 2012). United Nations International Children and Educations Fund reported that Sub-Saharan Africa has the highest maternal mortality ratio at 535 maternal deaths per 100,000 live births (Kadia et al., 2020). Reducing maternal deaths globally to less than 70 per 100,000 live births by 2030 is a target of SDG 3, and aims to "ensure healthy lives and promote wellbeing for all at all ages". The causal factors for the death of mothers include those associated with poor health-provider competence, low number of health facility deliveries, inefficient referral systems for obstetric emergencies and lack of emergency obstetric services at facilities (United Kyei-Nimakoh et al., 2016).

This increase has continued, leaving Cameroon at 406 deaths per 100,000 live births (Kyei-Nimakoh et al., 2016) even though the training in EmONC has been implemented in Cameroon from 2009 (WHO, 2016). One of the striking things about these figures are that many strategies have been put in place to curb maternal mortality. Statistics show that globally used EmONC strategy and it reduced maternal mortality from 275 to 197 per 100,000 live births in the period 2000 to 2023. These various strategies were implemented in Cameroon and we have a very slow rate of decrease. The strategy EmONC was implemented in Cameroon and it was able to reduce mm from 782 to 406 in the years 2011 to 2024 very slow rate with respect to the standards put in place.

This got us thinking and asking the following questions, what can be the causes of maternal mortality in Cameroon? Are the causes the same as in other nations? If the causes are same what is bringing this slow decrease? Can it be that the causes are not well mastered in Cameroon? Questions were asked in line to the strategies to know whether the strategies used in Cameroon were different from those causing the decrease in other countries? And if the strategies are the same then does it mean it is not good for our country? All of this lead to the reasoning that it is possible that these strategies are not adapted to our setting.

To this the following plan of work was drawn, to analyze the challenges related to women which are associated to maternal mortality, to analyze the roles related

to women which are associated to maternal mortality, and to analyze the perceptions related to women which are associated to maternal mortality.

2. Materials and Methods

2.1. Population of Study

The study population was women at postpartum in the MIFI health district. The health structures were selected using the number of maternal deaths received this 2023. Out of the 20 health areas they were ranged and 6 selected taking note of the fact that the urban areas be equal to the rural areas. In the health areas the health structures were selected by balloting. The mothers were women at postpartum who have come for IWC and those at immediate postpartum in the centers pre-selected.

2.2. Inclusion Criteria

- The women at postpartum in the health structures selected for the study who are present and accept voluntarily to take part in the study.
- The criteria for women who were considered to have had complications, were those women who declared to have been hospitalized and/or treated after delivery from causes linked to pregnancy and delivery.

2.3. Exclusion Criteria

- The women of the health structures selected in the MIFI Health District who could not be available at the time of study and those who gave up on the way and those who did not give in their consent to participate.

2.4. Sample Size and Sample Technique

2.4.1. Sample Size

Our study used the formula below to get the sample size for the study population of women was calculated using the Cochrane formula.

$$n = \frac{z^2 * p(1-p)}{e^2}$$

$Z = 1.96$.

- $Z = 1.96$ (standard normal deviate at 95% confidence level).
- $p = 0.408$, $p = 0.408$, $p = 0.408$ (estimated prevalence of maternal mortality from prior district records).
- e = 0.05, e = 0.05, e = 0.05 (margin of error).

Substituting these values:

$$n = \frac{(1.96)^2 * (0.408)(0.592)}{e0.05^2} \approx 372$$

Thus, the minimum sample size for women was 372 respondents.

2.4.2. Sampling Technique

In this study stratified random sampling was used for the choice of the health

district. The twenty health areas of the district were divided into four clusters. In each cluster a purposive random sampling of health structures was done from each considering the classification of health districts into health centers, medicalized centers and district hospitals. To reduce bias, the structures of the public and the private structures were included. Therefore, a convenient sampling method was used to admit participants. Only centers with Maternity services were selected. The number of participants per facility and per category of personnel was based on the Ministry of Public Health prescription of staff standards by level of antenatal care, delivery, and postpartum (Cameroon Ministry of Public Health, 2020).

As to what concerns the women, a convenient sampling was used in each center selected. The sample size was divided equally to all the centers. Although convenience sampling is often critiqued for its limitations in representativeness, its adoption in this study is contextually justified. The sensitive nature of maternal health outcomes, combined with the ethical requirement of voluntary participation, restricts the feasibility of purely random selection. Furthermore, postpartum women are often available only briefly in health facilities, making convenience sampling the most practical approach. This strategy allowed the study to reach women directly experiencing the phenomenon under investigation, ensuring depth of data while still complementing findings with stratified facility selection to reduce bias. This choice demonstrates a balance between methodological ideals and field realities.

2.5. Instruments for Data Collection and Procedure

2.5.1. Instruments for Data Collection

Data collection instruments were designed to capture both quantitative and qualitative information. A structured questionnaire, divided into four sections, was administered to postpartum women. This tool included both closed- and open-ended questions.

2.5.2. Data Collection Procedure

Before collection of data the questionnaires were translated into French so the work may be adapted for both French and English speaking Cameroonians. The data was collected using surveys by a well-structured questionnaire for the mothers. While in the field we helped to fill the forms for those who could not read. For those who could fill we allowed them to do so.

2.5.3. Validity of the Instruments

The validity of the instruments used was established through content validation by academic supervisors from the Department of Nursing and Midwifery, Faculty of Health Sciences, University of Bamenda. Each component of the instruments was critically reviewed for relevance, clarity, fluency, and simplicity in relation to the study objectives. Based on expert feedback, necessary modifications were made, and redundant or irrelevant questions were removed to produce the final, valid

version of the data collection tools.

2.5.4. Reliability of the Instruments

To ensure the reliability of the data collection instruments designed for women a pretest was conducted with 62 participants, representing 13.7% of the target study population within private health facilities excluded from the main research. The reliability of the instruments was measured using Cronbach's alpha, complemented by a test-retest method with a two-week interval. This approach allowed comparison of responses at two different points in time, from which the correlation coefficients were calculated to assess the stability of the instruments.

Cronbach's alpha was applied to determine the internal consistency of the items covering sociodemographic characteristics, knowledge, perceptions, and practices related to maternal mortality across the three strata of respondents (women). The statistical computation was carried out using SPSS version 25. The formula for Cronbach's alpha is expressed as:

$$\propto = \frac{K}{K-1}\left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2}\right)$$

where:

- α alphaα is Cronbach's alpha.
- k is the number of items.
- σ_i^2 is the variance of each individual item.
- σ_t^2 is the variance of the total score for all items.

Table 1. Reliability verification of the study instruments (n = 62).

Instrument Section	Number of Items	Cronbach's Alpha	Cronbach's Alpha (Standardized)
Part I—Women (Sociodemographic & Knowledge on Maternal Mortality)	21 items	0.892	0.884

Source: Computed from SPSSv25.

The reliability analysis as shown in Table 1 of the research instruments demonstrated strong internal consistency across all sections of the tool, with Cronbach's alpha values ranging from 0.876 to 0.892 for the individual instruments administered to women, and an overall coefficient of 0.895 for the combined 47 items. According to conventional benchmarks, coefficients above 0.70 are considered acceptable, while those above 0.80 indicate good reliability, and values approaching 0.90 reflect excellent consistency. These results therefore confirm that the questionnaire was well structured, with the items within each section measuring related constructs consistently and coherently across respondents. The similarity between the raw and standardized Cronbach's alpha values (0.888 overall) further indicates that the scales performed reliably even when differences in item vari-

ances were accounted for. This high level of reliability implies that the instrument is stable, minimizes measurement error, and is appropriate for assessing socio-demographic factors, knowledge, perceptions, and strategies related to maternal mortality in the Mifi Health District.

2.6. Data Analysis

Descriptive statistics were used to summarize the characteristics of respondents and maternal health indicators across the Mifi Health District from 2021 to 2023. Variables such as maternal age, education level, parity, antenatal care attendance, and place of delivery were analyzed using frequencies, percentages, means, and standard deviations. This descriptive stage provided an overview of the data, highlighted key patterns, and set the foundation for subsequent inferential analysis.

2.7. Ethical and Administrative Considerations

Ethical approval was obtained from the University of Bamenda Institutional Review Board, followed by authorization from the West Regional Delegation of Public Health. Local authorities were consulted, and facility-level approval was secured before data collection commenced. Participants received an information sheet outlining the study's objectives, procedures, voluntary participation, and withdrawal rights. Written informed consent was obtained prior to participation. Confidentiality and anonymity were strictly maintained, with data coded and securely stored by the researcher. The study posed minimal risks beyond the potential discomfort of answering sensitive question.

3. Results

The challenges roles and perceptions of the women will be presented as follows, sociodemographic data of participants, challenges, roles and perceptions of respondents.

3.1. The Sociodemographic Data of the Women Who Participated Associated to Curbing Maternal Mortality

Table 2 shows that the population most respondents were between 25 - 34 years (85%), followed by those aged 35+ (78%), and younger women ≤ 24 years (80%). This indicates that the majority of participants were in their peak reproductive years. Over 97% had at least secondary education (50.4% secondary, 47.3% higher education), while only 2.3% had primary education. This suggests relatively high literacy, which could influence maternal health knowledge and care-seeking behaviors. Respondents were mostly housewives (28.2%), petty traders (27.9%), and salaried workers (25.1%), with smaller proportions being students (11.4%) and large-scale traders (6.3%). This distribution reflects a mix of informal and formal economic engagement, with many in vulnerable job categories. Nearly all (94.9%) lived within one hour of a facility, while very few reported distances of 2 - 5 hours. This suggests good geographical access; though other barriers may persist. A ma-

jority were married (71.5%), with 27.1% single and only 1.4% in other arrangements, indicating strong family structures among respondents.

Significant association ($p = 0.0001$) between age group and experienced complication with younger women had lower risk compared to older groups. There is a strongly significant ($p < 0.001$) between education and experienced complications where by women with secondary education fared better than those with higher or only primary education. The table also shows that there is significant ($p = 0.0166$) between profession and completion. It was also noticed that, salaried workers and large-scale traders had worse outcomes than housewives or petty traders. Distance to health facility is also related to experience of complication with Significant ($p = 0.0101$). Here women living farther away (≥5 hours) had higher risks. Care delays are highly significant ($p = 0.0009$) or associated to experience complication where by waiting over an hour increased risks. Being accompanied was very significant ($p = 0.0003$) to experiencing complications where by being accompanied reduced risk (OR = 0.25). Decision to get to the hospital was Significant ($p = 0.0172$) where by being told to wait by the hospital increased risks. Transport means also was Significant ($p = 0.0319$) with those using taxis had higher risks than motorbike or walking users. Support networks were significant ($p = 0.0084$) implying forming support groups had more positive impact than other approaches. Women's support roles were associated to complication experience. Highly significant ($p = 0.0032$) being a primary supporter was protective. Personal stories were Highly significant ($p < 0.001$) with experience complication considered effective in influencing health policies.

Table 2. Sociodemographic and contextual characteristics vs. maternal health complications (N = 351).

Variable	Category	No Complications	Yes Complications	Total (%)	Chi-Square	*p*-Value
Age Group	15 - 20	27 (7.69%)	2 (0.57%)	29 (8.26%)	60.42	0.0001
	21 - 30	169 (48.14%)	32 (9.10%)	201 (57.24%)		
	31 - 40	92 (26.2%)	25 (7.11%)	117 (33.31%)		
	>40	4 (1.14%)	0	4 (1.14%)		
Education Level	Higher Education	124 (35.33%)	42 (11.97%)	166 (47.3%)	21.04	0.000027
	Secondary	163 (46.44%)	14 (3.99%)	177 (50.43%)		
	Primary	5 (1.42%)	3 (0.85%)	8 (2.27%)		
Profession	Housewife	92 (26.21%)	11 (3.13%)	103 (29.34%)	9.25	0.055
	Petit trader	84 (23.93%)	14 (3.99%)	98 (27.92%)		
	Salaried worker	66 (18.8%)	22 (6.27%)	88 (25.07%)		
	Large scale trader	16 (4.56%)	6 (1.71%)	22 (6.27%)		
	Student	34 (9.69%)	6 (1.71%)	40 (11.4%)		
Distance to Health Facility	<1 hour	282 (80.34%)	53 (15.1%)	335 (95.44%)	10.97	0.0041
	2 - 4 hours	8 (2.28%)	2 (0.57%)	10 (2.85%)		
	~5 hours	2 (0.57%)	4 (1.14%)	6 (1.71%)		

Continued

Marital Status	Married	212 (60.11%)	39 (11.11%)	250 (71.52%)	2.70	0.440
	Single	75 (21.37%)	20 (5.7%)	95 (27.07%)		
	Others	5 (1.42%)	0	5 (1.42%)		

Source: Computed from r analysis of results.

3.2. Challenges of Women Associated to Reducing Maternal Mortality in the Mifi Health District of Cameroon

Table 3 showed that, most (80.6%) women were attended to within 10 minutes on arrival, but 18.5% waited an hour or more, showing some service delivery delays. A large majority (88%) were accompanied to health facilities, reflecting strong family/community involvement. Nearly half (48.4%) delayed going to the hospital because they were told to wait; 44.4% went immediately, while 3.4% first tried delivering at home. This highlights systemic and cultural delays in seeking care (the "three delays" model). The most common means was motorbike (53.8%), followed by private car (20.8%), taxi (20.5%), and walking (4.6%). This suggests that unsafe or unreliable transport modes dominate. The main reasons for poor timing were lack of awareness (29.3%), financial constraints (17.4%), and other personal reasons (39.6%). About 70% recognized diseases of mother/child and fetal growth complications, while 29.1% associated pregnancy with maternal/child death. Knowledge levels are moderately high but still leave gaps. Place of birth: Almost all delivered in facilities (health center 50.4%, hospital 47.3%), with only 1.4% at home, showing high institutional delivery rates.

Table 3. Challenges of women with respect to experienced maternal complications.

Question	Category	Reported Not Having complication (count%)	Reported to have had complication (count%)	Chi-square	*p*-value	OR	95% CI
Time of reception of care arrival	Less than one hour	244 (86.2%)	39 (13.8%)	16.478	0.0009	**2.93**	**1.54, 5.57**
	One hour and above	45 (69.2%)	20 (30.8%)				
Accompanied	NO	25 (61.0%)	16 (39.0%)	16.522	0.0003	**0.25**	**0.12, 0.51**
	YES	266 (86.1%)	43 (13.9%)				
Decision to go to the hospital	Arrived late	149 (78.0%)	42 (22.0%)	12.016	0.0172	**0.43**	**0.23, 0.80**
	Arrived in time	139 (89.1%)	17 (10.9%)				
Means of transport	Taxi	51 (70.8%)	21 (29.2%)	10.568	0.0319	ref	-
	Private car	61 (83.6%)	12 (16.4%)			**0.48**	**0.21, 1.07**
	Motor bike	165 (87.3%)	24 (12.7%)			**0.35**	**0.18, 0.69**
	On foot	14 (87.5%)	2 (12.5%)			**0.35**	**0.07, 1.71**

Continued

Reasons for ANC timing	I did not have money	46 (75.4%)	15 (24.6%)	5.525	0.1372	**0.59**	**0.30, 1.15**
	It was just lack of consciousness on it	203 (83.9%)	39 (16.1%)				
Dangers of pregnancy	Death of the woman and/or child	88 (86.3%)	14 (13.7%)	2.169	0.538		
	Diseases of mother and child, and complications of fetal growth	101 (69.2%)	45 (30.8%)			**2.80**	**1.44, 5.45**
Place of birth	Health center	143 (80.8%)	34 (19.2%)	4.294	0.2314	**0.68**	**0.38, 1.20**
	Hospital	143 (86.1%)	23 (13.9%)			ref	
	At home	3 (60.0%)	2 (40.0%)			**2.80**	**0.42, 18.79**

Source: Computed from r analysis of results.

Regarding challenges, the time to reception of care was crucial (p = 0.0009), with those waiting one hour facing more complications (39.5%) compared to those attended within 10 minutes (13.8%). Lack of accompaniment increased complications (39% vs. 13.9%, p = 0.0003). Decision-making also played a role (p = 0.0172), with women instructed to delay arrival at hospitals having higher complication rates (23.5%). Transport means were significant (p = 0.0319), with taxi users experiencing the highest complication rate (29.2%). Financial and awareness barriers to ANC did not show significant associations, nor did knowledge of pregnancy dangers or place of birth. After a startistic regression test the highest predictor was educational level which showed that Higher Education vs Secondary: aOR = 4.12 (95% CI: 2.18 - 7.79, $p < 0.001$). showing that Women with higher education have 4.12 times the odds of complications compared to those with secondary education, after adjusting for age, distance, and profession. In the case of Primary vs Secondary: aOR = 5.84 (95% CI: 1.18 - 28.93, p = 0.030) Women with primary education have 5.84 times the odds of complications.

3.3. Roles of Women Associated to Reducing Maternal Mortality in the Mifi Health District of Cameroon

For the roles of women as shown in Table 4, women identified several roles in curbing maternal mortality. Nearly half (46.7%) proposed forming support groups, while others emphasized community events (24.2%) or connecting mothers to resources (23.9%). Women also reported providing secondary (49.9%) or primary (27.4%) emotional and practical support, while 21.9% were occasional supporters. Education of family members (41.9%) and advocacy for healthcare access (28.2%)

were highlighted as key ways women influence families.

Finally, roles and perceptions revealed strong links with maternal complications. Women who engaged in support groups ($p = 0.0084$) and primary support provision ($p = 0.0032$) reported higher complication risks compared to occasional supporters. Perceptions of community support did not show significant differences, but personal stories were strongly significant ($p < 0.001$), with women who considered them "very effective" reporting higher complication experiences (29.5%).

Table 4. Roles of women with experienced complications.

Question	Category	No (count%)	Yes (count%)	Chi-square	*p*-value
create or strengthen support networks	By forming support groups	126 (76.8%)	38 (23.2%)	11.711	0.0084
	By organizing community events	72 (84.7%)	13 (15.3%)		
	By connecting mothers with resources	76 (90.5%)	8 (9.5%)		
providing emotional and practical support	Primary support providers	70 (72.9%)	26 (27.1%)	13.794	0.0032
	Secondary support providers	147 (84.0%)	28 (16.0%)		
	Occasional support providers	72 (93.5%)	5 (6.5%)		
	No support	3 (100.0%)	0 (0.0%)		
women use their influence within families	By educating family members	123 (83.7%)	24 (16.3%)	1.857	0.6026
	By advocating for healthcare access	80 (80.8%)	19 (19.2%)		
	By leading by example	82 (83.7%)	16 (16.3%)		

Source: Computed from r analysis of results.

3.4. Perception of Women Associated to Reducing Maternal Mortality in the Mifi Health District of Cameroon

Concerning the perception of women in Table 5, perceptions revealed mixed opinions: while 51.9% believed community support had no impact on maternal outcomes, 32.2% acknowledged some effect, and only 16% considered it greatly beneficial. Most women (83.2%) reported no direct challenges related to maternal health, though 16.8% did. Regarding advocacy, 51.6% believed personal stories were "somewhat effective" in shaping health policies, while 42.5% considered them "very effective".

Table 5. Perception of women with experienced complications.

Question	Category	No (count %)	Yes (count %)	Chi-square	*p*-value
community that support affect maternal health outcomes	Community support greatly improves outcomes	49 (87.5%)	7 (12.5%)	1.262	0.532
	It has some impact, but not much	95 (84.1%)	18 (15.9%)		
	It doesn't have any impact	148 (81.3%)	34 (18.7%)		
Experienced challenges	No	292 (100.0%)	0 (0.0%)	343.885	0
	Yes	0 (0.0%)	59 (100.0%)		
Personal stories and experience	They are very effective	105 (70.5%)	44 (29.5%)	34.461	0
	They are somewhat effective	171 (94.5%)	10 (5.5%)		
	They have little to no effect	16 (76.2%)	5 (23.8%)		

Source: Computed from r analysis of results.

4. Discussion

4.1. Sociodemographic of Participants and Trends

The findings highlight important socio-demographic and behavioral determinants of maternal health. The predominance of women aged 25 - 34 years aligns with the reproductive peak age in sub-Saharan Africa (Iqbal et al., 2014). Although most women lived within one hour of a health facility, complications were still prevalent, suggesting that geographical proximity alone does not guarantee timely or quality care (Mihiretu et al., 2021). The significant role of education was notable, with women of higher education surprisingly showing more complications. This may reflect higher health awareness and reporting among educated women, as seen in similar studies in Ethiopia and Nigeria (Illah et al., 2013; McCarthy & Maine, 1992). The adjusted odds ratios (aOR) indicate a statistically significant association between lower levels of education and higher odds of maternal complications when compared to secondary education. This suggests that even though these women are more educated, they may be older at pregnancy, have higher career demands, or face health conditions associated with delayed childbearing all of which could increase risk. Conversely, women with primary education exhibited an even higher risk, with 5.84 times the odds of complications compared to those with secondary education. This may reflect reduced health literacy, poorer utilization of antenatal care, delayed health-seeking, or socio-economic disadvantages that limit access to timely obstetric care.

Profession and socioeconomic status also influenced maternal outcomes. Salaried workers and large-scale traders showed higher complication rates, possibly due to older maternal age or higher-risk pregnancies. Transport means, particularly reliance on taxis, was linked with complications, underscoring the importance of efficient referral and emergency transport systems, a major challenge in many Af-

rican settings (Filippi et al., 2016).

Delay in care-seeking and hospital instructions to wait before coming emerged as critical contributors to complications. This aligns with the "three delays model" (Ronsmans & Graham, 2006), particularly delays in deciding to seek and receive appropriate care. Similarly, accompaniment to health facilities significantly reduced risks, highlighting the role of social and family support in maternal survival (Enquete Demographique, 2004).

Women also acknowledged their potential role in reducing maternal mortality, particularly through support groups, community mobilization, and educating families. However, perceptions were divided: many underestimated the value of community support, despite evidence showing that women's groups and collective action can significantly reduce maternal and neonatal deaths (Mangham et al., 2012). The recognition of personal stories as a powerful advocacy tool reflects growing awareness of participatory approaches in shaping health policy, as seen in community-based maternal health interventions worldwide (Enquete Demographique, 2004).

Overall, the study reinforces the need for multifaceted interventions addressing not just facility accessibility but also social, cultural, and behavioral barriers. Empowering women as advocates, strengthening emergency referral systems, and fostering supportive networks could significantly reduce maternal complications and mortality in Cameroon.

4.2. Challenges Roles and Perceptions of Women Associated to Maternal Mortality in the Mifi Health District of Cameroon

4.2.1. Access to Health Facilities

Distance to health facilities was significant ($p = 0.004$). Women living farther away (5 hours) experienced more challenges—confirming the "Three Delays Model" (MINSANTE, 2015). Delay in deciding to seek care, Delay in reaching care, Delay in receiving care.

After arrival time of reception by the health personnel is a factor. Waiting more than one hour after arrival was associated with more maternal challenges ($p = 0.0003$). Delays at facilities have been globally documented as a major maternal mortality risk (CDC, 2016). The finding matches those from WHO's 2019 report, which emphasizes reducing health facility delays to improve outcomes.

4.2.2. Social and Family Support

Accompanying person during labor is a major factor too. Being accompanied significantly reduced challenges ($p = 0.0001$). Companionship is protective, as emotional and logistical support improves outcomes (CDC, 2009).

Interestingly, even when husbands accompanied women, there were still high challenges. This shows that mere accompaniment without quality of care or financial empowerment is not enough (Egbe et al., 2016) show that male involvement improves outcomes only when combined with decision-making support and financial preparedness.

4.2.3. Cultural and Economic Factors

Cultural barriers (8.83% of women) significantly impacted access to care (p = 0.0078).

This confirms that harmful traditional practices delay care (Egbe et al., 2016). Financial constraints were the leading barrier (34.19%), confirming the role of poverty in maternal health inequalities (Ministry of Health, 2016).

Many women believed in "mystical" causes of complications (e.g., witchcraft). This shows persistent traditional beliefs which need to be addressed through culturally sensitive education. These findings are consistent with studies from rural Tanzania (Kadia et al., 2020) where supernatural causes were commonly cited.

4.2.4. Antenatal Care (ANC) and Timing

96.29% attended ANC, but many started late (after 12 weeks). Late ANC attendance was significantly associated with maternal challenges (p = 0.033). WHO recommends that ANC should begin before 12 weeks Studies from Ethiopia and Nigeria (WHO, 2021; UNICEF, 2022) also report that late ANC booking contributes to maternal mortality.

4.2.5. Community Participation and Women's Roles

Most women (87.74%) believed women can help curb maternal mortality. Their proposed roles included attending ANC, educating others, and listening to counseling. Education and awareness were cited as key strategies. Emotional support and community group formation were the main community strategies to help pregnant women. UNFPA (2011) stresses community-based interventions and women empowerment as crucial to curb maternal mortality.

4.2.6. Policy and System-Level Issues

Lack of healthcare facilities, poor road infrastructure, and financial barriers were highlighted as systemic issues. Most respondents (92%) emphasized the need for the government to prioritize maternal mortality reduction matching global SDG 3.1 goals. Other Sub-Saharan African studies show similar findings government support is essential for achieving Sustainable Development Goals (SDGs) related to maternal health (African Development Bank, 2021).

5. Conclusion

Late antenatal care (ANC) attendance emerged as a significant predictor of maternal mortality in Mifi, yet this delay is often rooted in cultural beliefs, lack of awareness, and financial barriers. To address this, policymakers should subsidize ANC services, particularly for rural and low-income women, while health facilities should redesign ANC sessions to be more interactive and respectful. Community campaigns that promote the importance of early ANC, led by women's groups and local influencers, could make ANC not just a medical obligation but a community norm. When women start care early, complications are detected sooner, and lives are saved.

Recommendations

- ✓ International policies to favour implementation of strategies put in place to reduce mm.
- ✓ Establish and implement continuous, proactive supervision.
- ✓ Sensitize women on ANC, family planning, and facility delivery.
- ✓ Increasing community sensitization through phone messages and recruitment of pregnant women for anc.
- ✓ Women should be reminded and enrolled online and WhatsApp messages to enhance them in their roles which include attending ANC, educating others, and listening to counseling.
- ✓ Enhance emotional support and community group formation as main community strategies to help pregnant women.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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