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THE INTERPLAY OF MEDICAL, SOCIO–CULTURAL AND SYSTEMIC DRIVERS OF MATERNAL AND NEWBORN MORTALITY IN ANKA LGA, ZAMFARA, NIGERIA

***[1,2]Habibu Muhammad, [3,4]Bello Almu, [2,5]Manir Yahaya, [2,6]Ibrahim Aliyu, [2,7]Dauda Salisu and [2,8]Bashar Lawali Malan**

[1]National Health Fellow, Anka LGA, Zamfara State State, Nigeria.
[2]National Health Fellowship Program, Federal Ministry of Health and Social Welfare, Nigeria.
[3]Medical Social Services Department, Usmanu Danfodiyo University Teaching Hospital Sokoto, Nigeria.
[4]Department of Public Health, Zamfara State University Talata Mafara (ZAMSUT), Zamfara, Nigeria.
[5]National Health Fellow, Maradun LGA, Zamfara State, Nigeria.
[6]National Health Fellow, Bukkuyum LGA, Zamfara State, Nigeria.
[7]National Health Fellow, Talata Mafara LGA, Zamfara State, Nigeria.
[8]National Health Fellow, Bakura LGA, Zamfara State, Nigeria.

*Corresponding authors' email: habibu.muhammad@healthhfellows.ng

ABSTRACT

Maternal and newborn mortality remains a critical public health challenge in Nigeria, with the burden disproportionately high in rural northern regions. This study investigated the complex interplay of medical, socio-cultural, and systemic drivers of maternal and newborn mortality in Anka Local Government Area, Zamfara State. A descriptive cross-sectional survey was conducted among 237 women of reproductive age, utilizing a health guided by the Health Belief Model, this study used a cross-sectional survey design and a structured questionnaire to collect data on socio-demographic characteristics, medical complications, socio-economic and cultural determinants, and health service availability. Findings revealed that nearly half (46%) of women experienced obstetric complications, primarily eclampsia (13.9%), obstructed labor (12.2%), and hemorrhage (10.1%). Alarmingly, over half (51.9%) reported losing a baby, while skilled birth attendance was low (47.7%). Key barriers included lack of awareness (32.1%), limited decision-making autonomy (67.1% decisions made by husbands), and distance to facilities. Although most women acknowledged available health services, significant concerns emerged regarding emergency readiness and inconsistent drug supply. The study concludes that maternal and newborn mortality in Anka LGA results from interconnected medical risks, deep-rooted socio-cultural practices, and systemic health service failures. Sustainable reduction requires integrated interventions addressing community awareness, economic empowerment, and substantial strengthening of primary healthcare quality and emergency obstetric care.

Keywords: Maternal and Newborn Mortality, Health Systems, Socio-cultural Factors

INTRODUCTION

Maternal and newborn mortality persist as one of the most critical public health challenges worldwide, reflecting stark global inequities. Maternal mortality, defined as the death of a woman during pregnancy, childbirth, or within 42 days of termination of pregnancy, continues to be a major cause of death among women of reproductive age, particularly in developing nations (World Health Organization, 2023). Despite global progress, the burden is disproportionately borne by sub-Saharan Africa (SSA). Recent estimates indicate that the African region alone accounts for a staggering 70% of global maternal deaths, with approximately 178,000 mothers dying each year (World Health Organization [WHO] Regional Office for Africa, 2025). Although the regional maternal mortality ratio (MMR) has declined by 40% between 2000 and 2023, from 727 to 442 deaths per 100,000 live births, the current annual reduction rate of 2.2% is grossly insufficient. At this pace, the region is projected to have nearly 350 maternal deaths per 100,000 live births by 2030, which is five times higher than the Sustainable Development Goal (SDG) target (WHO Regional Office for Africa, 2025). The situation is similarly dire for newborns; SSA accounts for 46% of global newborn deaths, and its neonatal mortality rate is also projected to be about twice the relevant SDG target by 2030 (WHO Regional Office for Africa, 2025).

Within SSA, Nigeria exemplifies this regional crisis, contributing significantly to the continental total. The country has one of the highest maternal mortality rates globally, accounting for nearly 20% of global maternal deaths despite representing only about 2.5% of the world's population (UNICEF, 2021). According to the Nigeria Demographic and Health Survey (NDHS, 2018), the MMR is estimated at 512 deaths per 100,000 live births (NPC & ICF, 2019). This high rate is driven by preventable obstetric complications, limited access to quality health services, and deep-rooted socio-cultural barriers (World Bank, 2022).

The literature reveals that maternal and newborn mortality in northern Nigeria is driven by a critical interplay of factors. A key medical driver, Severe Acute Malnutrition (SAM), is exacerbated by systemic barriers like the high cost of imported treatments, though this can be mitigated by developing locally formulated, acceptable therapeutic foods (Sa'eedu et al., 2025). Concurrently, mortality risk is heightened by socio-cultural drivers, such as deficits in parental health knowledge, which are perpetuated by weak public health communication systems a failure of systemic health education (Yankuzo et al., 2025). Together, these studies illustrate that mortality is an outcome of intertwined medical, socio-cultural, and systemic conditions.

The leading causes of maternal deaths in Nigeria mirror those found across SSA. A systematic review identified obstetric haemorrhage (28.8%), hypertensive disorders in pregnancy (22.1%), non-obstetric complications (18.8%), and pregnancy-related infections (11.5%) as the primary cause groups (Musarandega et al., 2021). Postpartum haemorrhage and pre-eclampsia/eclampsia are the most common specific

causes within these groups. These conditions are particularly lethal in Nigeria due to systemic health sector failures. The Nigerian health system is plagued by problems of service quality, including unfriendly staff attitudes, inadequate skills, decaying infrastructure, and chronic shortages of essential drugs (Omo-Aghoja et al., 2020; Olonade et al., 2019). Maternity care, though organized around a three-tiered system (primary, secondary, and tertiary), is undermined by ill-equipped primary health centres that serve as the first point of contact for most women (Olonade et al., 2019). This results in persistent gaps in antenatal care coverage and uneven geographic access to emergency obstetric care (Adeniran et al., 2020).

Beyond medical causes, maternal mortality in Nigeria is deeply influenced by socio-economic and cultural determinants (Almu and Amzat 2024; Amzat et al., 2024). Poverty, low levels of female education, and high fertility rates combine to increase women's vulnerability (Olonade et al., 2019). Cultural beliefs and practices, such as food taboos for pregnant women and patriarchal structures that limit women's autonomy in healthcare decision-making, further delay or prevent women from seeking timely care (Olonade et al., 2019). This interplay of financial barriers, long distances to facilities, and cultural restrictions prevents many women from utilizing skilled birth attendance, thereby increasing the risk of death from preventable complications. The burden of maternal mortality in Nigeria is not evenly distributed. Northern Nigeria, particularly the North-West region where Zamfara State is located, records significantly higher maternal mortality rates due to a confluence of prevailing issues such as pervasive poverty, early marriage, very low levels of female education, high fertility rates, and cultural norms that delay or prevent women from seeking timely care (Amzat et al., 2024).

Zamfara State is characterized by high fertility rates, early marriages, low antenatal care coverage, and limited access to emergency obstetric services. Despite national policies and intervention programs such as the Midwives Service Scheme and the Basic Health Care Provision Fund (BHCPF), maternal health outcomes remain poor. The state's health system continues to struggle with inadequate manpower, poorly equipped facilities, low health-seeking behaviour, and socio-cultural barriers. While the federal government and international agencies have initiated various programs across the state, these efforts have often failed to account for local disparities in needs and outcomes, leaving some high-burden areas inadequately served. Within Zamfara State, Anka Local Government Area (LGA) has emerged as a critical hotspot for maternal and newborn mortality. In rural areas like Anka, access to emergency obstetric care is often critically hindered by inadequate health facilities, poor road networks, pervasive insecurity, and a general lack of skilled personnel. Despite interventions from the Zamfara State Ministry of Health and international NGOs, maternal and newborn deaths in Anka remain unacceptably high. The persistence of this crisis suggests that existing interventions may not fully align with the unique socio-cultural and logistical challenges in the area. This situation signals an urgent need for a deeper, localized investigation into the root causes of mortality. This study, therefore, seeks to investigate the causes of maternal and newborn mortality in Anka LGA, Zamfara State. Specifically, to assess the prevalence of direct medical complications and outcomes related to pregnancy and childbirth among women in Anka; to evaluate the socio-economic and cultural barriers that influence access to maternal healthcare services in Anka LG; and to determine the availability, perceived quality, and readiness of maternal and newborn health services in the community.

Theoretical Underpinning

This study is anchored on the Health Belief Model (HBM) as its guiding theoretical framework. Originally developed in the 1950s by social psychologists at the U.S. Public Health Service, the HBM is widely used to explain and predict health-related behaviours by focusing on individuals' perceptions of health risks and the benefits of and barriers to engaging in preventive action (Rosenstock, 1974). The model is particularly relevant to maternal and newborn health in Anka LGA because it helps explain why women may or may not seek timely antenatal care, skilled delivery, or facility-based maternal health services despite the risks of complications.

The model's key constructs provide a robust lens for this study:

i. ***Perceived Susceptibility*****:** This refers to a woman's belief about her likelihood of experiencing pregnancy or childbirth complications. In Anka, many women may underestimate their risk, which can explain delays in seeking care (Feyisetan et al., 2019).
ii. ***Perceived Severity*****:** This involves the perceived seriousness of maternal or newborn complications. In contexts where maternal deaths are normalized, perceived severity is often low (Bello et al., 2021).
iii. ***Perceived Benefits*****:** This denotes a woman's belief in the effectiveness of preventive health actions, such as antenatal care or skilled birth attendance (Ahinkorah et al., 2021).
iv. ***Perceived Barriers*****:** Barriers such as cost, distance, lack of autonomy, and poor facility quality are prevalent in rural Nigeria and are major deterrents to seeking care (Adebayo et al., 2021).
v. ***Cues to Action and Self-Efficacy*****:** Triggers like community health talks and a woman's confidence in her ability to seek care are crucial. Antenatal education can enhance this self-efficacy (Iliyasu et al., 2020).

The Health Belief Model (HBM) is a relevant and moderately applicable theoretical framework for this study, providing a useful but ultimately limited lens through which to interpret the complex findings. Its primary strength lies in its ability to frame the individual-level cognitive and perceptual barriers that prevent women from seeking care. The study's data aligns directly with key HBM constructs: Perceived Susceptibility is low, as many women underestimate their risk of complications; Perceived Severity is diminished by the normalization of maternal death; Perceived Benefits of skilled care are overshadowed by significant Perceived Barriers, such as cost (62.9%), distance, and lack of autonomy (67.1% of decisions made by husbands). Furthermore, the lack of Cues to Action (e.g., effective health education) and low Self-Efficacy due to financial and social dependence prevent women from acting on any health intentions they might have. In this regard, the HBM successfully explains the "demand-side" failures, illustrating why women, as individuals, may not utilize available services.

However, the HBM's primary weakness is its individualistic focus, which makes it insufficient to fully address the paper's core argument about the "interplay" of drivers. The model is less equipped to account for the powerful "supply-side" and systemic failures that the study powerfully documents. The finding that women are uncertain about a facility's emergency readiness (42.2%) or that essential drugs are only "sometimes" available (49.4%) points to structural

deficiencies that exist independently of an individual's perceptions. A woman could have high perceived susceptibility, severity, and benefits, but if the health facility lacks drugs, equipment, or skilled staff, her outcome may still be fatal. The HBM does not adequately capture these overarching systemic and political failures. Similarly, while the model can note "cultural beliefs" as a barrier, it provides less analytical power for deeply entrenched patriarchal power structures that systematically remove decision-making autonomy from women.

In conclusion, while the HBM suitably frames the individual-level, socio-cultural, and perceptual determinants of health-seeking behaviour identified in Anka LGA, it is an imperfect fit for a paper whose findings so strongly emphasize the lethal synergy between individual agency and systemic collapse. The paper's conclusion that an integrated approach is needed correctly points beyond the HBM's explanatory scope, suggesting that while the model is a good starting point, a more comprehensive framework incorporating health systems theory or a socio-ecological model would be necessary to fully capture the complex, multi-level causality of maternal mortality in this context. Thus, the HBM illustrates that maternal and newborn mortality in Anka is not only the result of medical complications but also the outcome of perceptions, beliefs, and systemic barriers.

MATERIALS AND METHODS

This study employed a descriptive cross-sectional survey design to quantitatively investigate the drivers of maternal and newborn mortality in Anka Local Government Area, Zamfara State. The research was conducted within the secure confines of Anka Metropolis, a necessary adaptation due to pervasive insecurity that rendered rural areas. The targeted population was women of reproductive age (15-49 years) attending these ANC clinics, a group strategically selected for their direct experience with the maternal healthcare system in women and children welfare clinic, PHC Galadunci and PHC Sabon Gari, sample size of 237 respondents was determined using the Raosoft calculator with a 95% confidence level and a 5% margin of error. A hybrid sampling technique was utilized, purposively selecting the three PHCs and women attending ANC, followed by a systematic sampling of every second or third eligible woman at the clinics to ensure representativeness. Data was collected through face-to-face interviews using a structured questionnaire administered on the KoboToolbox platform via Computer-Assisted Personal Interviewing (CAPI), a method chosen to overcome literacy barriers and enhance data quality. The questionnaire, pre-tested and adapted from standard instruments, was divided into four sections: socio-demographics, medical causes and history, socio-economic and cultural determinants, and the availability and quality of health services. The collected data was analyzed using descriptive statistics, including frequencies and percentages, and presented in tables. Ethical approval was granted by the Zamfara State Ministry of Health, and the study adhered to the Helsinki Declaration by obtaining informed consent, ensuring confidentiality, and maintaining participant anonymity. Key limitations included its restriction to the metropolis, potentially limiting generalizability to rural populations, and the potential for recall and social desirability bias among respondents.

RESULTS AND DISCUSSION

This section presents the findings of the study on the drivers of maternal and newborn mortality in Anka Local Government Area, Zamfara State. The results are organized into four key areas to provide a comprehensive understanding of the issue. First, the socio-demographic profile of the 237 respondents is detailed, establishing the context of the study population. Subsequently, the data on direct medical causes and health outcomes related to pregnancy and childbirth are presented. The analysis then shifts to the socio-economic and cultural determinants that influence healthcare access and decision-making. Finally, the availability, perceived quality, and readiness of maternal and newborn health services within the community are examined. The findings collectively reveal a complex interplay of individual, cultural, and systemic factors contributing to the high mortality rates in the region.

Table 1: Socio-demographic Characteristics of the Respondents

	Frequency	Percentage
Age		
15–19	12	5.06
20–24	41	17.3
25–29	69	29.11
30–32	73	30.80
35 and Above	42	17.72
Total	237	100.00
Marital Status		
Married	174	73.42
Widow	34	14.35
Divorced	25	10.55
Single	4	1.69
Total	237	100.0
Education		
Secondary	108	45.57
No formal education	85	35.86
Tertiary	44	18.57
Total	237	100
Occupation		
Housewife	134	56.54
Civil Servant	33	13.92
Others	31	13.08
Trader	27	11.39

	Frequency	Percentage
Farmer	12	5.06
Total	237	100.00
Children		
1-2	99	41.77
3-4	95	40.08
5 and Above	30	12.66
None	13	5.49
Total	237	100.00

Table 1 above presents the socio-demographic profile of the respondents which provides important background information that helps in understanding the factors influencing maternal and newborn mortality in Anka Local Government. The age distribution shows that the majority of respondents fall within the 30–32 years (30.80%) and 25–29 years (29.11%) categories, followed by 35 years and above (17.72%) and 20–24 years (17.3%), while the smallest proportion were adolescents aged 15–19 years (5.1%). This pattern reflects that maternal health challenges are largely experienced among women in their reproductive prime, especially those in their late twenties and early thirties. In terms of marital status, a vast majority of respondents were married (73.42%), while widows (14.35%) and divorced women (10.55%) also represented significant proportions. Only a small fraction was single (1.7%). This indicates that maternal and newborn health outcomes are predominantly tied to marital unions, which also shape decision-making and access to care. The presence of widows and divorced women highlights the vulnerabilities that may arise from lack of spousal support, potentially affecting healthcare-seeking behaviors.

Educational attainment reveals a mixed picture: about 45.57% of respondents had secondary education, while 35.86% had no formal education, and only 18.57% attained tertiary education. This suggests that although education is gradually improving, a considerable portion of women still lack formal schooling. Low literacy levels may directly affect awareness of maternal health risks, utilization of antenatal care, and the ability to make informed healthcare decisions. Occupational distribution on the other hand shows that a majority of respondents were housewives (56.54%), with others engaged as civil servants (13.92%), traders (11.39%), farmers (5.06%), and a small proportion in other informal activities (13.08%). The dominance of housewives underscores the dependence of many women on their spouses for financial support, which may limit autonomy in accessing health services. On the other hand, women engaged in trading, farming, and civil service may have relatively better financial independence, which could influence their ability to seek timely healthcare. Lastly, Household size, measured by the number of children, shows that 41.77% had 1–2 children, 40.08% had 3–4 children, while 12.66% had 5 or more children. Only a small minority (5.49%) reported not having children. This indicates that high parity is relatively common, with significant implications for maternal health, as repeated pregnancies and deliveries are associated with increased risks of complications such as hemorrhage and maternal depletion syndrome.

Table 2: Medical Causes of Maternal and Newborn Mortality

	Frequency	Percentage
Experienced Complications		
No	127	53.59
Yes	109	45.99
Missing	1	0.42
Total	237	100.00
Types of Complications		
Don't know	67	28.27
High BP (Eclampsia)	66	27.84
Obstructed labor	29	12.25
Severe bleeding	58	24.47
Infection	17	7.17
Total	237	100.00
Lost a Baby		
Yes	123	51.90
No	114	48.10
Total	237	100
Skilled Worker Present		
Yes	113	47.68
No	67	28.27
Delivered at home	57	24.05
Total	237	100
Antenatal Care Place		
Govt Hospital	137	57.81
Do not attend	61	25.74
TBA	38	16.03
Missing	1	0.42
Total	237	100

Table 2 shows the analysis of medical causes which provides insights into the direct health-related conditions contributing to maternal and newborn mortality in Anka Local Government. When asked whether they had experienced medical complications during pregnancy or childbirth, 53.6% of respondents said "No", while 46.0% acknowledged "Yes". This indicates that nearly half of the women had faced some form of obstetric complication, highlighting the significant burden of maternal health risks in the area. Among the complications reported, a considerable proportion of women responded "Don't know" (28.27%), which points to poor health awareness and limited knowledge of medical conditions. Among those who identified specific complications, the most common were high blood pressure/eclampsia (27.84%), obstructed labor (12.25%), severe bleeding/hemorrhage (24.47%), and infections (7.17%). These conditions align with the globally recognized "direct causes" of maternal mortality, particularly hypertensive disorders and hemorrhage, which are leading killers of mothers in low-resources settings.

The study further revealed that 51.90% of women reported having lost a baby during or shortly after childbirth, while 48.10% had not. This figure is concerning, as it indicates that almost over half of the women has experienced perinatal or neonatal loss, pointing to gaps in both maternal and newborn healthcare delivery. Skilled attendance at delivery on the other hand remains a challenge, as less than half of respondents (47.68%) reported the presence of a skilled health worker during their last delivery. Alarmingly, 28.3% delivered without skilled assistance, while 24.1% delivered at home. This suggests that a significant number of women still rely on traditional or unskilled care, which greatly increases the risk of complications leading to maternal and newborn deaths. Patterns of antenatal care utilization further reinforce this challenge. A majority of women (57.81%) reported attending antenatal care at a government hospital or primary health center, which is encouraging. However, 25.7% did not attend antenatal care at all, and 16.0% relied on traditional birth attendants. The relatively high proportion of women who either avoid antenatal care or depend on unskilled providers reflects persistent barriers such as cost, distance, cultural influences, or lack of awareness. This poor utilization of antenatal service directly contributes to preventable maternal and newborn death.

Table 3: Socio-economic and Cultural Determinants

	Frequency	Percentage
Decision to Seek Healthcare		
Yes	108	45.58
Sometimes	77	32.48
No	52	21.94
Total	237	100
Who Decides		
My Husband	159	67.09
Myself	42	17.72
Family Elders	34	14.35
Joint	2	0.84
Total	237	100
Cultural Beliefs Discourage Hospital Delivery		
No	129	54.43
Not sure	55	23.21
Yes	53	22.36
Total	237	100
Distance to Facility		
1-3 km	121	51.06
<1 km	52	21.94
4-6 km	51	21.52
>6 km	13	5.48
Total	237	100
Barriers		
Cost	49	20.68
Distance	41	17.30
Lack of awareness	76	32.07
Cultural Beliefs	54	22.78
Poor service	17	7.17
Total	237	100

The findings from table 3 reveal how socio-economic conditions and cultural practices influence maternal and newborn mortality in Anka Local Government. When asked about their freedom to access healthcare, less than half of the respondents (45.58%) reported having full autonomy to seek care whenever needed, while 32.48% said "sometimes", and 21.94% had no freedom at all. This shows that a substantial proportion of women face restrictions in making healthcare decisions, which may delay timely medical intervention during pregnancy and childbirth. Limited autonomy is a well-known barrier to maternal survival, as delays in deciding to seek care often lead to preventable deaths. Decision-making regarding maternal healthcare was found to be largely dominated by men. A significant 67.09% reported that their husbands make healthcare decisions, while only 17.72% of women decided for themselves. Additionally, 14.35% said

decisions were made by family elders, and a negligible 0.84% reported joint decisions. This highlights the patriarchal nature of healthcare decision-making in Anka, where women's voices are often suppressed, limiting their ability to access timely and appropriate maternal health services. On the issue of cultural beliefs, responses were mixed. While a slight majority (54.43%) stated that there were no cultural beliefs discouraging hospital delivery, 23.21% admitted the existence of such beliefs, and 22.36% were not sure. The fact that one in five respondents acknowledged cultural barriers suggests that traditional norms still play a role in discouraging women from seeking facility-based care, thereby contributing to home deliveries and reliance on traditional birth attendants. Accessibility to healthcare facilities was another crucial determinant. Over half of the respondents (51.06%) lived within 1–3 km of a health facility, while 21.94% were less than 1 km away, and another 21.52% lived 4–6 km away. Only 5.48% resided more than 6 km away. Although most women live within a reasonable distance to health facilities, other barriers such as cost and cultural restrictions likely hinder their effective utilization. On the major barriers to accessing maternal healthcare, the most common challenge identified was lack of awareness (32.07%), cultural beliefs (22.78%, followed by cost (20.68%), and distance (17.30%). A smaller proportion (7.17%) cited poor service delivery. This indicates that lack of awareness remain the single most critical barrier, with over six in ten women struggling to afford maternal health services. The interplay of economic hardship with cultural restrictions and limited awareness further exacerbates maternal and newborn health outcomes in the area.

Table 4: Availability, Accessibility and Quality of Services

	Frequency	Percentage
Are Facilities Available?		
Yes	162	68.35
No	47	19.83
Don't know	28	11.84
Total	237	100
Facilities Equipped for Emergencies?		
Not sure	100	42.19
Yes	78	32.92
No	59	24.89
Total	237	100
Respectful Care		
Yes	136	57.38
Sometimes	69	29.12
No	32	13.5
Total	237	100
Essential Drugs Availability		
Sometimes	117	49.37
Always	63	26.58
Rarely	39	16.46
Never	18	7.59
Total	237	100
Overall Service Quality		
Good	144	60.75
Very Good	58	24.47
Fair	35	14.78
Total	237	100

The responses in the Table 4 highlight the condition of maternal and newborn healthcare delivery systems in Anka Local Government, with a focus on availability of services, adequacy of facilities, and perceived quality of care. Most respondents (68.35%) acknowledged that maternal and newborn health services were available in their community, while 19.83% said "No", and 11.84% were uncertain. This shows that although services exist in many areas, a significant proportion of women either lack access or are not aware of the available services. Such gaps in awareness can hinder utilization and contribute to preventable maternal and newborn deaths.

When asked whether available health facilities were well-equipped to handle emergencies, responses reflected uncertainty. A large proportion (42.19%) stated they were "Not sure", while 32.92% believed facilities were adequately equipped, and 24.89% disagreed. This uncertainty signals a lack of confidence in the health system, likely stemming from inadequate infrastructure, shortage of trained personnel, and irregular supply of essential medical equipment. Given that obstetric complications often require urgent interventions, inadequate emergency preparedness directly increases the risk of maternal and newborn mortality. Perceptions of respect on the other hand and safety during childbirth were relatively encouraging. More than half of respondents (57.38%) felt safe and respected by health workers, while 29.12% said "sometimes", and 13.5% reported they did not feel safe or respected. Although a majority expressed positive experiences, the presence of women who felt disrespected or mistreated reflects persistent issues of poor interpersonal communication, neglect, or abuse during childbirth, which can discourage facility-based deliveries.

On the availability of essential drugs and delivery items, responses were less optimistic. Nearly half (49.37%) reported that these supplies were available "sometimes", while only 26.58% said they were "always" available. On the other hand, 16.46% said supplies were rarely available, and 7.59% reported they were never available. This inconsistency in

supply weakens maternal and newborn healthcare delivery, leaving women vulnerable during emergencies when life-saving drugs such as oxytocin or antibiotics are required. For the rate the overall quality of maternal health services, a majority of respondents expressed satisfaction. About 60.75% rated services as "Good", 24.47% rated them "Very Good", while 14.78% said they were only "Fair." This shows that while the general perception of service quality is positive, issues relating to infrastructure, availability of drugs, and respect for patients still undermine the overall effectiveness of the system.

Discussion

This study provides a granular, context-specific analysis of the drivers of maternal and newborn mortality in Anka LGA, moving beyond broad national trends to reveal the precise mechanisms through which medical, socio-cultural, and systemic factors intertwine to create a persistent crisis. The findings not only confirm the well-documented challenges across Nigeria but, more importantly, illuminate their unique configuration and devastating synergy in a high-burden, rural setting like Zamfara State.

The socio-demographic profile of respondents characterized by youth, high fertility, and significant educational limitations, establishes a baseline of vulnerability that is consistently linked to poor maternal outcomes, as noted by Meh et al. (2019) and Yankuzo et al. (2025)**.** This aligns with the national pattern identified by Olonade et al. (2019), where poverty and low female education are fundamental drivers of mortality. However, our findings go further by contextualizing this vulnerability within the Health Belief Model (HBM). The low educational attainment directly impacts key HBM constructs: it fosters low *perceived susceptibility* and *severity*, as women may lack the health literacy to recognize danger signs, and it exacerbates *perceived barriers* by limiting economic autonomy and reinforcing dependence on patriarchal decision-making structures.

The identification of hypertensive disorders, haemorrhage, and obstructed labour as the primary medical causes is consistent with clinical evidence from across Nigeria, including the systematic review by Tasneem et al. (2019). However, the critical finding is not the presence of these conditions, but the systemic failures that render them fatal. The low rate of skilled birth attendance and the reliance on home births or Traditional Birth Attendants (TBAs) directly link to the poor outcomes from these complications. This connects to the work of Olawade et al. (2023), whose midwife respondents highlighted the dangers of mismanagement at TBA centres. Our study validates this concern at the community level, showing that when complications arise in these settings, the "Three Delays Model" is activated: delay in deciding to seek care due to low risk perception (HBM), delay in reaching care due to distance and cost, and delay in receiving adequate care at ill-equipped facilities.

The socio-cultural determinants uncovered, specifically, male-dominated healthcare decision-making and the pre-eminence of cost as a barrier are not novel in isolation, as supported by Amzat et al. (2024) and Maitanmi et al. (2023). Yet, their potency in Anka is amplified by the region's specific socio-economic context. The finding that cost is the paramount barrier provides a critical local lens on the national inequalities quantified by Belay et al. (2024) and the well-being linkages found by Adejoorin et al. (2024). It demonstrates that even when women overcome cultural restrictions and perceive the benefit of facility-based care, the financial barrier is often insurmountable, effectively excluding them from the formal health system. This creates a dependency on the informal sector, which, while sometimes aided by interventions like the Clean Delivery Kits studied by Arowosegbe et al. (2023), remains ill-equipped to manage major obstetric complications like haemorrhage.

Finally, the assessment of health services reveals a system in distress, corroborating the descriptions of poor infrastructure and drug shortages by Okonofua et al. (2019) and Almu and Amzat (2024). However, our finding of widespread uncertainty about a facility's capacity to handle emergencies is particularly telling. It reflects a crisis of confidence that deters care-seeking and underscores a critical gap between the *availability* of a facility and its *functional readiness*. This directly relates to the systemic knowledge gaps identified by Onwujekwe et al. (2024); if primary care centres in Anka lack essential drugs like Tranexamic Acid (TXA) and staff are untrained in its use, then the community's perception of their incapability is tragically accurate. This creates a vicious cycle: poor perceptions deter use, leading to lower demand and funding, which perpetuates poor quality.

In conclusion, while the individual drivers of mortality in Anka LGA are consistent with broader literature, their powerful interplay is what constitutes the unique emergency. The medical causes are lethal only because socio-cultural norms and economic barriers prevent timely care-seeking, and the health system, weakened by infrastructural and knowledge gaps, is unable to respond effectively when women do arrive. This study therefore moves beyond simply cataloguing causes to demonstrating how they are inextricably linked. It affirms that interventions must be equally integrated, simultaneously targeting community awareness (addressing HBM constructs), economic empowerment, and a fundamental strengthening of primary healthcare quality and emergency readiness to break this cycle of mortality.

This study however examined the causes of maternal and newborn mortality in Anka Local Government, Zamfara State, focusing on socio-demographic factors, medical causes, socio-cultural determinants, and the availability and quality of maternal health services. The findings show that maternal health challenges are strongly tied to women's socio-economic background. Most respondents were young to middle-aged married women, with limited education and little or no economic independence, making them vulnerable to maternal health risks. A considerable proportion had high fertility rates, with many already having between three and four children, which increases the likelihood of complications during pregnancy and childbirth.

Medically, preventable complications such as hypertensive disorders, obstructed labor, hemorrhage, and infections were identified as leading contributors to maternal mortality. Alarmingly, one in three respondents had experienced the loss of a baby during or shortly after childbirth. Despite the presence of health facilities, skilled attendance during delivery was low, with many women relying on home births or unskilled traditional attendants. Antenatal care attendance was inconsistent, with more than a quarter of respondents reporting that they did not attend ANC at all.

The findings also highlighted strong socio-cultural influences on maternal health outcomes. Decision-making autonomy was severely constrained, with husbands (67.1%) and family elders (14.4%) being the primary healthcare decision-makers. While a significant minority (22.4%) acknowledged cultural norms that actively discourage hospital delivery, the most frequently cited barrier to accessing care was a pervasive lack of awareness (32.1%)**.** This was followed by cultural beliefs (22.8%), cost (20.7%), and distance (17.3%), revealing that

informational and cultural obstacles are more prevalent than even the significant financial constraints.

Finally, while maternal and newborn health services were reported to be available in most communities, their quality was undermined by inadequate equipment, irregular supply of essential drugs, and uncertainty about the capacity of facilities to handle emergencies. Although the majority of respondents rated services as good, concerns about respectful maternity care, affordability, and reliability of supplies point to serious systemic weaknesses.

CONCLUSION

The findings of this study reveal that maternal and newborn mortality in Anka Local Government is the result of an intricate interplay of medical, socio-economic, cultural, and health system factors. On the one hand, direct medical causes such as eclampsia, hemorrhage, obstructed labor, and infections remain preventable, yet continue to claim lives due to late presentation at health facilities and lack of skilled obstetric care. On the other hand, socio-demographic realities such as women's limited education, economic dependency, and high fertility combine with patriarchal decision-making structures to restrict women's access to timely and appropriate care. Cultural practices that discourage hospital deliveries coupled with financial barriers and long distances to facilities, further delay care-seeking and contribute to maternal and neonatal deaths. Even when services are available, weaknesses in infrastructure, shortages of essential drugs, and negative experiences with health workers undermine confidence in the healthcare system. In essence, maternal and newborn mortality in Anka is not just a medical problem but a social and systemic issue. Without deliberate action to strengthen health systems, empower women, and eliminate socio-cultural and economic barriers, the cycle of preventable maternal and newborn deaths will persist. The study therefore concludes that reducing maternal and newborn mortality in Anka requires holistic, integrated, and multi-sectoral interventions.

RECOMMENDATIONS

The study recommended that government, health authorities, and community stakeholders collaboratively strengthen maternal healthcare services, improve access to skilled care, address socio-cultural barriers, and enhance women's awareness to effectively reduce maternal and newborn mortality in Anka LGA

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