

Utilisation of Maternal Health Care Services During Boko Haram Insurgency in Yerwa District, Borno State Nigeria

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Abstract

The study investigated the utilisation of Maternal Health Care Services during the Boko Haram Insurgency in Yerwa District, Borno State, Nigeria. The study aimed to identify the effects of insurgency on utilising maternal healthcare services in the Yerwa district. One hundred and twenty questionnaires were administered, and 15 in-depth interviews were conducted. Descriptive statistics using frequency tables and percentage distribution were used for the quantitative data using the Statistical Package for Social Science (SPSS ver. 24). Furthermore, thematic analysis was used for the qualitative data. The findings revealed that most respondents attend antenatal clinics regularly, 93.33%, but 44.17% deliver at home due to restricted movement at night and lack of funds. Therefore, this study recommends that the government make adequate arrangements for pregnant women to access health centres easily, especially at night. In addition, healthcare facilities should be made affordable and accessible to all.

Keywords: *Boko Haram, Curfew, Insurgency, Maternal Health Care, Yerwa Clinic*

Introduction

Boko Haram is an Islamist movement that gained prominence in northern Nigeria in 2009, led by Mallam Mohammed Yusuf, a fiery Maiduguri scholar who had not previously advocated violence (Mohammed, 2014). However, due to covert and overt harassment, the group was provoked into a direct conflict with the Nigerian government, resulting in violent suppression in July 2009 (Mohammed, 2014). As a result, *Boko Haram* went underground, restructured, and re-emerged in October 2010 (Mohammed, 2014). They embraced violence, and indiscriminate killings of both Muslims and Christians, young and old, male and female, within and outside Maiduguri became prevalent. Furthermore, they targeted government buildings such as schools, police posts, and healthcare facilities.

According to a report by HeRams (2017), there were 749 health facilities in Borno State, of which 262 were fully damaged, 215 were partially damaged, and 227 were not damaged. The Health Sector Bulletin reported that there have been increasing direct attacks on healthcare facilities, and some have been affected due to collateral damage during fighting. As a result, health services are disrupted in some areas, and the population has little or no access to healthcare (Health Sector Bulletin, 2019). The Internal Displacement Monitoring Centre (IDMC) reports that the threat posed by *Boko Haram* insurgents has forced the closure of at least 37% of primary healthcare institutions in emergency regions, including Maiduguri, and that more than 50% of these facilities have not yet reopened. Due to the insurgent group's repeated attacks and pillage of medications from pharmacies, numerous of these businesses were forced to close (Human Rights Watch, 2015). Lembani et al. (2014) have also stated

that insurgents entered health institutions directly and stole drugs, medical supplies, ambulances, and other vehicles in Yobe State.

Using antenatal care (ANC), institutional delivery, and postnatal care services is crucial for pregnant women as it provides essential information, treatment for existing social and medical conditions, and screening for potential risk factors. However, these services are limited in most developing countries due to various cultural, socio-economic, and demographic factors. Complications arising during pregnancy require immediate access to quality obstetric services equipped with life-saving drugs such as antibiotics and the ability to provide blood transfusions required for performing Caesarean sections or other surgical interventions. In most areas affected by insurgency, the provision of these interventions needs improvement to reduce maternal deaths. Maternal healthcare services are crucial in reducing maternal mortality rates. This includes access to ANC during pregnancy, skilled attendance at delivery, deliveries at healthcare facilities or hospitals, access to emergency obstetric care, and appropriate postpartum care (WHO, UNICEF, UNFPA, and World Bank, 2012; Ogu & Ephraim-Emmanuel, 2018).

Maternal healthcare is a crucial global priority, but the emergence of the *Boko Haram* insurgency has created challenges in providing essential services. In Borno State, ongoing attacks on health facilities and the community have severely disrupted maternal health services (Mukhtar, 2021). Governments worldwide attach great importance to maternal healthcare, and the United Nations' Sustainable Development Goals aim to reduce the global maternal mortality rate to below 70 per 100,000 live births by 2030 (SDG, 2022). Effective management of maternal health is vital for preventing maternal and foetal mortality and promoting the health of mothers and children (Fan *et al.*, 2020).

The World Health Organisation (WHO) recommended in 2016 that lowering maternal mortality during pregnancy and delivery requires increased use of health facilities. Many sociodemographic, regional, and cultural characteristics linked to trained professionals using Maternal Health Services (MHS) have been the subject of extensive research in developing countries (Aker *et al.*, 2019). Adequate utilization of maternal healthcare, comprising antenatal care (ANC), skilled birth attendant (SBA), and postnatal care (PNC), are proven services that play a vital role in achieving improved maternal health outcomes (Abor *et al.*, 2011). This has been identified as the solution to mitigating the menace of maternal mortality in Sub-Saharan Africa (SSA) (Haruna *et al.*, 2019). For instance, timely and appropriate antenatal utilization alone can reduce maternal mortality by 20% (Pallikadavath & Foss, 2004). Similarly, the WHO recommends PNC utilization within 24 hours after delivery to avert maternal deaths (WHO, UNICEF, UNFPA, and the World Bank estimates in 2012). The PNC stage typically commences immediately after childbirth and lasts until 42 days after birth, according to the WHO in 2010. According to WHO recommendations, women should receive at least three postnatal care visits in addition to the first, which is expected to occur within 24 hours after birth.

Maternal healthcare utilization is essential for promoting maternal health, but coverage in the SSA region remains relatively low. Despite its crucial role in reducing maternal mortality rates, a significant number of women in some SSA countries continue to give birth without professional assistance, particularly during subsequent deliveries. For example, studies have shown that roughly one-third of 15-19-year-olds in northern Nigeria have delivered a child without the help of a health professional, traditional birth attendant, or even a friend or relative. However, SSA countries have implemented various interventions to improve maternal health service utilization, such as Ghana's free maternal healthcare policy (FMHCP), introduced in 2008 (Novignon *et al.*, 2019). This policy, a part of the Ghana

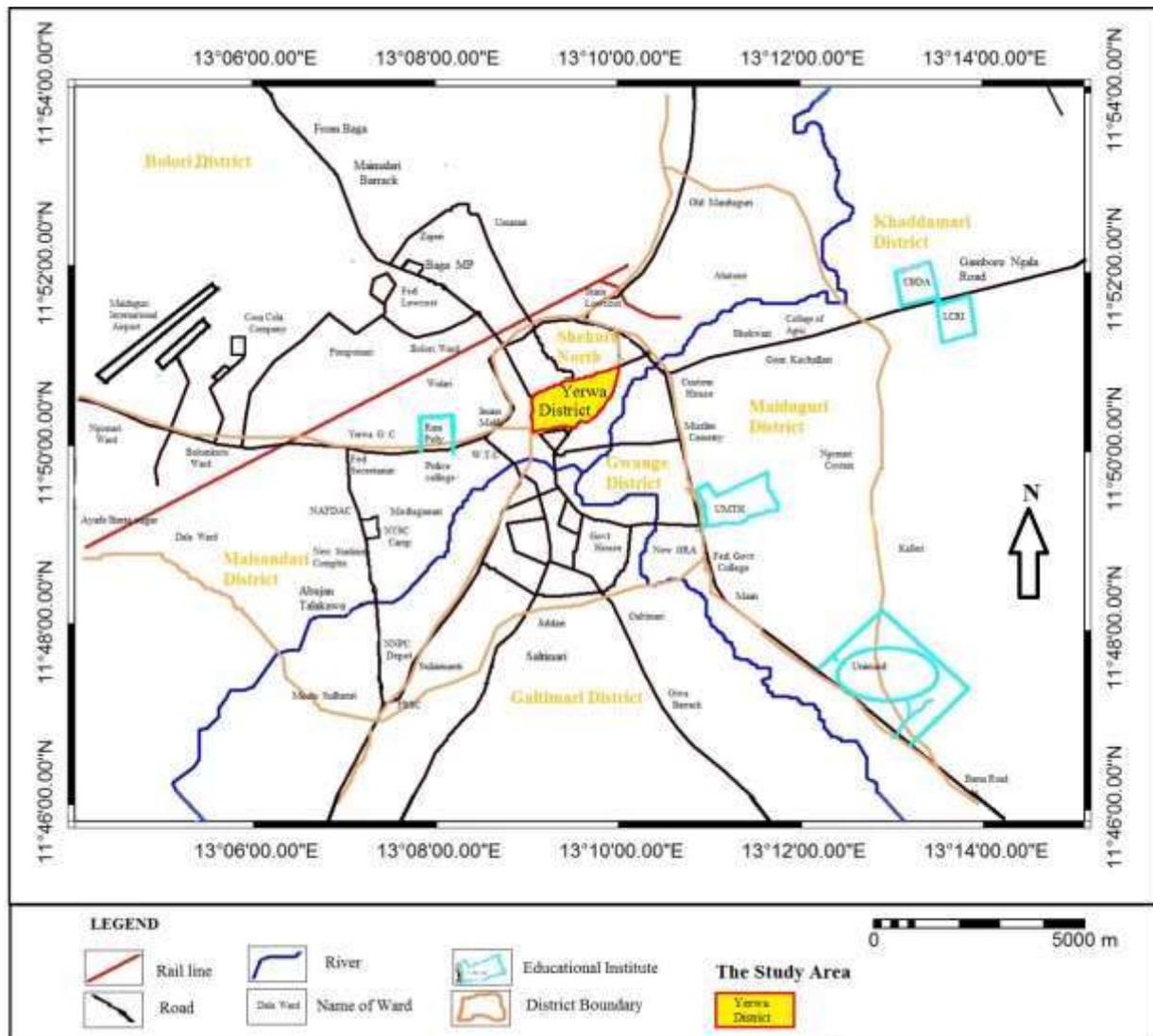
National Health Insurance Scheme (NHIS), has removed financial barriers and inequalities in maternal healthcare utilization among pregnant and nursing mothers, resulting in increased access and utilization of maternal services (Novignon *et al.*, 2019). In response to Nigeria's low maternal healthcare utilization in 2009, the Federal Ministry of Health's Midwives Service Scheme (MSS) began deploying midwives to rural Primary Health Centres to provide 24-hour maternity care (Abimbola *et al.*, 2012). Studies have revealed that socio-economic status, availability and accessibility of health facilities, knowledge of pregnancy emergencies, and mothers' educational levels significantly influence the utilization of maternal services in SSA (Zhao *et al.*, 2020).

The emergence of the *Boko Haram* insurgency, poverty, and illiteracy has worsened the maternal mortality rates in the region (Chukwuma & Ekhaton-Mobayode, 2019; Mukhtar, 2021). Furthermore, the insurgency has adversely affected social services, including maternal healthcare, by targeting healthcare institutions. As a result, maternal healthcare services in insurgency-affected areas have been seriously impacted, with many healthcare facilities being destroyed or severely damaged (Mukhtar & Gazali, 2022). Although several studies have been conducted on maternal healthcare utilisation, most have been limited to investigating determinants or factors responsible for maternal healthcare utilisation. There have been limited studies on the effect of the *Boko Haram* insurgency on healthcare, and no study has been conducted on how the insurgency affects maternal healthcare utilisation in the Yerwa district. To bridge this gap, we analysed the utilisation of maternal healthcare services during the *Boko Haram* insurgency in Yerwa District. The objectives of the study were to examine the level of maternal healthcare utilisation and identify the factors hindering the utilisation of maternal healthcare in the Yerwa district during the insurgency.

The Study Area

The study area is Yerwa district, located in Maiduguri Metropolitan Council, Borno State. The district comprises the central city and is surrounded by three ancient gates: Larawaram, Kaaram, and Litinin. Aja is the district leader, and there are eight wards within the district, each with a ward head in charge. The area between Galadima Kyari Drive, Sanda Wuduroma Road, and Shehu Laminu Way is densely populated with narrow streets and small dwelling units. The population of Yerwa district is approximately 273,128 (Waziri, 2012). The district has one specialist hospital and two health facilities that offer primary healthcare services, such as treating minor illnesses and providing immunizations, as well as specialized care in physiotherapy, radiography, laboratory services, and all areas of medicine. In addition, several government health facilities and private clinics are available to the local population in Maiduguri.

Fig: 1 Map of Maiduguri Metropolitan showing the study area (Yerwa district)



Sources: GEONETCast, Department of Geography (2019)

Materials and Methods

Designs

A cross-sectional study was conducted in 2014 to assess maternal healthcare service utilisation during the *Boko Haram* insurgency in the Yerwa district. Data were collected from participants through a self-administered questionnaire for women of childbearing age. Furthermore, in-depth interviews were conducted with key informants.

Study Procedures

Explicit, informed consent from all approached individuals was obtained. Research assistants gave the voluntary participants detailed information about the survey and a thorough explanation when they failed to understand specific questions during data collection. The participants were then given the questionnaire to complete the answers independently. Finally, a face-to-face interview was conducted using the questionnaire if the participant could not read it. A total of 120 people completed the study from the study population; among them, 70 were from State Specialist Hospital, and 50 were from Yerwa Clinic. The total number of questionnaires returned was one hundred and twenty. At the same time,

fifteen households were systematically and purposefully selected and interviewed, making the total number of respondents for the study one hundred and thirty-five. The healthcare providers were purposively selected; fathers, mothers, grandmothers, and ward heads were systematically interviewed. Only 15 out of the twenty respondents targeted for the in-depth interview were interviewed. Those interviewed included a ward head, two nurses, one from the Yerwa clinic and the other from the state specialist hospital, and a security man from the Yerwa clinic. The eleven households interviewed were two grandmothers, two fathers, and seven breastfeeding mothers, making the total number of interviewees fifteen. This study paid careful attention to protecting respondents' confidentiality.

Measures

A semi-structured questionnaire was used to evaluate the impact of maternal healthcare utilization during the *Boko Haram* insurgency. The questionnaire was divided into four sections: socio-demographic information, antenatal history, place of delivery, and postnatal care. Additionally, an interview schedule guide was used during the interview process.

Statistical Analysis

The Statistical Software Package for Social Sciences (SPSS), version 24.0, was utilized to input numerical data and conduct analysis. Descriptive statistics were used to describe the participants' characteristics, and the results were presented through frequency tables and percentage distribution. The in-depth interviews were recorded, transcribed, and reviewed, and their accuracy was verified. A thematic approach was used to select all the themes, which were then coded using a general inductive approach. The data analysis process employed a deductive approach, where two potential themes were created based on the research's empirical background and used to generate interview questions. Additionally, the analysis used the semantic approach, which focused on the information explicitly provided by participants rather than attempting to interpret any underlying meaning.

Results

The demographic table (Table 1) revealed the socio-demographic attributes of the study participants. This study included 120 participants from the Yerwa district. The most common age group was 26 to 36 (42.50%). The majority of the respondents were not educated: 62 (51.67%), followed by primary school certificate holders 33 (27.50%), and post-secondary school 25 (20.83%). Most respondents were married (94.17%), and 93 (77.50%) were not employed; in addition, 38 (31.67%) of their husbands were not employed, 26 (21.67%) were civil servants, and 56 (46.66%) were self-employed. The result shows that 62 (51.67%) respondents live within a half-kilometre of the health centre, and 11 (9.17%) live more than two kilometres from the health centre. Furthermore, 67 (55.83%) participants gave birth in a health centre, and 53 (44.17%) delivered at home. Likewise, 67 (55.83%) said they delivered at home because of the restriction of movement imposed at night due to the declaration of curfew.

Table 1 Distribution of Demographic Data of Respondents (n=120)

Socio-demographic characteristics		
	Frequency (N)	Percentage (%)
Age (Years)		
15-25	38	31.67
26-35	51	42.50
36-45	25	20.83
46-50	6	5.00
Total	120	100
Educational Qualification		
No formal education	62	51.67
Primary school certificate	33	27.50
Post-Secondary school certificate	25	20.83
Total	120	100
Marital status		
Married	113	94.17
Divorcee	2	1.67
Widow	5	4.16
Total	120	100
Mother's occupation		
Un-employed	93	77.50
Civil servant	2	1.67
Self-employed	25	20.83
Total	120	100
Husband's occupation		
Un-employed	38	31.67
Civil servant	26	21.67
Self-employed	56	46.66
Total	100	100

Source: Fieldwork 2014

The antenatal visits table (table 2) shows that all respondents have given birth before, and 78 (65.00%) delivered two years ago, while most respondents, 34 (28.33%), had below four children. In addition, most of the respondents, 112 (93.33%), attend an antenatal clinic regularly, and all respondents believed there were benefits to attending an antenatal clinic.

The qualitative data on maternal healthcare utilisation revealed that:

Maternal healthcare utilisation is commendable, especially antenatal services. However, there is low patronage at night due to the curfew imposed. Furthermore, postnatal care utilisation is very poor. Mothers usually come to the clinic only when their babies are sick. However, some mothers bring their babies to receive immunisations (Nurse, SSH).

Mothers attend antenatal clinics regularly and deliver in the health centre. However, skilled delivery in the hospital, especially at night, was low due to the curfew imposed. Curfew is the main reason mothers give birth at home (Nurse, Yerwa Clinic).

Mothers in this community patronise the state specialist hospital and Yerwa clinic regularly for maternal-related care and beyond. The distance to the healthcare centres are within their reach. (Ward's head).

We attend the antenatal clinic regularly, but after delivery, we do not come for a postnatal check-up except if the child is sick. We bring our babies for immunisation; however, we

sometimes skip some visits, especially with the crisis in the town, and we are reluctant to go out (Mother).

We allow our wives to attend antenatal clinics regularly, and they also deliver in the hospital. However, due to the curfew imposed, we cannot go out at night because of the military men patrolling (Husband).

When asked what the military would do if you went out, they said the military would shoot any person seen after the curfew. However, this was not verified.

Table 2 Distribution of Respondents on Antenatal Visits (n=120)

	Frequency (n)	Percentage (%)
Antenatal visits and benefits		
Order of pregnancy		
Second pregnancy	28	23.34
Third pregnancy	31	25.83
Fourth pregnancy	34	28.33
More than five	27	22.50
Total	120	100
Last childbirth		
Two years	78	65.00
Three years	34	28.33
Four years	8	6.67
Total	120	100
Number of children		
One	28	23.34
Two	31	25.83
Three	34	28.33
More than four	27	22.50
Total	120	100
Frequency of attendance at the ante-natal clinic		
Regular	112	93.33
Irregular	8	6.67
Total	120	100
Benefits of attending ante-natal clinic		
There are benefits	120	100
There are no benefits	0	0
Total	120	100

Source: Fieldwork 2014

Distance to health facility table (table 3) shows that most of the respondents, 62 (51.67%), live within a half-kilometre of the health centre, and 11 (9.17%) of the respondents live more than two kilometres from the health centre.

Table 3 Distribution of Respondents on Distance (n=120)

	Frequency (n)	Percentage (%)
Ante-natal history		
Distance from your house to a health centre		
0.5 kilometre	62	51.67
1.0 kilometre	34	28.33
1.5 kilometre	13	10.83
2 kilometres and above	11	9.17
Total	120	100

Source: Fieldwork 2014

The place of delivery table (table 4) shows that 67 (55.83%) of the participants gave birth in a health centre, and 53 (44.17%) delivered at home. Furthermore, 67 (55.83%) said they delivered at home because of the restriction of movement imposed at night due to the declaration of curfew, 38 (31.67%) said they delivered at home without any reason, and 15 (12.50%) delivered at home because of a lack of funds. In addition, among those who delivered in the hospital, 56 (46.67%) said that they were told during antenatal visits to deliver in the hospital when labour pain started. In comparison, 52 (43.33%) said they always deliver in the hospital, and 12 (10.00%) said that because of a pregnancy problem, they deliver there.

Table 4 Distribution of Respondents on Place of Delivery (n=120)

	Frequency (n)	Percentage (%)
Place of last Delivery		
In a health centre.	67	55.83
At home.	53	44.17
Total	120	100
Reasons for delivering at home		
No reason.	38	31.67
It was in the night, and movements were restricted during that period.	67	55.83
I have no money to pay my bills.	15	12.50
Total	120	100
Reasons for delivering at a hospital		
Because I was told the importance of delivering in the hospital during my ante-natal check-up.	56	46.67
Because I have a problem with the pregnancy.	12	10.00
Because I always deliver in the hospital.	52	43.33
Total	120	100

Source: Fieldwork 2014

On factors hindering maternal healthcare utilisation, the qualitative data revealed that:

Due to numerous roadblocks by the security personnel and sporadic attacks by *Boko Haram*, we sometimes report late to work. Many times, we have a fear that the sect members will visit our clinic because they visit the clinic on several occasions. They always warned us not to provide any family planning services and not to give the polio vaccine to babies. However, they commended us for providing maternal healthcare to mothers. Furthermore, they suggested that we use the generator to conduct deliveries at night rather than storing polio vaccines, and they destroyed all the polio vaccines in the refrigerator (Nurse, Yerwa Clinic).

On several occasions, the *Boko Haram* members visited the health centre and issued threats to the nurses (Security man, Yerwa clinic).

Discussion

This study examined the views of the Yerwa district community of Maiduguri Metropolitan Council in Borno State, Nigeria, on the use of maternal health care services during the *Boko Haram* insurgency. It enabled participants to express their challenges in obtaining maternal health care services in their own words. Therefore, this study gave residents of the Yerwa district of Maiduguri Metropolitan Council a platform to openly and fully express their opinions. The findings of this study were discussed based on the study's objectives. The socio-demographic data show that 42.50% of the respondents were between 26-35 years old and were housewives. Most respondents, 94.17%, were married, 77.50% were unemployed, and 56.66% of husbands were self-employed. Therefore, women in this community can also attend teaching hospitals or private clinics. About 51.67% of the respondents had no formal education, and 28.33% had less than four children.

Examining the level of maternal healthcare utilisation was the first objective. Consequently, the results showed that 93.33% of the respondents consistently attended antenatal clinics, while 6.67% only occasionally did so. As per the Yerwa Clinic nurse, the results of the in-depth interviews also indicated that mothers routinely visit antenatal clinics. This corroborates with the findings of WHO (2001) cited in Villar *et al.* (2001) that 60% of women receive antenatal care in Nigeria, and not all of them attend the antenatal clinic regularly. Additionally, Dairo and Owoyokun (2011) discovered that women in urban regions were more than twice as likely to visit antenatal clinics as women in rural areas. The majority of the respondents agreed that attendance at an antenatal clinic helps detect possible complications during pregnancy as well as helps to reduce maternal and neonatal morbidity and mortality. However, not all those who attended the antenatal clinic gave birth in the hospital, which corroborates the findings of Kifle *et al.* (2017). Kifle's research indicates that despite 74.3% of mothers using antenatal services during pregnancy, less than one-third deliver in health institutions. However, in this study, low skilled birth attendance at night was attributed to curfew restrictions. Despite this, most respondents understand the importance of antenatal care. The findings are consistent with those of USAID (2007), which found that prenatal care offers pregnant women a broad spectrum of health promotion and preventive health services.

Dairo and Owoyokun's study found that distance and cost are significant barriers to accessing health care. However, Yerwa district residents do not face long distances to health facilities as most respondents (51.67%) live within half a kilometre of the health centre. The availability of transport facilities is also crucial for accessing health care. Despite the challenges faced by women due to a lack of vehicles and bad road conditions, these issues are not present in this study. According to Ehiri *et al.* (2018), it may be challenging for women to travel to even relatively nearby facilities due to a lack of vehicles and bad road conditions. However, mothers in this study have not experienced challenges with bad roads or transport fares.

The study found that 55.83% of respondents delivered in a health facility, compared to 44.14% who delivered at home. The reason for delivering in the hospital was emphasised during antenatal visits, and few respondents said they delivered in the hospital because they had problems with the pregnancy. However, low patronage at night due to curfews contradicted the findings of Iddrisu *et al.* (2019), who reported that ethnic group, parity, household wealth status, maternal educational status, and husband's educational status are essential predictors of institutional delivery. Among those who delivered at home, 55.83% said that the security personnel harassed people at night because of the restriction of movement; therefore, we delivered at home. Similar research also found restrictions on

movement at night affecting deliveries during insurgencies (Eguiluz, 2018; Health Sector Bulletin, 2019; Mukhtar & Gazali, 2022).

The findings from the second objective, which aimed to identify variables impeding the use of maternal healthcare, indicate that curfews and movement restrictions are obstacles to utilizing maternal healthcare. The result supports Chukwuma & Ekhatior-Mobayode's (2019) findings that the *Boko Haram* insurgents reduced the probability of antenatal care visits, delivery at a health centre, and delivery by a skilled health professional. The results of the in-depth interview showed that the Yerwa Clinic's services are impacted by the activities of *Boko Haram* insurgents, who periodically visit the facility to direct its operations and hinder them from administering the polio vaccine to infants. The results validate Weissman's (1997) claim that political and military obstacles frequently prevent humanitarian healthcare workers from offering effective and humane treatment to most needy people. Similarly, IPI (2019) documented that health actors encounter many obstacles when delivering healthcare services to the Nigerian population in the northeast. Furthermore, women in the rural areas of Borno State are experiencing the effects of the *Boko Haram* insurgency more than women living in Maiduguri (Abdullahi *et al.*, 2017). In addition, these at-risk women are less likely to use skilled providers and proper health facilities at delivery due to fear of attack (Mukhtar & Gazali, 2022) or tend to deliver at home without a skilled attendant as most health facilities in rural areas were destroyed or abandoned (Abdullahi *et al.*, 2017; Mukhtar & Gazali, 2022), which is not a problem in this study.

The research findings indicate that women in the Yerwa district utilise healthcare services effectively despite the restricted movement and security checkpoints during dusk and dawn. However, due to the curfew imposed, most women were hesitant to seek medical attention at night. Additionally, it was found that financial difficulties were a more significant obstacle for those who did not access these services, rather than the insurgency. Therefore, it can be concluded that *Boko Haram's* activities do not significantly impact the utilisation of maternal health services in the Yerwa district of Maiduguri, Borno State, Nigeria, as per the study.

Conclusion

The study aimed to investigate the utilization of maternal healthcare services during the *Boko Haram* insurgency in the Yerwa district of Maiduguri Metropolitan Council, Borno State, Nigeria. The investigation examined the extent to which maternal healthcare was employed and identified the factors that hindered its usage during the insurgency. The study was conducted with 135 respondents, suggesting an urgent need for improved healthcare access during conflicts and emergencies. It is recommended that government should make adequate arrangements for pregnant women to have easy access to health centres, especially at night. In addition, healthcare facilities should be made affordable and accessible to all. Policies and programs should be developed to ensure access to healthcare services during times of crisis and conflict. The study emphasizes the need for healthcare providers to develop culturally sensitive approaches to providing healthcare services to affected communities. Further, future research should cover a larger sample size and the entirety of Borno State. Additionally, the long-term effects of the insurgency on healthcare and the destruction of medical infrastructure must be investigated.

Limitations

The ongoing *Boko Haram* insurgency severely limited the study's pool of respondents, leaving only 135 available. Nonetheless, obtaining sufficient information proved to be a significant obstacle due to the reluctance of both respondents and staff members to provide adequate information.

Competing Interests

The authors declare that they have no competing interests.

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Authors Contributions

The original draft was written by Falmata Mukhtar, who reviewed and edited it. Waziri A. Gazali and Muhammad Waziri simultaneously contributed to the approach and research at the same time. The paper was written with input from all authors.

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