

RESEARCH ARTICLE

FACTORS ASSOCIATED WITH MOTHERS' PRACTICES OF ESSENTIAL NEW BORN CARE IN BIRNIN GWARI LOCAL GOVERNMENT AREA, KADUNA STATE

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Abstract:

Background: newborns are very vulnerable, hence a need for quality care to ensure their safety and survival. The World Health Organization (WHO) recommends an economical intervention package of new born care practices to help reduce new born morbidity, mortality and thus, promote healthy survival. **Aim and Objectives:** the study aims to examine the factors associated with mothers' practices of essential new born care (enbc) in health facilities of Birnin Gwari LGA Kaduna State, Nigeria. **Methods:** the study adopted a descriptive cross-sectional design. A total of 372 three hundred and seventy-two mothers whose child is within the age of (0-12 months) were selected using multi-stage sampling technique. A semi-structured questionnaire was used for interviews. Data were analyzed using SPSS statistical package for social science version 26.0. **Results:** the modal age group of the mothers was 20-29 years 202 (54.5%), 131 (35%) mothers have attained post-secondary education, majority were married 350 (94.1%), Hausas were 187 (50.3%) and primiparous 71 (19%). The practice of enbc was found to be good in only 185 (49.8%) of respondents. **Conclusion:** essential new born practices were poor among respondents. There was significant association with sociodemographic factors and reproductive profile of mothers.

Keywords: essential new born, care, mothers, practices.

INTRODUCTION

Globally, the neonatal mortality rate has been seen to go down considerably over decades. The neonatal mortality is seen to drop from 5 million to 2.5 million from the year 1990 to 2017 (World Health Organization (WHO), 2021). According to (United Nations International Children's Emergency Fund (UNICEF), 2021) the neonatal mortality rate has been defined as the number of

deaths that occur during the first 28 days of life per 1,000 live births in a given year and geographic area. Going by the current data there are approximately 7,000 newborn deaths daily at a typical rate of 18 deaths per 1,000 live births. This figure accounts for about 47% of the entire child deaths (Perez et al., 2018; Arba & Zana, (2020). This is because neonatal mortality is declining at a slower

rate than under-five mortality with both measures remaining well above the Sustainable Development Goal (SDG) targets for 2030 as reported by (Ayete-nyampong *et al.*, 2020).

Over 90% of neonatal deaths occur in developing countries and their major causes are preterm birth, severe infections, asphyxia and neonatal tetanus (Misgna, *et al.*, 2016 ; Bizuneh, 2017; Adigun *et al.*, 2018; Perez *et al.*, 2018; Kebede, 2019; and Raj *et al.*, 2019). According to WHO, (2021), Sub-Saharan Africa (SSA) has the highest neonatal mortality rate in 2019 at 27 deaths per 1,000 live births. According to WHO, (2021) a newborn child in Sub-Saharan Africa is ten times more likely to die in the first month of birth compare to a child born in high-income countries.

However , Nigeria is globally ranked eleventh on newborn deaths in the world (Adigun *et al.*, 2018; Adamu *et al.*, 2021) reported that in Nigeria nearly 5.3 million children are born yearly which translate to nearly 11,000 children daily. A recent study by Ewere and Eke (2020) reported that the neonatal mortality rate in Nigeria is 38 per 1000 live birth as of the year 2020. This high neonatal mortality rate is majorly observed in the North-West and North-East regions while the South-South region of the country has the lowest mortality rate, (Adigun *et al.*, 2018). However, as reported by Adamu *et al.* (2021) up to two-thirds of neonatal deaths are preventable in countries like Nigeria if known and effective health actions are provided at birth and during the first few weeks of life In 2021, neonatal mortality rate for Nigeria was 34.9 deaths per 1,000 live births. Neonatal mortality rate of Nigeria fell gradually from 63.7 deaths per 1,000 live births in 1972 to 34.9 deaths per 1,000 live births in 2021 (Atlas, 2023). In Kaduna State, neonatal mortality data from 2018 to 2020 amounts to 871 deaths which is very alarming and require necessary interventions (Data from

District Health Information System Kaduna State Ministry of Health, 2021) However, neonatal mortality rate dropped from 63 per 1,000 live births in 2018 to 47 per 1,000 births in 2021.(NAN, 2023).

The WHO recommended an economical intervention package of newborn care practices to reduce newborn morbidity, mortality and thus, promote healthy neonates. The package included umbilical cord care, optimal thermal care, good neonatal feeding, eye care, care of preterm and low birth weight and early recognition of danger signs among others (Misgna *et al.*, 2016; Adigun *et al.*, 2018; Saaka *et al.*, 2018; Raj *et al.*, 2019; Kebede, 2019; Batamuriza *et al.*, 2020) These practices have been described as Essential Newborn Care (ENC) and should be given to newborns, particularly during birth and over the first hours of life, whether in the health facility or at home (Adigun *et al.*, 2018; Efa *et al.*, 2020). Implementing ENC offers improvement in both maternal and neonatal health, as well as their nutritional status and, could avert 72% of neonatal deaths (Arba & Zana, 2020; Kebede, 2019; Menda, 2018). Despite this, (Menda, 2018) reported that much has not happened and newborns continue to die in resource poor settings because a regular procedure for providing ENC is not usually practiced. Therefore, universal access to ENC and easy access to well-equipped facilities for all pregnant women and newborns are crucial in reducing neonatal mortality (Ndebugri, 2017).

The Nigerian Federal Ministry of Health (FMOH), put together the Integrated Maternal, Newborn, and Child Health (IMNCH) strategy to help revitalize maternal, newborn, and child health in Nigeria. This strategy is being implemented within the framework of the National Strategic Health Development Plan (NSDHP) to improve newborn health in Nigeria and prevent unnecessary deaths (Fedral Ministry of Health, 2011). However, the lack of

sufficient data from the community level on ENC practices for program improvement is a major problem in Nigeria. Thus, it is crucial to have information on the newborn care practices and their determinants at the community level, which will inform the design of more policies and successful interventions. Therefore, this study was conducted to assess the factors affecting mothers' practice of essential newborn care among mothers in Birnin Gwari Local Government Area, Kaduna State.

MATERIALS AND METHODS

Research Design

A descriptive cross-sectional survey design was used to assess the factors associated with mothers' practices on essential newborn care in Birnin Gwari L.G.A of Kaduna state, the study design delivers information concerning the situation at a given time. In this type of study, the status of an individual with respect to a particular item is assessed at the same point in time.

AREA OF STUDY/SETTING

Birnin-Gwari Local Government Area lies between latitudes 10° 40' N and 11° 05' N and longitude 6° 11' E and 6° 36' E. The area is located in the western part of Kaduna State with an estimated 125km away from the capital City. It formed good part of the State boarder with Katsina, Niger and Zamfara States respectively. The major tribes in the Local Government are Hausas, Gwaris, Kamukus and Fulani, while Islam and Christianity are the two major religions being practiced. It has a current projected population of 388,453 and 400,806 for 2018 and

2020 respectively. Birnin Gwari has three (3) zones, Western zone, Central zone and Eastern zone, with eleven (11) political ward distributed among the zones, each political ward has a single primary health center. There is only one (1) secondary health facility in Birnin Gwari Local Government area located in the central zone. The secondary health facility is Jibril Mai-Gwari Memorial Hospital (JMGMH) which is among the three health facilities selected for this study. It was established in 1973 and located at Magajin Gari ward II consisting of five (5) wards with 120 beds capacity. The services provided includes but not limited to surgeries, immunizations, postnatal and referrals. The immunizations are being carried out on Tuesdays and Thursdays with 30 to 40 mothers presenting their children.

The second hospital of interest is the Maternal Child Health center (MCH) which is a PHC facility located at Magajin Gari ward I. It was established in 1982 consisting two wards with twenty-five beds capacity. The services provided include: antenatal, deliveries, postnatal services, family planning counseling, immunization, treatment of minor ailment, laboratory investigations among others. In the year 2020, they conducted 386 deliveries while in 2021, 258 deliveries were witnessed from January to August. Immunizations are carried out on Mondays and Thursdays with 80 to 100 mothers bringing their children. Unguwan Haladu PHC is the last health facility selected which is also located at Magajin Gari ward II. It was established in 1995 with two wards and rendering services such as antenatal, deliveries, postnatal, family planning and laboratory investigations among others. The hospital witnessed about 297 deliveries from January to August 2021. Similarly, 80 to 100 mothers visit the hospital for immunizations on Thursdays.

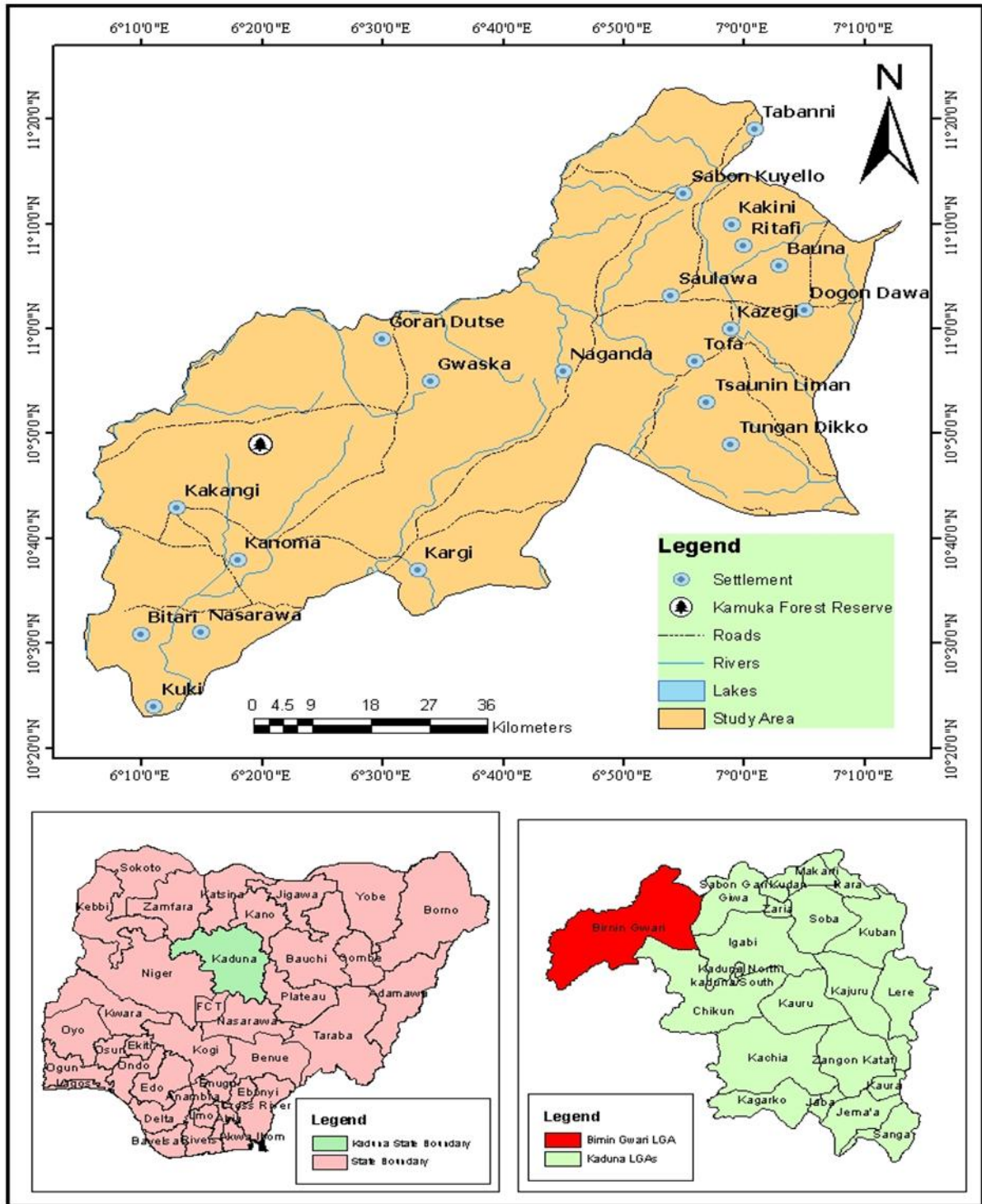


Figure 1: Study Area Map

Source: Adapted and Modified from the Administrative Map of Kaduna State

Target population

The target population were mothers whose children are within 12-months of age attending the vaccination services in the selected health facilities during the data collection period, these facilities are MCH located at Magajin Gari I, Unguwan Haladu PHC located at Magajin Gari II and JMGMH located at Magajin Gari II which is the only secondary health facility. The previous 3 months’ client flow to the three health facilities for vaccination services was reviewed from registration book to estimate the expected number of mothers that will visit the clinic in one-month period. The total number of mothers whose child is within the age range were 1000. The break down is given below.

Table 1. Sample frame for the Target population

Facilities	Target population
MCH	400
Unguwan Haladu PHC	400
JMMH	200
Total	1000

SAMPLE AND SAMPLING TECHNIQUE

The sample size was obtained using Fisher formula

$$N = \frac{Zpq}{d^2}$$

Hence, the sample size plus 10% Attrition was 372 mothers whose children were within 12months of age was carefully chosen from the three selected hospitals. This suggested that 372 semi structured questionnaires were produced.

Multistage sampling technique was used to select the determined sample. The series of stages involve for the selection is describe below.

Stage 1 – Selection of Zone.

Birnin Gwari Local Government Area consisted of 3 Zones, Eastern zone, Central zone and Western zone among these zones a single zone was selected using simple Random method. Using a paper basket approach, the selected Zone is Central Zone

Stage 2- Selection of Political Ward within the selected zone (central zone)

There are Three (3) political ward in the central zone, these are MGI, MGII and MGIII, among these political ward two (2) were selected based on purposive sampling technique due to security challenges. The chosen political wards were MGI and MGII

Stage 3- Selection of Health Facilities

The only PHC facility in MGI was selected, while MGII has a PHC and secondary health facility, the researcher purposely selected both the health facilities, total of three facilities.

Stage 4- Selection of Respondents.

Random purposive sampling technique was used to select the respondents, Mothers who met up with the inclusion criteria and shown interest in participating in the survey were approach, and the questionnaires filled after consent has been obtained. this method was continually used until the sample size proportion was obtained. This technique combines elements of purposive sampling with randomness.

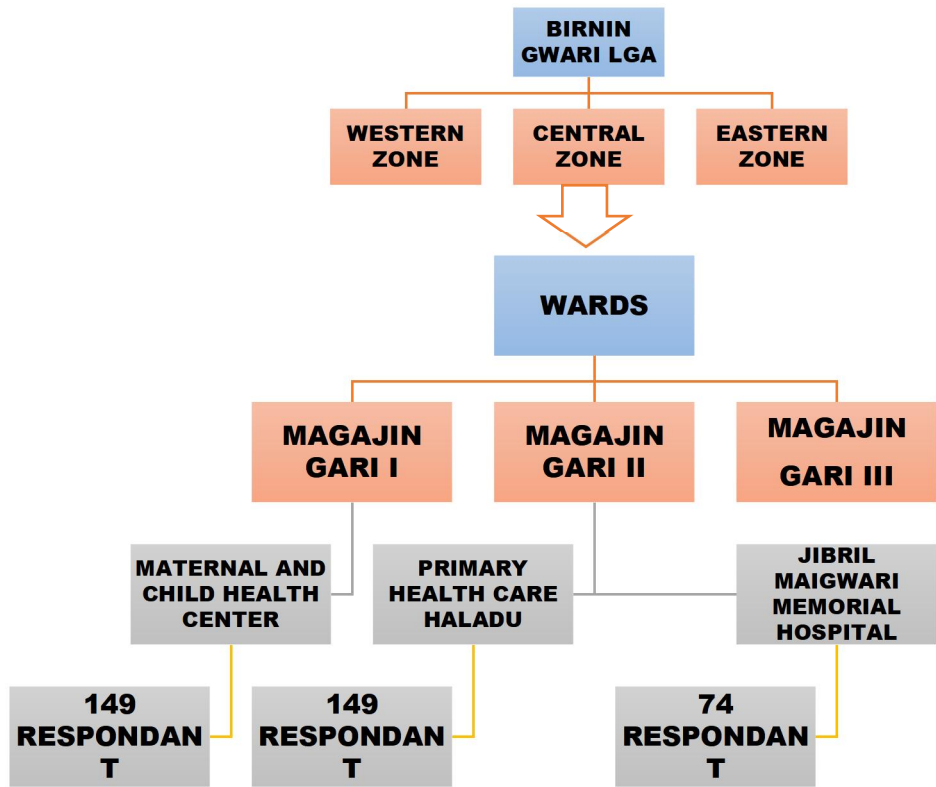


Fig. 2. flowchart showing the selection of respondents from Facilities.

Instruments for Data Collection

The instrument for data collection was a semi- structured interviewer-administered questionnaire, three hundred and seventy-three questionnaires were administered for the study, the questionnaire contained four sections to elicit respondent’s information on socio-demographic characteristic, obstetric History of the mothers, health care utilization services, and questions on mothers practice on essential newborn care.

Data Analysis

Descriptive statistical methods were used in which data was analyzed and presented in form of frequencies, percentages and mean using Statistical package for social sciences (SPSS) version 26, chi-square was used to represents the distribution of relationship between utilization of maternal health Services and Practice of Essential new born Care.

Ethical Consideration

Ethical clearance from Kaduna state ministry of Health was obtained. Participation was voluntary, each questionnaire was accompanied by an informed consent form explaining the purpose of the study, and confidentiality assurances. Consent was obtained from all respondents before they completed the questionnaire.

RESULTS

The table 1. shows the distribution of sample according to the socio-demographic characteristics of the respondents. The result show that 54.3 % of the mothers are within the age range of 20-29 years, 51.3% are house wives, while 94.1 of the mothers are Married, majority of

the mothers are Muslims having a percentage of 90.9% and 35% of the mothers have tertiary education, 63.4% are living in a nuclear type of family, and 56.7% live in urban areas, meanwhile about 81% of the mothers have a monthly income of less than 30,000.

TABLE 1: DISTRIBUTION OF RESPONDENTS ACCORDING TO SOCIODEMOGRAPHIC CHARACTERISTICS OF MOTHERS IN THE STUDY. N=372

Variable	Frequency	Percent
Age (Years)		
≤ 19	48	13
20 – 29	202	54.3
30 – 39	122	32.7
Occupation		
House wife	191	51.3
Not working	102	27.4
Civil servant	79	21.2
Level of Education		
None	34	9
Informal	60	16
Primary	63	17
Secondary	84	23
Tertiary	131	35
Religion		
Islam	338	90.9
Christianity	34	9.1
Ethnic Group		
Hausa	187	50.3
Fulani	42	11.2
Kamuku	65	17.6
Gwari	43	11.5
Yoruba	17	4.5
Igbo	18	4.8
Marital Status		
Single	22	5.9
Married	350	94.1
Income		
<30000	301	81
≥30000	71	19
Place of Residence		
Urban	211	56.7
Rural	161	43.3
Family Type		
Extended family	136	36.6
Nuclear family	236	63.4

Table 2: Distribution of respondents according to reproductive profile of mothers in the study n=372

Variable	Frequency	percentage
Parity		
Primipara	71	19
Multipara	183	49.2
Grandmultipara	118	31.8
Living Children	1	
Minimum	13	
Maximum	3.59±2.45	
Mean±SD	0.79±1.14	
Dead Children	1	
Minimum	5	
Maximum	0.79±1.14	
Mean±		
Neonatal Deaths		
Yes	42	11.2
No	330	88.8
Gestational Age at Birth		
< 9 months	64	17.1
≥9 months	308	82.9
Birth Weight*		
<2.5kg	70	18.7
> 2.5kg	302	81.3
Sex		
Male	163	43.6
Female	209	56.4

*Immunization Card

The table 2 shows the reproductive profile of the mothers, the result shows that, multipara mothers have the highest percentage of 49.2% neonatal deaths amount to 11.2 %, the maximum number of children death for a

mother if 5, the gestational age at birth of majority of the mothers 82.9% was ≥9 months, more so, about 81.3% of the neonates weight at birth was > 2.5kg, where 56.4 % of those neonates were female.

Table 3: Distribution of respondents according to Utilization of Maternal Health Services by mothers in the study. n=372

Variable	F	%
ANC attendance		
Yes	361	97.1
No	11	2.9
Frequency of Attendance		
<Eight visits	334	92.5
Eight visits	27	7.5
Location of ANC		
General Hospital	157	43.5
Primary Health Center	199	55.1
Private Hospital	5	1.4
Method of Delivery		
Vaginal delivery	352	94.6
Caesarean section	20	5.4
Trimester at commencement		
1st Trimester	50	13.4
2nd Trimester	278	74.9
3rd Trimester	44	11.7
Place of Delivery		
Home	90	23.8
Hospital	282	75.9
Other	1	0.3
Attended PNC Visit		
Yes	69	18.5
No	303	81.5

The table 3. shows the Utilization of Maternal Health Services, the result shows that 97.1% of the mothers attended ANC, meanwhile, 92.5% of them attended ANC less than 8 times, 55.1% of the mothers attended their

ANC in primary health care centers, 74.9% of them start the ANC during their second trimester and 75.9% delivered in the hospital, however, only 18.5% attended PNC.

Table 4: Distribution of respondents according to Mothers reported practice of Essential New Born Care n=372

Practical Care of the newborn	Done		Not done	
	F	%	F	%
Preterm/ Low birth weight	70	18.8	302	81.2
Thermal care	110	30%	265	70%
Eye Care	126	33.9	246	66.1
Breast feeding	176	47%	196	53%
Cord care	180	48%	192	52%
Immunization	289	77.7%	83	22.3%
Danger Sign	358	96.2	14	3.8
	50.2%		49.8%	

The table 4. shows the result of mothers practice on essential newborn care, about 81.2% of the mothers do not have good practices towards care of the preterm/low birthweight , also 70% do not provide good thermal care to the neonates, more so, 66.1% of the mothers have poor practices towards eye care and 53% of the mothers do not

have good practices towards breastfeeding, meanwhile about 52% of the mothers have poor practices towards cord care, however, 77.7% have good practices towards neonatal immunization and 96.2% can recognised danger sign of the neonates and take appropriate action.

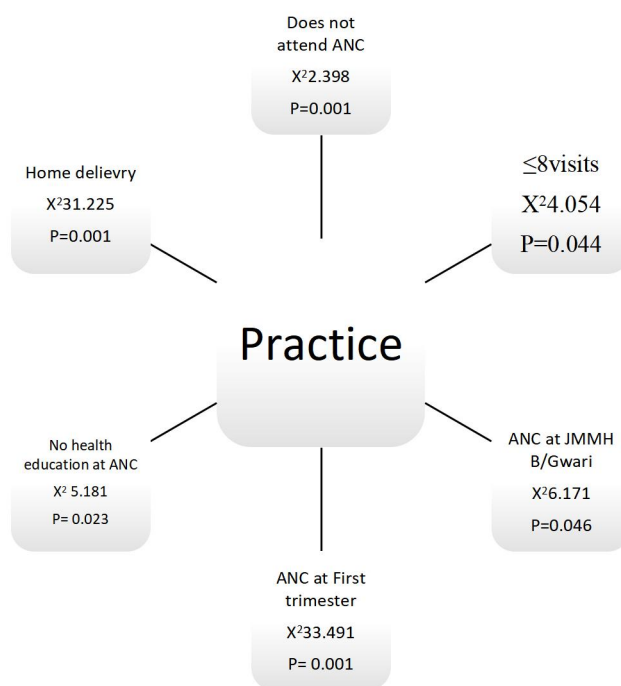


Figure 3. Distribution of sample according to association between Utilization of Maternal Health Services and Practice of Essential New-Born Care

In Figure 3, chi-square represents the distribution of relationship between utilization of maternal health Services and Practice of Essential new born Care, it showed that variables like, No ANC attendance, ANC attendance ≤ 8 visits, ANC at JMMH, ANC at first trimester, no health education during ANC, and home delivery are statistically significant with p-value of 0.001, 0.044, 0.046, 0.001, 0.023, and 0.001 respectively.

DISCUSSION

Birnin Gwari LGA is located in the western part of Kaduna State dominated mostly by the Hausa/Fulani and Muslim ethnic group. Most of the mothers are young between the age range of 20-29years, parity between 1- 4 and with family income of <30,000 Naira per month, majority were house wives. This finding is in-line with the findings of (Abdullahi *et al.*, 2021) in Kano State where most of the women are also young, Hausas and of the Islamic faith respectively. Nearly a quarter of the respondents had tertiary education. This is also the view of Sanjel *et al.* (2019) in a mixed study carried out in Nepal

The use of health services is another socio-demographic determinants on ENC which include the availability of health facility, having good health experts, availability of drugs as well as medical equipment (Ayenew *et al.*, 2020; Adamu *et al.*, 2021). This study finds out that majority of the mothers utilizes health facilities especially ANC. This study is similar to a study conducted by Fasina *et al.* (2020) on the impact of mothers' socio-demographic factors and antenatal clinic attendance on neonatal mortality in Nigeria. The result of the study found that wealth status has a significant association with neonatal mortality.

This study found that half of the respondents in the study had good new-born care practices, The rate of good

essential new-born care practices in this study is higher than that found in (Saaka *et al.*, 2018) (15%), However, the rate of good essential new-born care practices in this study is lower than that found in studies by (Esan *et al.*, 2020) and (Misgna *et al.*, 2016) . The level of new-born care practices maybe associated to the fact that this study was facility based whereas most the other studies were community based.

This study is similar to a study conducted by (Asma *et al.*, 2021) in Sokoto, Findings reveal Majority of the mothers practiced non- beneficial cord care for their neonates. Also (Kimani-murage *et al.*, 2011), in their study find out that more than half of the respondents have non beneficial practices of essential new born care, the study is in contrast to the study conducted by (Henry *et al.*, 2020) in Uganda were they finds out that more than half of the respondents have good practice on ENC, Age of the mothers, and economic status determine their good or bad practices of the newborn. Based on this study, more than half of the mothers apply something to the cord, only about quarter of them applied chlorhexidine, some mothers in this study reported the use of shea butter, salt, tooth paste, and other agents on their baby's cord. this could be due to firm believes in cultural practices. But majority visit the health facility when the cord bleeds or have unpleasant discharge, this is similar to findings of Abdullahi1, Usman, and Jibo (2021) in Kano the findings revealed that more than half of the mothers had bad postnatal practice. This is similar to findings of Coffey and Brown (2017) in a study on cord care practice, findings from this review shows Cultural beliefs as the significant contributors to poor practice of newborn care. The present study is similar to a study by (Begum *et al.*, 2021) in Bangladesh findings indicates that almost half of the respondents had inadequate practice and inadequate knowledge respectively. In this study more than half of the respondents reported that baby was kept warmth by

wrapping with a dry cloth and about quarter of the respondents had skin to skin contact immediately after delivery to maintain thermoregulation, this is in contrast to the study conducted in Ethiopia were 66.9% practice good thermal regulation, only few reported bathing the baby the first bath after 24hours as recommended in the present study which can predisposes the neonate to hypothermia. Also in contrast to a study by (Raj, Id, Harvey, Bohara, Id, Singh, Szabo, & Karki, 2019) where the respondents practice optimal thermal care.

The practice of initiating breast feeding within 30 minutes after delivery was reported by only half of the mothers, this is similar to study by Berhea *et al.*,(2018) where more than half initiate or have good practices with regards to breast feeding. Majority of the mothers gave colostrum to their baby in this study, this is in contrast to study by Misgna *et al.*, (2016) where less than half gave colostrum to their babies.

More than half of the respondents in this study have good practices with regards to immunization and eye care which could be as a result of out reaches and health talk during ANC, this is similar to a study in Ethiopia where most of the respondents also have good practices with regards to immunization and eye care.

A mother's practices with regards to neonatal danger signs is an important factor in determining whether she presents early to the hospital for medical care when her baby develops any danger signs or used other means as bad practices can lead to increased neonatal morbidity and mortality. Majority of the respondents report to health facilities in case of any of the danger sign, similar to study by Berhea *et al.*,(2018).

The rate of good essential new-born care practices in this study is lower than that found in studies by Esan *et al.* (2020) and Misgna *et al.* (2016) The level of new-born

care practices may be associated to the fact that this study was facility based whereas most the other studies were community based. In this study, the association between maternal knowledge and utilization of health services shows significant association , similar to a study conducted in Bangladesh Another study conducted by Basak *et al.*, (2019) also found that sociodemographic characteristic of the mothers and health service utilization are statistically significant. Godara and Modi (2014) in their study, found that all the mothers under study had adequate ANC check-ups there is significant association between sociodemographic characteristics of the mothers and practices, reproductive profile and practice of essential newborn care, this is similar to study conducted in Ghana and India by Saaka *et al.*, (2018); Raj, *et al.*, (2019) The generally low level of coverage of essential newborn care practices suggest that most essential neonatal interventions are not reaching newborns. More so, occupation, level of education, ethnic group, and marital status are the sociodemographic characteristics that have significant association with knowledge in this study, similar to a study conducted by Tolulope *et al.*, (2018) in Nepal where occupation, household income, and maternal education were all significantly associated with knowledge.

Conclusion

Based on the findings, the study concluded that:

Mothers had good practices on immunization, recognition of danger signs, eye care breast feeding on demand and poor practices towards thermal care, cord care, initiation of breastfeeding and kangaroo mother care.

Recommendations

Based on the findings and results, the following recommendations are made :

1. Essential newborn care information should be provided to mothers by health care workers in various health facilities where these mothers attend neonatal and postnatal clinics.
2. Programs that encourage facility births and immediate newborn care, need to involve persons other than the mother; particularly husbands and grandmothers, traditional birth attendants, and health-workers, who were also influential in newborn care.
3. Health workers should be involved in programs that promote timely initiation of breastfeeding, immunization initiation within 2 weeks of delivery, and delay bathing of newborn babies till after 24 hours of delivery.
4. written and approved policy on essential newborn care to postnatal mothers at all stages should be fully implemented by the government across the nation.
5. key decision makers who vary across practices and settings should be targeted for Interventions that aim to promote neonatal care practices.

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Conflict of Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Authors' contributions

A.H conceived and design the study, developed the data collection instrument, coordinated data collection, preformed data analysis and drafted the manuscript. L.K.H assisted in supervising the study and developed the analysis plan J.K.I. assisted with data analysis and interpretation D.A., S.H., S.S.K. participated in data collection and contributed to the review of manuscript, all authors read and approved the final version of the manuscript.

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