Nigerian Journal of Health Promotion
ISSN: 0995-3895
Vol 18, No1, 2025

HEPRAN

Availability and Utilization of Maternal Health Care Services among Women in Selected Rural Communities in South-South Nigeria

Doubrapade Walker[1*], Anthony Bibowei Akpe[2]

[1]Department of Human Kinetics and Health Education, Faculty of Education, Niger Delta University, Wilberforce Island, Bayelsa State.

[2]Department of Community Health Science, College of Health Technology, Otuogidi, Bayelsa State

*Corresponding author: doubrawalker@ndu.edu.ng; 07067423522

Abstract

Pregnant mothers are at risk of several life-threatening complications. Maternal health care services are provided for early detection and prevention of these complications. This study was aimed at investigating the availability and utilization of maternal health care services among women of child bearing age in some rural communities in south-south Nigeria. The cross-sectional descriptive survey design was adopted for this study, that lasted for 4 months, between February and June, 2024. Five research questions and three hypotheses guided the study. The sample size of 1,794 women was used for the study. The multi-stage sampling procedure was used for the study. A 20-item self-structured questionnaire was used for the study. The questionnaire consisted of sections A and B. Section A, sought data on personal data while, section B is for the study variables. The face and content validity of the instrument was established by three health education experts. The valid questionnaire was tested for reliability using Cronbach Alpha and a reliability coefficient of 0.84 established, making the instrument reliable to elicit the required data. The data collected were analyzed and presented in tables with mean and standard deviation. The three hypotheses were tested using Analysis of Variance (ANOVA) statistics tools at 0.05 level of significance. From the study results, it was concluded that maternal health care services availability was low and the level of utilization was moderate. Occupation, educational status, and marital status had influence on the utilization of maternal health care services. Based on the conclusion it was recommended among others that, a policy framework be established by government at all levels that will enable rural women access maternal health services when needed.

Keywords: Child bearing age, Healthcare services, Maternal health, Maternal mortality, Rural women, Primary healthcare

Introduction

The heath of the mother is very crucial to the overall development and wellbeing of the family, the community and the nation. Apart from being healthy to be economically productive, the mother must sustain good health to be able to bear and nurture the children. For any nation to sustain a stabilized socio-economic development, every segment of its population must also attain a sustained medical status, capable of maintaining a viable and profitable living. Women, being the nurturers of the nation's future, must remain consistently healthy to nurture the children that will grow with ideas and innovations that could lead to the development of a sustained economy (Roozbeh et al., 2016). One salient challenge that was prevalent and to a large extent necessitated the initiation of the Primary Health Care approach globally is the rise in the occurrence of disease and death among mothers and children in

developing third world countries like Nigeria. This obviously explained why a component of Primary Health Care was consciously dedicated to address the various issues and challenges that revolve around the health and wellbeing of women and children (World Health Organization, 2015).

The mothers need to receive various health care services in order to maintain and sustain good health. These health care services that should be made available, accessible and affordable to every woman in respective of the location they live are described as maternal health services. Maternal health care services are simply defined as the series of health care services a woman receive during pregnancy, childbirth and the care during the postpartum period. Maternal health can still be described as the promotive, preventive, curative and rehabilitative health care given to the mothers during pregnancy, child birth and the postpartum period. Maternal Health (MCH) is defined as an integrated sets of health care services designed for the mother which focused on the holistic development of their health (Tsawe et al., 2015). It is one of the key elements of primary health care which is aimed at reducing maternal mortality and morbidity. Maternal health also encapsulates family planning which intent is to regulate fertility so as to enable the couple have wanted and healthy children at the desired time. These services are usually provided by skilled health workers at the maternal and child health care unit of designated health facilities that should be located closer to the population of women (Ajegbile, 2023). The integration of maternal and child health care services as one unit is a very significant measure aimed at providing available, accessible and integrated health care services to both the mothers and children at a low cost and conveniently. The three main components of maternal healthcare delivery system include skill birth attendant, (SBA) enabling environment (EE) and referral system (RS).

Several objectives can be achieved if maternal healthcare services are infectively integrated and channeled appropriately to the target population. Mouhoumed and Mehmet (2021), explained that, the following objectives can be achieved through a well-structured programme aimed at reducing morbidity and mortality among mothers. It also promotes adolescent health care. Maternal health is aimed at promoting and protecting the health of the mother. The various maternal health care services include antenatal care (ANC), delivery (natal) care (NC) and postnatal care (PNC) services. In all these stages, specialized services are provided by trained personnel to meet the basic health needs of the mothers (Gudu, & Addo, 2017). These services are aimed at achieving the goal of enabling pregnant and other women at risk to receive care in facilities that are structured to provide the level of specialized care needed to reduce the rates of maternal morbidity and mortality (Paul & Chouhan, 2020). The various health services provided in any maternal health care unit are designed specifically with the aim of adding value to the mother's health at the health facility. Some of these services include the following, screening of pregnant women to identify those with various categories of risk, routine deliveries, referral services, following up during puerperium, immunization of mothers, family planning services for mothers, health education with emphasis on high priority health issues, counseling with problems related pregnancy, food demonstration and nutritional counseling, HIV/AIDS voluntary testing and counseling, interfacing with community leaders on current and future health programmes, diagnosis and early treatment of health problems in mother, encouragement of women to participate in any available adult literacy programme especially the illiterate mothers. According to Tesfaye and Gebi, (2014), these services are either comprehensively offered at the Health Facilities or carried at the home of the people during home visit.

Apart from the health facility and home base health care services for mothers, there are several other special programmes that are initiated by government and other agencies to enhance and promote maternal health (Dona et al., 2022). These programmes include Safe Motherhood Initiative, Baby Friendly Initiative, Maternal, Newborn and Child Health Week and National Immunization Days. These pogrammes are structured in such a manner that existing health care resources and infrastructures available within the community are utilized effectively to deliver health care services close to the homes of the mothers (Shanto et al., 2023). Provision of integrated and comprehensive maternal health services to the entire population is also encouraged through the effective implementation of these programmes. The current situation of Maternal Health in Nigeria, as in many developing countries is unsatisfactory, with women and children living in rural areas being mostly affected (Ezemenahi et al., (2024). These unsatisfactory indicators such as high mortality and morbidity rates, low coverage maternal health services have made having baby in developing nations like Nigeria life threatening. Death relating to pregnancy and child delivery is on the high side in Africa (Iacoella, & Tirivayi, 2019). According to Kifle et al. (2017), maternal mortality is tragic and accompanied with severe pain and is a public health issue with great significance in Nigeria and other developing countries.

The utilization of material health services is more of a behavioral phenomenon that is multi-dimensional and very complex to address. It encompasses mother attaining the recommended number of alienated visits, labour and delivery handled by a skilled birth attendant, and receiving appropriate postnatal care services adequately. As affirmed by Dairo, and Owoyokun, (2010), this is to ensure that, potential risks among pregnant mothers are identified, birth handled by skilled personnel and improve health of both the mother and the neonate. It is sad to note that most mothers especially those living at the rural population are not fully utilizing available maternal health care services. In some low-income countries these services are not really available for all women to access. In 2017 World Health Organization estimated a global maternal mortality rate of 211 per 100,000 live birth which was far beyond the UN Sustainable Development Goals target of 3.1 or less than 70 maternal deaths per 100,000 live births (Ezemenahi et al., 2024). With this picture, the report added that no country would be exceeding 140 maternal deaths per 100,000 live births by 2030. Some of the challenge that have significantly hindered the achievement of this global goal include; insufficient ANC visits, inadequate skilled birth attendant; to handle delivery, and absence of postnatal care services.

It is the responsibility of government at all levels to make available the basic maternal health care services that will meet the health needs of mothers in respective of the socio-economic background and their location. This is done through the provision of health infrastructure, recruitment and training of health manpower with skills to provide maternal health care services. According to Geta, and Yallew, 2017), a specified standard of skilled health manpower is required by every country to be able to achieve the Sustainable Development Goals target for maternal health. Over the year, the health worker, patient ratio has been so inadequate in Nigeria. This has made a greater percentage of the nation's population not to have the needed health care services to meet their health care needs. This situation is more pronounced in the rural communities where more than 50 percent of the population lives. Over the years, Nigeria has not shown the political will to initiate and sustainably implement interventional programmes that can reduce its maternal mortality figures. This lack of commitment has made Nigeria's maternal mortality to increase steadily for the past decades. Nigeria's maternal mortality rate of 917 deaths per 100,000 live births in 2017 increased to 1047 deaths per 100,000 live births in 2020, and is currently far above global target of 211 deaths per 100,000 live birth and the Sustainable Development Goals

target of 70 deaths per 100,000 live births (Maternal Mortality Estimation Inter-Agency Group [MMEIG], 2022).

Although global maternal mortality has drops to below 40% from 1990 to 2015, maternal health is still a major issue of public health significance, mostly among the developing countries including Nigeria. According to Meh et al. (2019), Africa accounts for the world's highest burden of mortality among women. Maternal mortality rates in Nigeria are the highest in the Africa sub region and by extension in the world. Nigeria has a population of 223,804,632 individuals and mothers of reproductive age (15-49) occupy more than 44,000,000. These figures translate to 2.78% of world population, but unfortunately about 10 percent of global maternal mortality rates are attributed to Nigeria (Adedokun et al., 2023). Nigeria is among the countries with the highest maternal and child mortality rates in the world. Available statistics showed that, more than 60% of the global maternal death occurs in sub-Saharan Africa and is linked to complications during pregnancy. Global records show that, only 66% of women attend antenatal clinic to receive maternal health care services. In south-Saharan Africa, the proportions of women that utilize maternal health care services remain below 60% (Fagbamigbe & Idemudia, 2015). The figures are not different in Nigeria where, the proportion of women utilizing maternal health care services in health facilities is below 50%.

To avert this trend, the World Health Organization (WHO) and other international partner health agencies introduced some recommendations on antenatal care that would provide a positive pregnancy experience and reduce mortality among women (Ononokpono & Odimegwu, 2014). These recommendations include: nutritional interventions (relevant diet), maternal and foetal assessment, and preventive measures including tetanus toxoid vaccinations and prophylactic treatment against malaria and other health system interventions. Several efforts have been made by the government of Nigeria through policy framework aimed at improving the utilization of maternal health care services by mother (Bello et al., 2022). These interventions are focused on improving the use of routine services; strengthening the health system, improving health personnel skills to provide maternal health care services and strengthening health information management system (Bolanrinwa et al., 2024).

Available records in Nigeria revealed a non-satisfactory utilization level of maternal health care services among women especially the rural women. As revealed in the reports, only 52% of women in Nigeria had at least four antenatal visits, 38% gave birth at health facility and 37% utilized postnatal care. Several factors have been observed to be related to the low utilization of maternal health care services (World Health Organization, 2019). The unacceptable utilization level of maternal health care services among women in Nigeria has been attributed to factors such as age, education, proximity, poverty, occupation. Other factors include mother's knowledge of danger signs, marital status, religion, house hold size, and mother's autonomy.

In spite of the need and efforts initiated by governments and other health agencies, to strengthen maternal health care services and improve utilization, maternal mortality rate is still high in Nigeria ((Bolanrinwa et al., 2024). The efforts aimed at improving maternal health is hampered due to poor utilization of available maternal health services especially among the rural women. The low utilization of available maternal health care services by most mothers especially those living at the rural population is majorly contributing to the increased maternal morbidity and mortality. Maternal health care services have been among the most important interventions to decrease maternal morbidity and mortality, in any nation. Thus, this study investigated the availability and utilization of maternal health care services in

selected rural communities in south-south Nigeria. The following research questions guided the study,

1. To what extent do maternal health care services available to women in selected rural communities in south-south region of Nigeria?
2. What is the level of utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria?
3. What is the influence of marital status on utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria?
4. What is the influence of educational status on utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria?
5. What is the influence of occupation on utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria?

Three null hypotheses were postulated and tested at .05 level of significance.

1. There is no significant difference in the utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria with respect to marital status
2. There is no significant difference in the utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria with respect to educational status
3. There is no significant difference in the utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria with respect to occupation

Methods and Materials

The cross-sectional descriptive survey design was adopted for this study, that lasted for 4 months, between February and June, 2024. This design was selected because it provides an accurate portrayal of various subjects with specific characteristics, by precisely measuring phenomena as they currently occur within the group based on the inclusion and exclusion criteria set for the study (Basavanthappa, 2010). This design is extremely flexible and quite diversified in population-based studies, scope, content and purposes; hence the researchers considered its use for this study. Five research questions and three hypotheses guided the study. The entire target population comprised all the women of child-bearing age in the selected rural communities in the south-south region which was estimated at 35,879 women. The sample size of 1,794 women that was derived using 5% of the target population was used for the study. The break down includes Rivers State (Beeri=226, Okwale=287), Bayelsa State (Isampou=310, Ebedebiriri=301) and Delta State (Agoloma=261, Bomadi=409). The multi-stage sampling procedure was used for the study. In the first stage the Simple random sampling technique was used to select 3 states out of the 6 states of the region. In the second stage, each of the 3 states was grouped into 3 clusters, using the 3 senatorial districts with each senatorial district forming a cluster. In the third stage, the proportionate stratified random sampling technique was used to select two Local Government Areas in each senatorial district. At the fourth stage, quota sampling technique was used to pick two rural communities in each selected Local Government Area. Finally, purposive sampling technique was utilized to pick the rural women that responded to the questionnaire. The purposive criterion was that, the respondent must have resident in that community for the past 12 months. Any woman, the researchers sees and satisfies the inclusive criterion in these selected six rural communities is sampled until the number of respondents expected from that community is completely selected.

A 20-item self-structured questionnaire titled "Availability and Utilization of Maternal Health Care Services Questionnaire" (AUMHCSQ) was used for the study. The questionnaire consisted of sections A and B. Section A, sought data on demographic data of respondents while, section B was used to elicit data concerning the study variables. The questionnaire was constructed in closed-ended form in line with the modified Likert scale technique of summated rating. The respondents were assessed with a 4-point Likert scale namely; Always (AL) =4, sometimes (ST) =3, rarely (RE) =2, and never (NE) =1. The face and content validity of the instrument was established by three health education experts. The valid questionnaire was tested for reliability using Cronbach Alpha and a reliability coefficient of 0.84 was established, making the questionnaire reliable to be used for the study.

A total of 1,794 copies of the questionnaire were administered to the respondents in the various communities with the help of six trained research assistants and 1,745 copies were correctly filled and returned, given a return rate of 97.3 percent. The data collected were coded and analyzed with the Statistical Package for Social Sciences (SPSS) version 29.0.2 and presented in tables with mean and standard deviation. In order to establish the extent of utilization of maternal health care services by the rural women, a categorization guide was set by the researchers. According to the guide, mean scores of between 0.00-0.99= (very low extent), 1.00-1.99= (low extent), 2.00-2.99= (moderate extent), 3.00-3.99= (high extent) and 4.0 and above= (very high extent). Maternal health care service level of utilization was established with another categorization guide that also had five domains namely; very low level= (0.00-0.99), low level= (1.00-1.99), moderate level= (2.00-2.99), high level= (3.00-3.99), and very high level= (4.00 and above). The null hypotheses were tested using Analysis of Variance (ANOVA) statistics tools at 0.05 level of significance.

Results

Table 1: Summary of Mean and standard deviation of extent of availability of maternal health care services among women in selected rural communities in south-south region (N=1794)

	Items	$\bar{X}$	SD	Decision
4	Antenatal clinic cares	2.06	1.03	ME
5	Family planning services	1.91	0.97	LE
6	Delivery by trained and skillful health care personnel	2.40	1.11	ME
7	Postnatal care services from health care personnel	1.60	0.99	LE
8	Provision of referral services	1.46	1.10	LE
9	Availability of trained and skilled health personnel	2.00	0.98	ME
10	Availability of equipment and other health care consumables	1.63	1.00	LE
11	Availability of health care facility providing maternal health services	2.51	1.05	ME
	Cluster Mean	**1.73**	**0.91**	**LE**

LE= Low Extent, ME=Moderate Extent, HE= High Extent

Table 1 shows summary of mean analysis on extent of availability of maternal health care services to women in selected rural communities in south-south region of Nigeria. The item by item analysis of respondents' mean scores revealed that; Antenatal clinic cares (2.6±1.03), family planning services (1.90±0.97), delivery by trained and skillful health care personnel

(2.40±1.11), postnatal care services from health care personnel (1.60±.99), provision of referral services (1.64±1.10), availability of trained and skilled health personnel (2.00±0.98), availability of equipment and other health care consumables (1.63±0.98), and availability of health care facility providing maternal health services (2.51±1.105). The cluster mean score of (1.73±0.91) LE revealed in the table implies that, the extent of availability of maternal health care services to women in the selected rural communities in south-south region of Nigeria was low.

Table 2**: Summary of Mean and standard deviation of level utilization of maternal health care services among women in selected rural communities in south-south region (N=1794)**

	Items	$\bar{X}$	SD	Decision
12	Attendance of antenatal care clinics	2.26	1.23	ML
13	Uptake of family planning services	2.51	0.97	ML
14	Delivered by trained and skillful health personnel in health facility	1.79	1.21	LL
15	Received postnatal care services from health care personnel	1.70	0.99	LL
16	Received referral services when need arises	2.19	1.19	ML
17	Managed by trained and skilled health personnel in health facility	2.41	0.98	ML
18	Attended to with equipment and received other health care consumables from health care facility	2.29	1.78	ML
19	Health care personnel available to provide maternal health services	1.93	1.61	LL
20	Frequency (number visiting health facility for maternal health care services)	2.12	0.79	ML
	Cluster Mean	2.38	1.12	ML

LL= Low Level, ML=Moderate Level, HL= High Level

Table 2 shows mean summary of the level utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria. The table showed that attendance of antenatal care clinics (2.26±1.23), uptake of family planning services (2.51±0.97), delivered by trained and skillful health personnel in health facility (1.79±1.21), received postnatal care services from health care personnel (1.70±0.99), received referral services when need arises (2.19±0.94), managed by trained and skilled health personnel in health facility (2.41±0.98), attended to with equipment and received other health care consumables from health care facility (2.29±1.78), health care personnel available to provide maternal health services (1.93±1.61), frequency (number of time visiting health facility for maternal health care services) (2.12±0.79). The cluster mean score of (2.38±1.12) revealed in the table implies that, maternal health care services were moderately utilized among women in the selected rural communities in south-south region of Nigeria.

Table 3**: Mean and summary of One-way ANOVA a on influence of marital status on utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria (N=1,794)**

S/N	Items	Married		Single		Divorced		f-value	p-value	Dec
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD			
12	Attendance of antenatal care clinics	2.61	0.86	1.86	0.95	2.26	1.23			
13	Uptake of family planning services	2.18	1.00	2.01	0.95	2.51	0.97			
14	Delivered by trained personnel	2.57	1.41	1.96	0.91	3.10	1.21			
15	Received postnatal care services	2.71	1.06	1.16	0.81	2.70	0.99	2.881	0.011	Sign
16	Received referral services	2.49	1.06	1.50	0.98	1.96	1.19			
17	Seek health care in health facility	1.90	0.96	2.00	1.17	2.41	0.98			
18	Received consumables from health facility	3.06	1.00	2.12	1.06	2.57	1.78			
19	Health care personnel available	2.37	1.09	1.97	0.91	2.51	1.61			
20	Frequency (number of time visit)	2.52	1.22	2.59	1.00	2.35	1.14			
	Cluster Mean	**2.50**		**1.91**		**2.50**				

LL= Low level, ML=Moderate Level, HL= High Level

Table 4 shows mean and summary of ANOVA analysis on the influence of marital status on utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria. The table revealed that married women had a cluster mean score of 2.5(ML), while single women had mean score of 1.91 (LL). The table further showed that divorced women had a cluster mean score of 2.50 indicating moderate level (ML) of utilization. This result implies that marital status had influence on utilization of maternal health care services among women in the selected rural communities in south-south region of Nigeria. The ANOVA analysis in the table showed that, there was significant difference in the utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria with respect to marital status as the p-values was less than 0.05(p-value< 0.05). Since a significant difference was also observed (p-value< 0.05), the null hypothesis was rejected, hence there is significant difference in the utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria with respect to marital status.

Table 4**: Mean and summary of ANOVA analysis on influence of educational status on utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria (N=1,794)**

S/N	Items	Secondary/higher Education		Primary Education		No education		f-value	p-value	Dec
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD			
12	Attendance of antenatal care clinics	2.40	1.22	2.61	0.99	2.10	0.81			
13	Uptake of family planning services	2.63	1.20	2.56	0.90	1.97	1.10			
14	Delivered by trained personnel	2.51	0.95	2.35	1.20	1.51	0.47			
15	Received postnatal care services	1.13	1.50	1.98	0.89	1.70	1.20	2.437	0.015	Sign
16	Received referral services	2.02	1.01	1.65	0.98	1.76	1.01			
17	Seek health care in health facility	2.42	1.00	1.97	0.97	2.59	1.00			
18	Received consumables from health facility	2.56	0.84	2.32	0.95	2.42	0.84			
19	Health care personnel available	1.58	0.98	2.50	0.84	1.90	0.87			

20	Frequency (number of time visit)	2.19	0.80	2.62	1.20	1.61	0.86
	Cluster Mean	**2.16**		**2.28**		**1.95**	

LL= Low Level, ML=Moderate Level, HL= High Level

Table 4 shows mean and summary of ANOVA analysis on the influence of educational status on utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria. The table revealed that respondents with secondary/higher education and primary education qualification had a cluster mean score (2.16) and 2.28 respectively. This is moderate level (ML) of utilization. While, respondents with no education had a cluster mean score of (1.95), which indicates a low level (LL) of utilization. This implies that educational status had influence on utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria. The ANOVA analysis in the table showed that, educational status had significant difference on the utilization of maternal health care services among women in the selected rural communities in south-south region of Nigeria as the overall p-values was less than 0.05(p-value< 0.05). Since the p-value was less than 0.05, the null hypothesis was rejected, hence there is significant difference in the utilization of maternal health care services among women in the selected rural communities in south-south region of Nigeria with respect to educational status.

Table 5**: Mean and summary of ANOVA analysis on the influence of occupation on utilization of maternal health care services among women in selected rural communities (N=1,794)**

S/N	Items	Employed		Self-employed		Unemployed		f-value	p-value	Dec
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD			
12	Attendance of antenatal care clinics	2.12	0.90	2.90	1.41	1.91	0.93			
13	Uptake of family planning services	2.51	1.23	3.17	0.87	1.98	0.91			
14	Delivered by trained personnel	2.53	0.87	2.09	1.81	3.27	1.21			
15	Received postnatal care services	2.13	1.00	2.26	1.23	2.51	0.97	1.538	0.633	Not Signi
16	Received referral services	1.95	0.86	2.70	0.99	2.96	1.19			
17	Seek health care in health facility	2.71	1.00	2.41	0.98	2.41	0.98			
18	Received consumables from health facility	2.87	1.78	2.51	1.61	2.39	1.08			
19	Health care personnel available	1.75	0.65	2.50	1.14	2.40	1.00			
20	Frequency (number of time visit)	1.90	0.98	2.44	0.93	2.55	1.05			
	Cluster Mean	**2.27**		**2.55**		**2.49**				

LL= Low Level, ML=Moderate Level, HL= High Level

Table 5 shows mean and summary of ANOVA analysis on the influence of occupation on utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria. The table showed that women with paid employment had a cluster mean score of 2.27, indicating a moderate level (ML) of utilization, the self-employed respondents had a cluster mean score of 2.55, which also indicate moderate level (ML) of utilization. The unemployed respondents had a cluster mean score of 2.49 still indicating moderate level (ML) of utilization. With all categories of respondents having moderate level of utilization, it implies that occupation has no influence on utilization of maternal health care services among women in the selected rural communities in south-south region of Nigeria. The ANOVA analysis in the table showed that, there is no significant difference in the utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria with respect to occupation as the p-values was more than

0.05(p-value > 0.05). Since no significant difference was observed (p-value > 0.05), the null hypothesis was retained, hence there is no significant difference in the utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria with respect to occupation.

Discussion

This study investigated the availability and utilization of maternal health care services in selected rural communities in south-south Nigeria. As revealed in table 1, the extent of availability of maternal health care services to women in the selected rural communities in south-south region of Nigeria is low (1.73±0.91) LE. This finding was not surprising and was expected because in Nigeria, basic amenities including health care services that make live meaningful and improve the well-being and health of the people were not seen in the rural areas as the developmental activities of government are concentrated mostly at the urban cities. Although the provision of health care activities to meet the basic health care of the people is a responsibility of government but health care services are rarely available, affordable and accessible to the rural underserved population (Adedokun et al., 2023). This finding is in agreement with the findings of Kifle et al., (2017), who also affirmed in their study that maternal health care services are not always available to satisfy the health care needs of the rural people. However, Geta, and Yallew (2017) is in disagreement with this finding. They affirmed in their study on early initiation of ANC and factor associated with early ANC initiation at health facilities in Southern Ethiopia that maternal health services availability was moderately high. The variation in finding might be attributed nature of health system and the political will of the leadership of the country to provide health care services to meet the needs of the population. Mouhoumed and Mehmet (2021) concluded in his study that, there antenatal care services were always available for women in the rural areas in Borama town in Somaliland.

The finding in table 2 revealed a cluster mean score of (2.38±1.12). The result implies that, there is a moderate level utilization of maternal health care services among women in the selected rural communities in south-south region of Nigeria. This finding was not expected and surprising, because as people living in a rural community with inadequate provision of basic amenities including health care services, the possibility of accessing health care services is very low (Tsawe et al., 2015). As averred by Adedokun et al., (2023), most of the women at the rural communities are not always interested in utilizing maternal health care services provided at the health care facilities and several factors are associated with this behaviour. This finding is in line with Babalola and Fatusi (2009) who equally affirmed in their study on determinants of use maternal health services in Nigeria that rural women optimally utilized maternal health services. This finding was in disagreement with the study results of Bello et al. (2022), who in their study on maternal health literacy and utilization of health care services, averred that mother are inconsistent with the utilization health care services especially those in the rural communities.

The finding in table 3 revealed, that marital status had influence on utilization of maternal health care services among women in the selected rural communities in south-south region of Nigeria. This finding was expected and not surprising, because women who are married are more conscious of available maternal health care services that are fundamentally very significant for the health and well-being at any given time compared to the unmarried women especially those that have yet to give birth a child. According to Roozbeh et al., (2016), maternal health care services are always associated with married women, who also have the social mandate of procreation. This finding is in consonant with Adedokun et al., (2023), who also confirmed that marital status had influence on utilization of maternal health care services

among women. This finding was in disagreement with the results of Shanto et al. (2023); Babalola and Fatusi (2009) who in their studies revealed that utilization of maternal health care services could not be influenced by the marital status of the women.

The difference established in table 3 was further consolidated by the hypothesis, where the ANOVA analysis showed that, there was significant difference in the utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria with respect to marital status as the p-values was less than 0.05(p-value< 0.05). This finding agrees with Ezemenahi et al. (2024) who also found significant difference in maternal healthcare services utilization among women of child bearing age in south-east, Nigeria. The finding was in non-conformity with the study results of Tsawe et al. (2015), who observed no significant difference in their study on factors influencing the use of maternal healthcare services and childhood immunization in Swaziland.

The data in table 4 showed that educational status had influence on utilization of maternal health care services among women in the selected rural communities in south-south region of Nigeria. This finding was expected and not surprising because the higher the level of education an individual attain, the more he or she would understand the importance and need to utilize available health care services to maintain and promote good health status. The individuals without basic education may not see the need for health promotional services that could sustain good health status and would only seek for health care services when health problem has occurred. This finding is in conformity with the findings of Kifle et al. (2017), who on his study on maternal health care service seeking behaviours and associated factors among women in rural Haramaya district of Ethiopia concluded among others that, educational status of the women was a major factor associated with maternal health services utilization. This finding was however contradicted by the findings of Mouhoumed and Hehmet (2021) who affirmed in his study that, the literacy level of the women is not associated with the utilization of maternal health care service among women of reproductive age.

The ANOVA analysis in table 4 revealed that, educational status had significant difference on the utilization of maternal health care services among women in the selected rural communities in south-south region of Nigeria as the overall p-values was less than 0.05(p-value< 0.05). Bello et al., (2022), gave credence to this finding as they also established a significant difference in the utilization of maternal healthcare services among mothers with educational level in their study on maternal health literacy, utilization of maternal health care services and pregnancy outcomes among newly delivered mothers in Nigeria. However, the finding of Geta et al. (2017) was in sharp disagreement with this finding. In their study on early initiation of ANC and factors associated with early ANC initiation at health facilities in Southern Ethiopia found a no significant difference in utilization of ANC services based on literacy level.

The data in table 5 showed that occupation has no influence on utilization of maternal health care services among women in the selected rural communities in south-south region of Nigeria. This finding was not expected and surprising, because women with tight job schedule may always find very difficult to visit the health care facility to receive maternal health care services. This issue is more pronounced in the rural areas where most of the women are into farming and may not be readily available in the antenatal clinic days to receive the maternal health care services provided. This finding is in line with Adedokun (2023), who affirmed in his study on factors associated with partial and adequate maternal health services utilization in Nigeria that occupation of mothers was associated with intake of maternal health services. In the contrary, Dona et al., (2022), was in sharp contradiction with

this finding, they concluded in their study on factors influencing utilization of early postnatal care services among postpartum women in Ethiopia, that occupation of women had no influence on utilization of maternal health care services.

The no difference found in table 5 was further reaffirmed by the hypothesis, where the ANOVA analysis showed that, there is no significant difference in the utilization of maternal health care services among women in selected rural communities in south-south region of Nigeria with respect to occupation as the p-values was more than 0.05(p-value > 0.05). This result agreed with Mouhoumed and Hehmet,(2021) who also found a significant difference in their study on utilization pattern of antenatal care and determining factors among reproductive-age women in Borama, Somaliland. Nevertheless, some public health specialists have argued that many the job schedule of the mothers can significantly determine how she is able to make herself available for the utilization of the maternal health services provided at the health facilities (Kifle et al., (2017).

Conclusion

From the findings of the study the researchers concluded that, the extent of maternal health care services availability in the selected rural communities in south-south Nigeria was low and the utilization level was moderate. It was observed that marital status and educational level had influence on mothers' utilization of maternal health care services in the selected rural communities in south-south Nigeria. However, occupation had no influence on utilization of maternal health services in the selected rural communities in south-south Nigeria.

Recommendations

Based on the conclusion above, the following recommendations were made;

1. Government should give priority attention to the enactment of maternal health policy framework that could sustainably improve the availability of basic maternal health services to meet the health needs of rural underserved women.
2. Government through the primary health care system should provide incentives that could encourage more rural women to utilize the sparsely available maternal health care services.
3. Public enlightenment programmes be planned and organized by the social mobilization unit of the primary health care department to improve the maternal health literacy among women especially at the rural areas.

References

Adedokun, S.T., Uthman, O. A. ,& Bisiriyu, L.A. (2023). Determinants of partial and adequate maternal health services utilization in Nigeria: analysis of cross-sectional survey. *BMC Pregnancy and Childbirth*, 23(457). https://doi.org/10.1186/s12884-023-05712-4

Ajegbile, M. L. (2023). Closing the gap in maternal health access and quality through targeted investment in low-resource settings. *Journal of Global Health Reports,* 7: e2023070

Babalola, S., & Fatusi, A. (2009). Determinants of use of maternal health services in Nigeria-looking beyond individual and household factors. *BMC Pregnancy Childbirth, 9,* (43). https://doi.org/10.1186/1471-2393-9-43

Bello, C.B., Esan, D.T., Akerele, S.A., & Fadare, R.I. (2022). Maternal health literacy, utilization of maternal healthcare services and pregnancy outcomes among newly delivered mothers: a cross-sectional study in Nigeria. *Public Health in Practice,* 3: e100266

Bolanrinwa, A. O., Ahinkorah, B.O., Seidu, A., Mohammed, A., & Effiong, F.B. (2024). Predictors of young maternal age at first birth among women of reproductive age in Nigeria. *PLoS One, 18*(1), e0279404

Dairo, M.D., & Owoyokun, K.E. (2010). Factors affecting the utilization of antenatal care services in Ibadan, Nigeria. *Benin Journal of Postgraduate Medicine, 12*(1). DOI: 10.4314/bjpm.vl2il.63387

Dona, A., Tulicha, T., Arsicha, A. ,& Dabaro, D. (2022). Factors influencing utilization of early postnatal care services among postpartum women in Yirgalem town, Sidama Regional State, Ethiopia. *Sage Open Medicine Journal*. Doi: 10.11772050312122108809 8

Ezemenahi, S. I., Modebe, I. A., Njoku, C. C., Obi-nwosu, A. L., Ezemenahi, C. S. ,& Ofiaeli, C. C. (2024). Maternal healthcare utilization among women of child bearing age attending the out-patient clinics of a tertiary health facility outstations in south-east, Nigeria. *Orient Journal of Medicine, 36*(1-2), 41-50. Retrieved from https://orientjom.org.ng/index.php/ojm/article/view/79

Fagbamigbe, A.F., & Idemudia, E. S. (2015). Barriers to antenatal care use in Nigeria: evidences from non-users and implications for maternal health programmes. *BMC Pregnancy and Child Birth, 15*(95). https//doi.org/10. 1186/s12884-015-0527-y

Geta, M.B., & Yallew, W.W. (2017). Early initiation of ANC and factor associated with early ANC initiation at health facilities in Southern Ethiopia. *Advanced Public Health,* 10, s1624245

Gudu, W., & Addo, B. (2017). Factors associated with utilization of skilled service delivery among rural women in Northern Ghana: a cross sectional study. *BMC Pregnancy and Childbirth, 17*(159). https://doi.org/10.1186/s12884-017-1344-2

Iacoella, F., & Tirivayi, N. (2019). Determinants of maternal healthcare utilization among married adolescents: evidence from 13 sub-Saharan African Countries. *Public Health,* 177: 1-9. DOI: 10.1016/j.puhe.2019.07.002

Kifle, D., Azake, T., & Alemu, Y. (2017). Maternal health care services seeking behaviours and associated factors among women in rural Haramaya district, Eastern Ethiopia. *Reproductive health,* 6, s12978

Meh, C., Thind, A., Ryn, B., & Terry, A. (2019). Levels and determinants of maternal mortality in northern and southern Nigeria. *BMC Pregnancy and Childbirth,* 19: 417-424

Mouhoumed, H. M. ,& Mehmet, N. (2021). Utilization pattern of antenatal care and determining factors among reproductive-age women in Borama, Somaliland. *Journal of Preventive Medicine and Hygiene, 62*(2): 439-446

Ononokpono, D. N., & Odimegwu, C. O. (2014). Determinants of maternal health care utilization in Nigeria: a multilevel approach. The Pan African Medical Journal, *17*(2). 17.1. 3596

Paul, P., & Chouhan, P. (2020). Socio-demographic factors influencing utilization of maternal health care services in India. *Clinical Epidemiology, Global Health, 8*(3): 666-676

Roozbeh, N., Nahidi, F. & Hajiyan, S. (2016). Barriers related to prenatal care utilization among women. *Saudi Medical Journal, 36*(12): 1319-1327; DOI: https://doi.org/10.15537/smj.2016.12.15505

Shanto, H. H., Al-zubayer, A., Sarder, A. Hashmi, R., Alam, K., Ahammed, B., Keramat, S. A. ,& Haque, R. (2023). Maternal health care services utilization and associated risk factors; a pooled study of 37 low- and middle-income countries. *International Journal of Public Health,* 68: 338-346

Tesfaye, R., & Gebi, A. (2014). Factors affecting prenatal care utilization in east wollega zone, Oromia regional state, Ethiopia. *Ethiopian Science Technological Arts Research Journal, 3*(2): 390-397

Tsawe, M., Moto, A., Netshivhera, T., Ralesego, L., Nyathi, C. & Susuman, A. S. (2015). Factors influencing the use of maternal healthcare services and childhood immunization in Swaziland. *International Journal of Equity and Health, 14*(1). https://doi.org/10.1186/s12939-015-0162-2

World Health Organization. (2015). *Recommendations on health promotion interventions for maternal and newborn health*. WHO

World Health Organization. (2019). *Maternal health in Nigeria: generating information for action*. WHO