International Journal of Studies in Education [Special Edition] – [2025], Vol. 21, Issue 3: 10-23
ISSN: 2636-632O [ONLINE] - 2636-6339 [PRINT]

KNOWLEDGE OF ANTENATAL CARE SERVICES AMONG PREGNANT WOMEN ATTENDING HEALTH FACILITIES IN NSUKKA LOCAL GOVERNMENT AREA

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Abstract
This study investigated the knowledge of antenatal care services among pregnant women attending health facilities in Nsukka Local Government Area, Enugu State. Four specific objectives and four corresponding research questions were formulated, alongside three null hypotheses that guided the study. A cross-sectional survey research design was adopted. The population of the study comprised all pregnant women in Nsukka (1,713). A multi-stage sampling procedure was used to select 400 pregnant women. A researcher-developed questionnaire was utilized for data collection. The instrument was validated by three experts from the Department of Human Kinetics and Health Education, University of Nigeria, Nsukka. Frequencies and percentages were used to answer the research questions, while Chi-square statistics tested the null hypotheses at the 0.05 level of significance. The results revealed that 65.6% of the respondents had a high level of knowledge of antenatal care services, while 34.4% had a low level. Among self-employed respondents, 67.6% had a high level of knowledge, while 42.5% of unemployed respondents had a moderate level of knowledge. Significant differences were found in the level of knowledge of antenatal care services based on age ($\chi^2 = 18.126$, $p = .000 < .05$) and level of education ($\chi^2 = 88.877$, $p = .000 < .05$). The study recommended, among other things, that health workers should continuously educate pregnant women on the benefits of antenatal care services. Furthermore, antenatal visits should be made free to enable all pregnant women to participate effectively, regardless of socio-economic status.

Keywords: Knowledge, antenatal care services, pregnant women and health facilities

Introduction

Antenatal care services enable effective management of pre-natal morbidities, and may facilitate institutional delivery and postpartum care, thereby improving maternal and new-born health outcomes. Globally, in 2010 there were about 287,000 maternal deaths and a large majority of these deaths are preventable (World Health Organization [WHO], 2012). The WHO (2016) also reported that 830 women die every day from preventable causes related to pregnancy, which is more than 30 women per hour. Out of these deaths, 85 per cent occurred in sub-Saharan African and South Asia (Namatovu, 2018). However, the number of deaths still remains unacceptably high especially in low-income countries such as African countries. In Africa, maternal morbidity and mortality continues to remain a challenge. There is a rapid increase in maternal mortality with sub-Saharan Africa countries accounting for 66 percent of the global maternal mortality rate (United Nations International Children's Fund [UNICEF], 2014). According to the UNICEF, 73 per cent of all maternal deaths were associated with direct obstetric causes, and 27 per cent were associated with indirect obstetric causes. Some causes of maternal deaths in Africa are: postpartum hemorrhage, hypertensive disorders of pregnancy, complications of unsafe abortion, obstructed labour, and sepsis (UNICEF, 2014). These obstetric causes of maternal mortality are preventable through the

services which pregnant women receive during antenatal care (Rurangirwa et al., 2017). Maternal morbidity and mortality is a great issue of concern in Nigeria.

In Nigeria, maternal morbidity and mortality continues to be a challenge. Nigeria in line with the World Health Organization's recommendation of initiation of antenatal care (ANC) during pregnancy, yet the maternal mortality ratio is 815 deaths per 100, 000 live births (WHO, 2015). It is estimated that in Nigeria, one out of every 12 women dies due to pregnancy-related issues (UNICEF, 2014). In Nigeria, 41% of women who use antenatal care services did not deliver in a healthcare facility (Dahiru and Oche, 2015). Antenatal care services rate in Nigeria (a lower-middle income country) is quite low, about 61% of pregnant women visited a skilled provider at least once during their pregnancy compared with the documented average of 79% for all lower-middle income countries (Smith, and Doe, 2021). Consistent with low antenatal care and institutional delivery rates in Nigeria (36%), maternal outcomes are poor. Nigeria ranks among the top 16 nations in maternal mortality, 576 deaths per 100,000 live-births (WHO, 2015). With just 2.45% of the world's population, Nigeria accounts for 19% of maternal deaths (World bank, 2016). Antenatal care is the care given to pregnant women. According to Hamdi and Mohamed, (2021) antenatal care is an umbrella term used to describe the medical procedures and care that are carried out during pregnancy. The WHO (2017) conceptualized antenatal care as a dichotomous variable with a pregnant woman having one or more visit to a trained person during the pregnancy. The antenatal care frequently provides the first contact opportunity for a female to connect with services, thus imparting an entry factor for built-in care, merchandising healthful domestic practices, influencing care-seeking behaviours, and linking women with pregnancy complications to a referral system (WHO, 2017). Receiving antenatal care at least four times, within the period of pregnancy increases the likelihood of receiving effective maternal health interventions throughout the antenatal period (Tunçalp et al., 2017). Antenatal care is provided in form of antenatal care services.

Antenatal care services are services provided to pregnant women so that they can have safe delivery. Hollowell et al. (2011) defined antenatal care service as encompassing pregnancy related assistance provided between conception and the onset of labour with the aim of improving pregnancy outcomes, the health of the mother and child. Antenatal care services involve immunization service, counselling services, physical examination like foetal heart sound, laboratory tests including urine to check for protein and sugar, blood test usually for malaria and HIV/AIDS, and preventive services which include taking of iron and folic tablets (Dahiru & Oche, 2015). According to WHO, (2017) the standard quality service of antenatal care is comprised of three components: the firstly is the assessment (that is, history taking, physical examination, and laboratory tests), the secondly is health promotion (that includes nutrition advice, planning the birth, information regarding pregnancy, subsequent contraception and breastfeeding, and immunization), and thirdly is care provision (that is comprised of immunization, psychosocial support, and record keeping). The antenatal care services enable early identification of pregnancy related risks and complications; and ensure access of services including health education, vaccines, diagnostic tests and treatments (Halle-Ekane, Obinchemti, Nzang, Mokube, et al, 2014). In the context of this study, antenatal care services are services given to pregnant women attending health facilities in Nsukka LGA.

Knowledge refers to general understanding or familiarity with a subject. According to Gregg (2013) knowledge is the awareness of or familiarity with various objects, events, ideas or ways of doing things. Odo, Ojiaku and Okpala (2015) viewed knowledge as information, facts or ranges of what has been perceived, discovered or learned. Furthermore, James (2016)

defined knowledge as the awareness or familiarity gained by experience of a person, fact, or thing. Dhahi et al (2015) asserted that the level of knowledge of antenatal care is very important as it can help pregnant women develop the right attitude towards antenatal care services. Accurate knowledge of antenatal care services leads to positive child and maternal health. In the context of this work, knowledge is the awareness of antenatal care services among pregnant women attending health facilities in Nsukka L.G.A.

A pregnant woman is a woman who has a foetus developing in her uterus. Spong (2013) defined a pregnant woman as a woman carrying a developing fetus within her body. A pregnant woman is a woman who is carrying a fetus or multiple fetuses in the uterus (World Health Organization, 2020). A pregnant woman is one who is in the state of carrying a developing fetus within the uterus (Kennedy, 2013). Pregnancy usually occurs by sexual intercourse, but can also occur through assisted reproductive technology procedures. It is conventionally divided into three trimesters, each roughly three months long. In this study, pregnant women is a woman in Nsukka LGA who is carrying a fetus or multiple fetuses in her uterus So is advisable that pregnant women visit health facilities for antenatal care services to avoid pregnancy complications. Health facilities are any location where healthcare is provided. Health facilities range from small clinics and doctor's offices to urgent care centers and large hospitals with elaborate emergency rooms and trauma centers (Awosika, 2012). The number and quality of health facilities in a country or region is one common measure of that area's prosperity and quality of life. Health facilities may be owned and operated for-profit businesses, non-profit organizations, governments, and in some cases by individuals, with proportions varying by country (Ahmadi-Javid, Seyedi & Syam, 2017; WHO, 2019). In the context of this study, health facilities are any certified place where antenatal care services are provided to pregnant women.

Certain factors may be associated with knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA of Enugu State. Rothman & Greenland (2018) defined associated factors as variables that are not direct causes but that are linked to a given outcome. Such associated factors include age, educational level and employment status. Age refers to the length of time during which a being has existed. According to Wicklund and Kowalczyk (2023) age is a combination of physical, psychological, biological, and social maturity. Age brings about maturity and maturity puts the individual in a position to rationalize, concretize, accept or reject concepts, information, habits, attitudes and practice (Ejifugha, 2013). Age refers to the length of time during which a being has existed (Mikkelsen, Evenson, Owe, Nybo, Andersen & Kayser, 2017). The age bracket that will be used in this study is 15- 40 years (WHO, 2022). This study will therefore examine if age could influence knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA. Education level will also be looked at in the present study.

Education level refers to the educational qualification of the pregnant woman. Wraga et al, (2012) defined education level as subdivisions of learning, typically covering informal education, primary education, secondary education and tertiary (or higher) education. A study conducted by Fegita, Miftahul and Malik, (2022) on the relationship between education level, age and knowledge of pregnant women with antenatal care status, reported that seven pregnant women (21.9%) had high education, eight pregnant women (25.0%) had moderate education, and seventeen pregnant women (53.1%) had low education. The results of this study indicated that education level had a positive effect on maternal intention to do antenatal care visit. The higher the education of pregnant women, the higher intention to do antenatal care visit. This study will therefore examine if educational level could influence knowledge

of antenatal care services among pregnant women attending health facilities in Nsukka LGA. Employment status will also be looked at in the present study.

Employment status of pregnant women can also be associated with antenatal care services. Graeber et al (2018) defined employment status as any activity that requires a person's mental or physical effort performed in exchange for payment. A study conducted by Ademoye, Yahaya, Ajayi, Aboagye-Mensah and Ikome, (2024) on influence of socioeconomic status on antenatal care utilization and pregnancy outcomes in sub-Saharan African, reported employment status as a factor that influence antenatal care services in Burundi found out that woman's likelihood of requesting antenatal care services from a qualified healthcare expert increases with her employment status, marital status, and money. This study will therefore examine if employment status could influence knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA.

Statement of Problem

Pregnant women should have adequate knowledge of antenatal care services through antenatal care visits from health care professionals like doctors, nurses, health educators and also during community health programmes. Pregnant women are supposed to apply the knowledge to develop right attitude towards antenatal care services by engaging in healthy lifestyle practices such as adequate dieting, regular taking of routine drugs which, includes; (ferrous sulphate, calcium, vitamin D and folic acid). Others include engaging in aerobic exercises, take antenatal visit at clinics seriously where they will learn from skilled health personnels about healthy behaviours during pregnancy, and also receive immunization. These healthy lifestyle practices are geared towards promoting the health of pregnant women/ unborn infants, reducing risk of complications, have safe delivery and reduce maternal and child mortality and morbidity rates. Regrettably, studies have revealed that some pregnant women seem to have low knowledge, moderate and high knowledge of antenatal care services in different parts of the country likewise regions. This could lead to increase in maternal and unborn morbidity and mortality rate. They may also engage in unhealthy lifestyle practices during pregnancy due to poor knowledge of antenatal care services. This could be by taking high caloric food which could result to gestational diabetes and pre-eclampsia, among others. However, the situation is highly deplorable considering the fact that most of these complications can be averted or minimized by having good knowledge of antenatal care services. This is worrisome and calls for immediate action. This present study therefore sought to determine the level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA of Enugu, State.

Purpose of the Study

The purpose of the study was to investigate the knowledge of antenatal care services among pregnant women attending health facilities in Nsukka Local Government Area, Enugu State. Specifically, the study determined the:

1. level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State;
2. level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on age;
3. level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on education level;
4. level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on employment status;

Research Questions

The following research questions guided this study:

1. What is the level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State?
2. What is the level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on age?
3. What is the level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on education level?
4. What is the level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on employment status?

Hypotheses

The following null hypotheses guided this study and were tested at .05 level of significance:

1. There is no significant difference in the level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on age.
2. There is no significant difference in the level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on education level.
3. There is no significant difference in the level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on employment status.

Methods

The study used a cross-sectional research design. This study was conducted in Nsukka Local Government Area (LGA). The LGA is made up of 17 LGAs in Enugu State. The population of the study consisted of 1,713 pregnant women attending antenatal clinics in Nsukka. The population of these registered pregnant women from June 2024 to December 2024 was one thousand seven hundred and thirteen (1,713) (office of monitoring and evaluation unit health Department Nsukka Local Government Area). The sample for this study comprised of four hundred (400) pregnant women. The multi-stage sampling procedure was employed to draw out the sample for the study. Data was collected through the use of structured questionnaire developed by the researchers. The validity of the instrument was determined research was by three experts in the Department of Human Kinetics and Health Education, University of Nigeria, Nsukka. Their constructive criticisms, corrections and suggestions were used to improve the instrument before producing the final version of the instrument which was used for the study. Spearman's Rank-Order Correlation Formular was computed for the data collected and a reliability coefficient of 0.60 was obtained, and was considered reliable for the present study. Data was collected through direct administration of the questionnaire to the respondents by the researchers, with the help of four research assistants who were briefed on the modality of the mode of administration and collection of the questionnaire. The research assistants were nurses on duty at the sampled health facilities. The administration of the instrument was done on the days of their antenatal visits. Those who have difficulty in understanding the content of the questionnaire were confidently assisted by the researchers and their assistants. The respondents were guided during the response session in order to control duplication of responses. The questionnaire was collected on the spot (health facilities) after the necessary information were supplied by the respondents where possible. However, where on-the-spot collection of the instrument was not possible, a date for

subsequent collection was agreed upon by the researchers, her assistants and the respondents and this procedure helped to ensure high return rate. However,
Analysis was done based on 363 copies returned was that were properly filled using Statistical Packages for Social Sciences, IBM-SPSS (version 23). The data was analyzed: all the research questions were answered using frequency counts and percentage scores. The postulated null hypotheses were tested using Chi-square statistics and were deemed significant at .05 level of significance. Modified scale of measuring knowledge by Okafor, (1997) was used as a guide for measuring level of knowledge towards antenatal care services. According to Okafor (1997) knowledge of less than 20% was considered very low level of knowledge, 21-39% low level of knowledge, 40-59% moderate level of knowledge, 60-79% high level of knowledge, and 80-100% very high level of knowledge.

Results

Table 1: Level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State (n = 363)

S/N	Items	True f (%)	False f (%)
1	Does a pregnant woman need to come for at least four antenatal checks throughout her pregnancy?	340 (93.7)	23 (6.3)
2	Maternal smoking is not harmful to the fetus	117 (32.2)	246 (67.8)
3	Alcohol consumption during pregnancy cannot affect the fetal growth	69 (19.0)	294 (81.0)
4	Do you know that any medicine other than those prescribed by doctor can cause harm to your baby?	261 (71.9)	102 (28.1)
5	Antenatal care services are necessary in preventing malaria, anemia and other pregnancy complications?	259 (71.3)	104 (28.7)
6	Antenatal care services can help correct or improve micronutrient deficiency	259 (71.3)	104 (28.7)
7	Are you aware of antenatal care services in your community?	271 (74.7)	92 (25.3)
8	Does an antenatal care service provide education about care after delivery?	272 (74.9)	91 (25.1)
	Overall Average (%)	65.6	34.4

Key: Less than 20% = very low knowledge, 21- 39% = low level of knowledge, 40-59% = moderate knowledge, 60 – 79% = high knowledge, 80 – 100% = very high level of knowledge. Results in Table 1 showed that pregnant women attending health facilities in Nsukka LGA have high level of knowledge on antenatal care services (65.6%) while 34.4% has low level of knowledge.

Table 2: Response to level of Knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on age (n=363)

		18 – 25 (n = 147)		26 - 35 (n = 148)		36 - 40 (n = 68)	
S/N	Items	f	%	F	%	f	%
1	Does a pregnant woman need to come for at least	135	91.8	137	92.6	68	100

	four antenatal checks throughout her pregnancy?						
2	Maternal smoking is not harmful to the fetus	58	39.5	24	16.2	35	51.5
3	Alcohol consumption during pregnancy cannot affect the fetal growth	34	23.1	12	8.1	23	33.8
4	Do you know that any medicine other than those prescribed by doctor can cause harm to your baby?	114	77.6	114	77.6	33	48.5
5	Antenatal care services is necessary in preventing malaria, anemia and other pregnancy complications?	112	76.2	102	68.9	45	66.2
6	Antenatal care services can help correct or improve micronutrient deficiency	136	92.5	67	45.3	56	82.4
7	Are you aware of antenatal care services in your community?	124	84.4	114	77.0	33	48.5
8	Does antenatal care services provide education about care after delivery?	78	53.1	126	85.1	68	100
	Overall Average (%)	69.4		54.1		82.4	

Key: Less than 20% = very low knowledge, 21- 39% = low level of knowledge, 40-59% = moderate knowledge, 60 – 79% = high knowledge, 80 – 100% = very high level of knowledge. Results in Table 2 shows that Nsukka LGA pregnant women attending health facilities aged 18 to 25 years (69.4%) have high knowledge of antenatal care services more than those aged 26 years to 35 years who had (54.1%) moderate knowledge. 68 pregnant women aged 36 years to 40 years has very high knowledge of antenatal care services (82.4%).

Table 3: Response to level of Knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on education level (n=363)

S/N	Items	Non-formal Education		Primary Education		Secondary Education		Tertiary Education	
		True f(%)	False f(%)	True f(%)	False f(%)	True f(%)	False f(%)	True f(%)	False f(%)
1	Does a pregnant woman need to come for at least four antenatal checks throughout her pregnancy?	124(91.9)	11(8.1)	172(93.5)	12(6.5)	11(100)	0(0.0)	33(100)	0(0.0)
2	Maternal smoking is not harmful to the fetus	47(34.8)	88(65.2)	70(38.0)	114(62.0)	0(0.0)	11(100)	0(0.0)	33(100)
3	Alcohol consumption during pregnancy cannot affect the fetal growth	12(8.9)	123(91.1)	57(31.0)	127(69.0)	0(0.0)	11(100)	0(0.0)	33(100)
4	Do you know that any	79(58.	56(41.	149(8	35(19.	0(0.0	11(1	33(	0(0.0)

	medicine other than those prescribed by doctor can cause harm to your baby?	5)	5)	1.0)	0)	)	00)	100)	
5	Antenatal care services is necessary in preventing malaria, anemia and other pregnancy complications?	77(57. 0)	58(43. 0)	138(7 5.0)	46(25. 0)	11(1 00)	0(0.0)	33(100)	0(0.0)
6	Antenatal care services can help correct or improve micronutrient deficiency	101(7 4.8)	34(25. 2)	125(6 7.9)	59(32. 1)	11(1 00)	0(0.0)	22(66.7)	11(33. 3)
7	Are you aware of antenatal care services in your community?	78(57. 8)	57(42. 2)	160(8 7.0)	24(13. 0)	11(1 00)	0(0.0)	22(66.7)	11(33. 3)
8	Does antenatal care services provide education about care after delivery?	167(4 9.6)	168(5 0.4)	172(9 3.5)	12(6.5)	0(0.0)	11(1 00)	33(100)	0(0.0)
Overall Average (%)		42.2	57.8	80.4	19.6	0.0	100	100	0

Key: Less than 20% = very low knowledge, 21- 39% = low level of knowledge, 40-59% = moderate knowledge, 60 – 79% = high knowledge, 80 – 100% = very high level of knowledge. Results in Table 3 shows that Nsukka LGA pregnant women attending health facilities with non-formal education has moderate knowledge (42.2%), pregnant women with tertiary education has very high level of knowledge (100%) while pregnant women with secondary education had very low knowledge (0%) of antenatal care services,

Table 4: Response to Knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on employment status (n=363)

S/N	Items	Self-employed		Unemployed		Employed	
		True f(%)	False f(%)	True f(%)	False f(%)	True f(%)	False f(%)
1	Does a pregnant woman need to come for at least four antenatal checks throughout her pregnancy?	102(100)	0(0.0)	137(85. 6)	23(14. 4)	101(10 0)	0(0.0)
2	Maternal smoking is not harmful to the fetus	46(45.1)	56(54. 9)	36(22.5)	124(77 .5)	35(34. 7)	66(65. 3)
3	Alcohol consumption during pregnancy cannot affect the fetal growth	47(46.1)	55(53. 9)	0(0.0)	160(10 0)	22(21. 8)	79(78. 2)
4	Do you know that any medicine other than those	57(55.9)	45(44. 1)	103(64. 4)	57(35. 6)	101(10 0)	0(0.0)

	prescribed by doctor can cause harm to your baby?						
5	Antenatal care services is necessary in preventing malaria, anemia and other pregnancy complications?	68(66.7)	34(33.3)	113(70.6)	47(29.4)	78(77.2)	23(22.8)
6	Antenatal care services can help correct or improve micronutrient deficiency	79(77.5)	23(22.5)	101(63.1)	59(36.9)	79(78.2)	22(21.8)
7	Are you aware of antenatal care services in your community?	78(76.5)	24(23.5)	103(64.4)	57(35.6)	90(89.1)	11(10.9)
8	Does antenatal care services provide education about care after delivery?	79(77.5)	23(22.5)	104(65.0)	56(35.0)	89(88.1)	12(11.9)
	Overall Average (%)	**67.6**	**32.4**	**42.5**	**57.5**	**100**	**0**

Key: Less than 20% = very low knowledge, 21- 39% = low level of knowledge, 40-59% = moderate knowledge, 60 – 79% = high knowledge, 80 – 100% = very high level of knowledge. Results in Table 4 shows that pregnant women attending health facilities in Nsukka LGA that are self-employed has (67.6%) high knowledge, unemployed pregnant women has (42.5%) moderate knowledge and employed pregnant women has (100%) very high level of knowledge on antenatal care services.

Hypothesis One: There is no significant difference in the level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA Enugu State based on age. Data testing this hypothesis are contained in table 5.

Table 5: Summary of Chi-square Test for no Difference on the Knowledge of Antenatal Care Services Among Pregnant Women Attending Health Facilities in Nsukka LGA Enugu State Based on Age.

Age	N	True O(E)	false O(E)	X^2	df	P-value	Decision
18 - 25 years	147	102 (96.4	45 (50.6)				
26 - 35 years	148	80 (97.0)	68 (51.0)				
36 - 40 years	68	56 (44.6)	12 (23.4)	18.126	2	.000	Rejected

The p-value is significant at 0.05 level; O(E) = Observed frequency (Expected frequency)

Result in Table 5 showed Chi-square value with the corresponding p-value for hypothesis of no significance difference in knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA Enugu State based on age (X^2= 18.126, p = .000< .05). Since the p-value is less .05 level of significance, the null hypothesis is therefore rejected. This implies that there is a significant difference in the level of knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on age.

Hypothesis Two: There is no significant difference in the level knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on education level. Data testing this hypothesis are contained in table 6.

Table 6: Summary of Chi-square Test for no Difference in the level of Knowledge of Antenatal Care Services Among Pregnant Women Attending Health Facilities in Nsukka LGA, Enugu State based on Education level.

Education Level		N	True O(E)	false O(E)	X^2	df	P-value	Decision
Non-formal		135	57 (88.5)	78 (46.5)				
Primary	184	148 (120.6)	36 (63.4)					
Secondary	11	0 (7.2)	11 (3.8)	88.877	3	.000	Rejected	
Tertiary								

The p-value is significant at 0.05 level; O(E) = Observed frequency (Expected frequency)

Result in Table 6 showed Chi-square value with the corresponding p-value for hypothesis of no significance difference in the level of knowledge of the antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on education level (x2= 88.877, p = .000< .05). Since the p-value is less .05 level of significance, the null hypothesis is therefore rejected. This implies that there is a significant difference in the knowledge of the level of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on education level.

Hypothesis Three: There is no significant difference in the knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on employment status. Data testing this hypothesis are contained in table 7.

Table 7: Summary of Chi-square Test for no Difference on the Knowledge of Antenatal Care Services Among Pregnant Women Attending Health Facilities in Nsukka LGA, Enugu State based on Employment Status.

Employment Status	N	True O(E)	false O(E)	X^2	df	P-value	Decision
Self-employed	102	69 (66.9)	33 (35.1)				
Unemployed	160	68 (104.9)	92 (55.1)				
Employed	101	101 (66.2)	0 (34.8)	90.942	2	.000	Rejected

The p-value is significant at 0.05 level; O(E) = Observed frequency (Expected frequency)

Result in Table 7 showed Chi-square value with the corresponding p-value for hypothesis of no significance difference in knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA Enugu State based on employment status ($x2= 90.942$, $p = .000< .05$). Since the p-value is less .05 level of significance, the null hypothesis is therefore rejected. This implies that there is a significant difference in the knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State based on employment status.

Discussion

The purpose of the study was to determine the knowledge of antenatal care services among pregnant women attending health facilities in Nsukka LGA, Enugu State. The findings in Table 1 showed that the level of knowledge of antenatal care services among pregnant women was high. This result was expected because pregnant women are supposed to have adequate knowledge of antenatal care services. Findings from this study agrees with Abdulfatahp Marzoq and Abdulnasser (2022) who reported that a huge proportion (79%) of pregnant women have good knowledge regarding ANCs. This finding does not support the reports of Drigo (2018) that the respondents generally have poor knowledge of ANCs. The findings in Table 2 showed that the level of knowledge of ANCs based on age was very high among older women aged 36-40 years. The findings were expected and not because it is expected that older pregnant women should have more knowledge compared to younger women due to their level of experience. This finding disagrees with Akhtar, Hussain, Majeed and Afzal (2018) findings which suggested that those aged 20–24 appeared to have the greatest awareness of ANCs while those aged 35 and above had the lowest level of awareness (10%; n=14).

The findings in Table 3 showed that the level of knowledge of ANCs based on education level was very high among respondents with tertiary education. The findings were expected because it is expected that respondent with tertiary education should have more knowledge of ANCs than respondent with secondary, primary and non-formal education. These findings were in contrast with Rozilza and Muhamad (2011) that pregnant women with primary education had high knowledge on ANCs. The findings in Table 4 showed that the level of knowledge of ANCs based on employment status was very high among employed pregnant women. This is not surprising because pregnant women employment status have impact on their knowledge to register for antenatal sessions. Being employed with an income level helps pregnant women in the knowledge and adherence to all the instructions given to them during antenatal visits. This is in line with Ogunba and Abiodun (2017) which indicates that pregnant women that are employed have high knowledge of ANCs and better chanced to get ANC services.

Contribution to knowledge

This study has generated empirical evidences on knowledge of antenatal care services among pregnant women. This study has benefited not only the pregnant women but also public health educators, governments, ministry of health, researchers, health care providers, employers of labour and Nsukka Local Government Area. Meanwhile, public health educators would benefit from the findings because they will use the result to educate women on the meaning and need for antenatal care services. They will also be armed with in-depth knowledge on the sociodemographic variables that impinge on knowledge of antenatal care services among pregnant women. Health care providers can design and implement suitable

programmes that can convince, motivate and persuade pregnant women to engage in antenatal visits more promptly and frequently.

Conclusion

The study concluded that pregnant women in Nsukka Local Government Area possess a high level of knowledge of antenatal care services, thereby addressing research question one. Pregnant women aged 18 to 25 years (69.4%) demonstrated a higher level of knowledge compared to those aged 26 to 35 years (54.1%), who exhibited a moderate level of knowledge. This finding addresses research question two. Additionally, pregnant women with tertiary education demonstrated a very high level of knowledge (100%), while those with only secondary education had a very low level of knowledge (0%). This responds to research question three. Furthermore, unemployed pregnant women exhibited a moderate level of knowledge (42.5%), while employed pregnant women showed a very high level of knowledge (100%) of antenatal care services. This addresses research question four. The study also found a significant difference in the level of knowledge of antenatal care services based on age, confirming hypothesis one. Similarly, a significant difference in knowledge level was observed based on educational attainment, confirming hypothesis two.

Recommendations

Based on the findings of the study the following recommendations were made:

1. Education should be provided on the benefits of antenatal care services on social media platforms using audio visual aids as majority of mothers are on social media.
2. Government and hospitals should make antenatal registration free.
3. Government should provide more employment opportunities that pay high to the people especially women in other to sustain life and meet up with antenatal needs.
4. Health care facilities should organize health talk in collaboration with health educators on the various aspects of antenatal care services.

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