

Demographic Factors Associated with Utilization of Antenatal Care Services Among Pregnant Women in Song Local Government Area of Adamawa State

Yohanna Wamanyi^{1*}, E.S. Samuel² & EkeminiE. Samuel³

^{1,2}Department of Human Kinetics and Health Education, University of Nigeria Nsukka

³University of Port Harcourt Teaching Hospital, Port Harcourt

* Corresponding Author:

Abstract

The study was designed to investigate the demographic factors associated with the utilization of antenatal care services among pregnant women in Song local government area, Adamawa State. In order to accomplish this purpose, three specific objectives and corresponding research questions were formulated. Three null hypotheses were postulated for the study. Descriptive survey design was employed for this study. Four hundred (400) sample size was determined using Yaro Yamane's formula for determining sample size of any definite population. The instrument for data collection was questionnaire. Frequencies and percentages were used to answer the research questions, while the hypotheses were tested at .05 level of significance at appropriate degree of freedom using chi-square. A total of 300 (73.8%) pregnant women utilized the components of ANC services. The highest ANC services utilized was health education (96.7%) followed by screening (90.5%), routine drugs (80.8%) and physical examination (65.0%) while the lowest ANC services utilization was immunization (35.7%). There was significant difference in the utilization of ANC services among pregnant women based on age and location; and no significant difference based on parity. The researcher recommended among other things that health education and campaign on adequate utilization of antenatal care services (especially physical examination & immunization) should be conducted by health educators and other health care professionals regularly at health centres, schools, churches, social media, among others.

Keywords: Demographic factors, Utilization, Antenatal care services, Pregnant women.

Introduction

Antenatal care (ANC) is one of the components of maternal health and is a key strategy for reducing maternal and neonatal morbidity and mortality rate worldwide. ANC services and its utilization are associated with improved maternal and neonatal health outcomes. World Health Organization-WHO, United Nations Children Fund-UNICEF, World Bank Group and United Nations Population Division, (2016) reported that approximately 580,000 maternal deaths occurred in 2015 worldwide. The lifetime risk of maternal death in sub-Saharan Africa is one (1) in 22 pregnant mothers compared to one (1) in 210 in Northern Africa, one (1) in 62 for Oceania, one (1) in 120 for Asia, and one (1) in 290 for Latin America and the Caribbean (WHO, 2010). WHO, (2012) stated that in 2010, two countries reported a one third of global maternal deaths: India at 19 per cent (56,000) and Nigeria at 14 per cent (40,000). According to Federal Ministry of Health (2012), some of the dangers of pregnancy and childbirth can be prevented if the pregnant women utilize ANC services regularly. The utilization of ANC services is an important strategy in Nigeria, being the leading contributor to maternal mortality in sub-Saharan Africa.

Antenatal care is a sure way of achieving healthy mother and child. In Nigeria, it was estimated that approximately 59,000 of maternal deaths take place annually as a result of pregnancy, delivery and post-delivery complications, despite the availability of ANC services (World Health Organization-WHO, United Nations Children Fund-UNICEF & United Nations Population Fund-UNFPA, 2007). With an estimated 59,000 maternal deaths, Nigeria which has approximately two per cent of the world's population contributes more than 10 per cent of the world's maternal deaths which can be attributed partly to non-utilization of ANC services (Dairo & Owoyokun, 2010). According to WHO, UNICEF, World Bank Group and United Nations Population Division, maternal mortality ratio

in Nigeria was last measured at 814 in 2015. Utilization of ANC services is one of the most important indicator for controlling maternal morbidity and mortality. ANC has been defined by various authors.

Utilization is to make use of something for its benefit. Utilization is the use of something especially for practical purposes (Onah, Ikeakor & Iloabuchi, 2006). Fosu, (2011) divided utilization into two; low utilization and effective utilization. Low utilization is when less than fifty per cent persons use a given service, whereas effective utilization is when more than fifty per cent of persons use a particular service. WHO, (2005) explained ANC services utilization as using enough visits (at least three) with early timing (first visit during first trimester) and sufficient services (at least six core services according to the experts recommendations). Utilization of ANC services has been identified in a number of studies as an important factor in determining maternal and infant mortality. Villar, (2012) asserted that the trend of maternal mortality in developing countries has been increasing and various international organizations have reported that an important factor related to maternal and infant mortality has been linked to lack of utilization of antenatal care services. According to Federal Ministry of Health (2005), in order to decrease maternal and infant mortality rates, utilization of ANC services has to be instituted or reinforced which can only be achieved through identifying factors causing poor utilization of antenatal care services. Utilization of ANC services refers to attainment of first, second, third and fourth visits to designated clinics by pregnant women (from first trimester till delivery) and the appropriate use of services provided. Utilization of ANC services means the proper use of services provided to pregnant women during pregnancy. Utilization of ANC services among pregnant women is one of the important factors in reducing maternal morbidity and mortality.

Utilization of ANC services helps to reduce maternal morbidity and mortality. Reports showed that a high utilization rate of the ANC service results in lowering the risk of maternal mortality (WHO, 2009). Magadi, Agwanda, and Obare.(2007) posited that the failure to utilize ANC services during pregnancy can lead to undesirable pregnancy outcomes such as maternal morbidity, low birth weight for the baby or even maternal and prenatal mortality. Jibo, (2005) found out two main reasons for non-utilization of ANC services; they are socio-demographic factors and access to experience traditional birth.

Demographic factors are important variables that comprise of demographic characteristics of the subject which may affect health outcomes. Toan, (2012) stated that, demographic factors are variables which include gender, age and total number of person living. Ikeoluwapo, Damilola, Osakinle, (2013) stated that, a number of demographic factors are associated with increased risk for preterm birth. The author further mentioned; young maternal age, maternal age over 35, and pregnancy for single mother and those cohabiting under marriage as associating with increased risk. Emelumadu, Ukegbu, Ezeama, Kanu, Ifeadike and Onyeonoro, (2015) listed demographic characteristics to include age, sex, place of residence, religion and marital status. For the purpose of this study, the following variables will be investigated; age, parity and location. The above factors have the potentials of restricting or enhancing the utilization of ANC among pregnant women in Song Local Government Area, Adamawa State.

The study was conducted in health care facilities that provide ANC services in Song Local Government Area of Adamawa State. The study was delimited to pregnant women in Song LGA, Adamawa state. The study focused on utilization of ANC services among pregnant women, and the relationship between demographic variables associated with utilization of ANC such as age, location and parity.

Method

In order to accomplish the purpose of this research, a cross-sectioned descriptive survey design was employed. The study was conducted in health care facilities that provided ANC services in Song Local Government Area of Adamawa State. The population for this study consisted of all pregnant women attending antenatal care clinic across Song Local Government Area, Adamawa State. The population of pregnant women was 12, 823 as at May, 2016 (Adamawa State Primary Health Care Development Agency-ADPHCDA, 2016). The sample for this study consisted of 400 pregnant women. This was calculated using Yaro Yamane's formula for determining the sample size of any definite population (Gemson & Kyamru, 2013). The instrument for data collection was researcher-designed questionnaire tagged 'Socio-demographic Factors Associated with Utilization of Antenatal Care Services Questionnaire (SODEFAS-Q). The data derived from the SODEFAS-Q were based on

2-point scale Yes or No. The respondents were requested to place a tick [√] as it applied to them in sections A and B.

The face validity of the instrument was established by giving the drafted copies of the questionnaire accompanied with the purpose of the study and its specific objectives, the research questions and hypotheses to five experts, who critically examined them and ascertain whether the items covered the objectives of the study. The experts were from the Department of Human Kinetic and Health Education, University of Nigeria, Nsukka. The reliability of the instrument was computed using Crombach gave a valued .68, and the instrument was adjudged reliable. The data were analyzed using frequencies and percentages to answer the research questions. The null hypotheses were tested using chi-square at .05 level of significance at appropriate degree of freedom.

Results

Table 1

Proportion of Pregnant Women Utilizing Components of ANC Services (n=407)

S/n	Items	Yes		No	
		F	%	F	%
Health Education					
1	Exclusive breast feeding	394	96.8	13	3.2
2	Nutrition	398	97.8	9	2.2
3	Family planning	398	97.8	9	2.2
4	Personal hygiene	398	97.8	9	2.2
5	Exercise	379	93.1	28	6.9
Cluster %		393	96.7	14	3.3
Routine Drugs					
6	Ferrous sulphate	402	98.8	5	1.2
7	Folic acid	387	95.1	20	4.9
8	Multivitamin tablets	391	96.1	16	3.9
9	Vitamin B complex	131	32.2	276	67.8
10	Vitamin C tablets	333	81.8	74	18.2
Cluster %		329	80.8	78	19.2
Physical Examination					
11	Abdominal palpation	397	97.5	10	2.5
12	Breast examination	260	63.9	147	36.1
13	Examination of skin	204	50.1	203	49.9
14	Examination of private part	198	48.6	209	51.4
Cluster %		265	65.0	142	35.0
Screening					
15	HIV test	388	95.3	19	4.7
16	Urine test for protein and sugar	376	92.4	31	7.6
17	Blood test for anaemia	364	89.4	43	10.6
18	Blood test for malaria parasite	317	77.9	90	22.1
19	BP measurement	397	97.5	10	2.5
Cluster %		368	90.5	39	9.5
Immunization					
20	TT1 dose	380	93.4	27	6.6
21	TT2 dose	286	70.3	121	29.7
22	TT3 dose	35	8.6	372	91.4
23	TT4 dose	3	0.7	404	99.3
24	TT5 dose	23	5.7	384	94.3
Cluster %		145	35.7	262	64.3
Overall %		300	73.8	107	26.2

Data in Table 1 show that overall 73.8% of pregnant women utilized ANC services. This shows high proportion of utilization. The table further reveals the proportion of respondents that utilized specific ANC services as follows: health education (96.7%), screening (90.5%), routine drugs (80.8%), physical examination (65.0%) and immunization (35.7%). Besides immunization with low proportion of utilization (35.7%), other components of ANC services were highly utilized.

Table 2
Proportion of Utilization of ANC Services Among Pregnant Women Based on Age (n=407)

S/n	Age	Below 19 years (n=60)		19 – 25 years (n=161)		26 – 32 years (n=111)		33 – 45 years (n=67)		46 yrs & above (n=8)	
		Yes f(%)	No f(%)	Yes f(%)	No f(%)	Yes f(%)	No f(%)	Yes f(%)	No f(%)	Yes f(%)	No f(%)
Health Education											
1	Exclusive breast feeding	2(3.3)	58(96.7)	3(1.9)	158(98.1)	2(1.8)	109(98.2)	5(7.5)	62(92.5)	1(12.5)	7(87.5)
2	Nutrition	2(3.3)	58(96.7)	3(1.9)	158(98.1)	3(2.7)	108(97.3)	1(1.5)	66(98.5)	0(0.0)	8(100.0)
3	Family planning	1(1.7)	59(98.3)	3(1.9)	158(98.1)	2(1.8)	109(98.2)	2(3.0)	65(97.0)	1(12.5)	7(87.5)
4	Personal hygiene	3(5.0)	57(95.0)	2(1.2)	159(98.8)	3(2.7)	108(97.3)	1(1.5)	66(98.5)	0(0.0)	8(100.0)
5	Exercise	3(5.0)	57(95.0)	9(5.6)	152(94.4)	10(9.0)	101(91.0)	4(6.0)	63(94.0)	2(25.0)	6(75.0)
Cluster %		3.7	96.3	2.5	97.5	3.6	96.4	3.9	96.1	10.0	90.0
Routine Drugs											
6	Ferrous sulphate	0(0.0)	60(100.0)	2(1.2)	159(98.8)	2(1.8)	109(98.2)	1(1.5)	66(98.5)	0(0.0)	8(100.0)
7	Folic acid	0(0.0)	60(100.0)	6(3.7)	155(96.3)	5(4.5)	106(95.5)	7(10.4)	60(89.6)	2(25.0)	6(75.0)
8	Multivitamin tablets	2(3.3)	58(96.7)	6(3.7)	155(96.3)	2(1.8)	109(98.2)	4(6.0)	63(94.0)	2(25.0)	6(75.0)
9	Vitamin B complex	40(66.7)	20(33.3)	118(73.3)	43(26.7)	69(62.2)	42(37.8)	43(64.2)	24(35.8)	6(75.0)	2(25.0)
10	Vitamin C tablets	14(23.3)	46(76.7)	17(10.6)	144(89.4)	24(21.6)	87(78.4)	17(25.4)	50(74.6)	2(25.0)	6(75.0)
Cluster %		18.7	81.3	18.5	81.5	18.4	81.6	21.5	78.5	30.0	70.0
Physical Examination											
11	Abdominal palpation	1(1.7)	59(98.3)	6(3.7)	155(96.3)	2(1.8)	109(98.2)	1(1.5)	66(98.5)	0(0.0)	8(100.0)
12	Breast examination	30(50.0)	30(50.0)	56(34.8)	105(65.2)	35(31.5)	76(68.5)	25(37.3)	42(62.7)	1(12.5)	7(87.5)
13	Examination of skin	40(66.7)	20(33.3)	71(44.1)	90(55.9)	47(42.3)	64(57.7)	39(58.2)	28(41.8)	6(75.0)	2(25.0)
14	Examination of private part	43(71.7)	17(28.3)	70(43.5)	91(56.5)	50(45.0)	61(55.0)	40(59.7)	27(40.3)	6(75.0)	2(25.0)
Cluster %		47.5	52.5	31.5	68.5	30.2	69.8	39.2	60.8	40.6	59.4
Screening											
15	HIV test	2(3.3)	58(96.7)	7(4.3)	154(95.7)	7(6.3)	104(93.7)	3(4.5)	64(95.5)	0(0.0)	8(100.0)
16	Urine test for protein and sugar	5(8.3)	55(91.7)	11(6.8)	150(93.2)	3(2.7)	108(97.3)	10(14.9)	57(85.1)	2(25.0)	6(75.0)
17	Blood test for anaemia	8(13.3)	52(86.7)	13(8.1)	148(91.9)	8(7.2)	103(92.8)	12(17.9)	55(82.1)	2(25.0)	6(75.0)
18	Blood test for malaria parasite	17(28.3)	43(71.7)	18(11.2)	143(88.8)	22(19.8)	89(80.2)	28(41.8)	39(58.2)	5(62.5)	3(37.5)
19	BP measurement	2(3.3)	58(96.7)	3(1.9)	158(98.1)	4(3.6)	107(96.4)	1(1.5)	66(98.5)	0(0.0)	8(100.0)
Cluster %		11.3	88.7	6.5	93.5	7.9	92.1	16.1	83.9	22.5	77.5
Immunization											
20	TT1 dose	1(1.7)	59(98.3)	4(2.5)	157(97.5)	5(4.5)	106(95.5)	13(19.4)	54(80.6)	4(50.0)	4(50.0)
21	TT2 dose	22(36.7)	38(63.3)	49(30.4)	112(69.6)	22(19.8)	89(80.2)	24(35.8)	43(64.2)	4(50.0)	4(50.0)
22	TT3 dose	54(90.0)	6(10.0)	154(95.7)	7(4.3)	96(86.5)	15(13.5)	62(92.5)	5(7.5)	6(75.0)	2(25.0)
23	TT4 dose	60(100.0)	0(0.0)	160(99.4)	1(0.6)	109(98.2)	2(1.8)	67(100.0)	0(0.0)	8(100.0)	0(0.0)
24	TT5 dose	60(100.0)	0(0.0)	159(98.8)	2(1.2)	106(95.5)	5(4.5)	55(82.1)	12(17.9)	4(50.0)	4(50.0)
Cluster %		65.7	34.3	65.4	34.6	60.9	39.1	66.0	34.0	65.0	35.0
Overall %		28.6	71.4	24.6	75.4	23.9	76.1	28.9	71.1	33.3	66.6

Table 2 shows that the overall per cent total of pregnant women within the age group of 46 years and above (33.3%) recorded the highest level of utilization of ANC services, followed by age group 33-45 years (28.9%), below 19 years (28.6) and 19-25 years (24.6%). In health education, age group 46 years and above (10.0%) recorded highest utilization followed by age group 33-45 years (3.9%), below 19 years (3.7%), 26-32 years (3.6%) while respondents within the age group of 19-25 (2.5%) recorded the lowest utilization. In routine drugs, age group 46 years and above (30.0%) recorded highest utilization followed by age group 33-45 years (21.5%), below 19 years (18.7%), 19-25 years (18.5%) while age group 26-32 years (18.4%) recorded lowest utilization. In physical examination, age group below 19 years (47.5%) followed by age group 46 years and above (40.6%), 33-45 years (39.2%), 19-25 years (31.5%) while age group 26-32 years (30.2%) recorded the lowest utilization. In screening, age group 46 years and above (22.5%) followed by age group 33-45 years (16.1%), below 19 years (11.3%), 26-32 years (7.9%) while age group 19-25 years (6.5%) recorded

the lowest. In immunization, age group 33-45 years (66.0%) recorded the highest utilization followed by age group below 19 years (65.7%), 19-25 years (65.4%), 46 years and above (65.0%) while age group 26-32 years (60.9%) recorded the lowest.

Table 3
Proportion of Utilization of ANC Services Among Pregnant Women Based on Location (n=407)

S/n	Location	Urban area (n=120)		Rural area (n=287)	
		Yes f(%)	No f(%)	Yes f(%)	No f(%)
Health Education					
1	Exclusive breast feeding	0(0.0)	120(100.0)	13(4.5)	274(95.5)
2	Nutrition	2(1.7)	118(98.3)	7(2.4)	280(97.6)
3	Family planning	1(0.8)	119(99.2)	8(2.8)	279(97.2)
4	Personal hygiene	2(1.7)	118(98.3)	7(2.4)	280(97.6)
5	Exercise	2(1.7)	118(98.3)	26(9.1)	261(90.9)
	Cluster %	1.2	98.8	21.2	78.8
Routine Drugs					
6	Ferrous sulphate	0(0.0)	120(100.0)	5(1.7)	282(98.3)
7	Folic acid	0(0.0)	120(100.0)	20(7.0)	267(93.0)
8	Multivitamin tablets	2(1.7)	118(98.3)	14(4.9)	273(95.1)
9	Vitamin B complex	84(70.0)	36(30.0)	192(66.9)	95(33.1)
10	Vitamin C tablets	14(11.7)	106(88.3)	60(20.9)	227(79.1)
	Cluster %	16.7	83.3	20.3	79.7
Physical Examination					
11	Abdominal palpation	2(1.7)	118(98.3)	8(2.8)	279(97.2)
12	Breast examination	50(41.7)	70(58.3)	97(33.8)	190(66.2)
13	Examination of skin	57(47.5)	63(52.5)	146(50.9)	141(49.1)
14	Examination of private part	58(48.3)	62(51.7)	151(52.6)	136(47.4)
	Cluster %	34.8	65.2	35.0	65.0
Screening					
15	HIV test	3(2.5)	117(97.5)	16(5.6)	271(94.4)
16	Urine test for protein and sugar	2(1.7)	118(98.3)	29(10.1)	258(89.9)
17	Blood test for anaemia	4(3.3)	116(96.7)	39(13.6)	248(86.4)
18	Blood test for malaria parasite	11(9.2)	109(90.8)	79(27.5)	208(72.5)
19	BP measurement	1(0.8)	119(99.2)	9(3.1)	278(96.9)
	Cluster %	3.5	96.5	12.0	88.0
Immunization					
20	TT1 dose	6(5.0)	114(95.0)	21(7.3)	266(92.7)
21	TT2 dose	31(25.8)	89(74.2)	90(31.4)	197(68.6)
22	TT3 dose	111(92.5)	9(7.5)	261(90.9)	26(9.1)
23	TT4 dose	118(98.3)	2(1.7)	286(99.7)	1(0.3)
24	TT5 dose	114(95.0)	6(5.0)	270(94.1)	17(5.9)
	Cluster %	63.3	36.7	64.7	35.3
	Overall %	23.4	76.6	26.9	73.1

Table 3 shows the overall total of pregnant women in rural area (26.9%) utilized ANC services than their counterparts in the urban area (23.4%). In health education, respondents in rural area (21.2%) recorded highest utilization followed by those in urban area (1.2%). In routine drugs, pregnant women in rural area (20.3%) recorded highest utilization while those in urban area (16.7%) recorded the lowest utilization. In physical examination, respondents at rural areas (35.0%) recorded highest utilization while respondents at urban area (34.8%) recorded the lowest utilization. In screening, the highest utilization is recorded among respondents in rural area (12.0%) while those in urban area (3.5%) recorded the lowest utilization. In immunization, respondents in rural area (64.7%) recorded highest utilization while respondents in urban area (63.3%) recorded the lowest utilization.

Table 4
Proportion of Utilization of ANC Services Among Pregnant Women Based on Parity (n=407)

S/n	Parity	1-2 children (n=148)		3-4 children (n=114)		5 children & above (n=52)		first pregnancy (n=93)	
		Yes f(%)	No f(%)	Yes f(%)	No f(%)	Yes f(%)	No f(%)	Yes f(%)	No f(%)
Health									
Education									
1	Exclusive breast feeding	3(2.0)	145(98.0)	4(3.5)	110(96.5)	3(5.8)	49(94.2)	3(3.2)	90(96.8)
2	Nutrition	3(2.0)	145(98.0)	2(1.8)	112(98.2)	1(1.9)	51(98.1)	3(3.2)	90(96.8)
3	Family planning	2(1.4)	146(98.6)	2(1.8)	112(98.2)	3(5.8)	49(94.2)	2(2.2)	91(97.8)
4	Personal hygiene	3(2.0)	145(98.0)	2(1.8)	112(98.2)	1(1.9)	51(98.1)	3(3.2)	90(96.8)
5	Exercise	8(5.4)	140(94.6)	10(8.8)	104(91.2)	5(9.6)	47(90.4)	5(5.4)	88(94.6)
	Cluster %	2.6	97.4	3.5	96.5	5.0	95.0	3.4	96.6
Routine Drugs									
6	Ferrous sulphate	0(0.0)	148(100.0)	4(3.5)	110(96.5)	0(0.0)	52(100.0)	1(1.1)	92(98.9)
7	Folic acid	3(2.0)	145(98.0)	7(6.1)	107(93.9)	7(13.5)	45(86.5)	3(3.2)	90(96.8)
8	Multivitamin tablets	3(2.0)	145(98.0)	6(5.3)	108(94.7)	4(7.7)	48(92.3)	3(3.2)	90(96.8)
9	Vitamin B complex	100(67.6)	48(32.4)	73(64.0)	41(36.0)	31(59.6)	21(40.4)	72(77.4)	21(22.6)
10	Vitamin C tablets	17(11.5)	131(88.5)	27(23.7)	87(76.3)	16(30.8)	36(69.2)	14(15.1)	79(84.9)
	Cluster %	16.6	83.4	20.5	79.5	22.3	77.7	20.0	80.0
Physical Examination									
11	Abdominal palpation	2(1.4)	146(98.6)	6(5.3)	108(94.7)	0(0.0)	52(100.0)	2(2.2)	91(97.8)
12	Breast examination	8(39.2)	90(60.8)	52(45.6)	62(54.4)	10(19.2)	42(80.8)	27(29.0)	66(71.0)
13	Examination of skin	73(49.3)	75(50.7)	72(63.2)	42(36.8)	25(48.1)	27(51.9)	33(35.5)	60(64.5)
14	Examination of private part	74(50.0)	74(50.0)	72(63.2)	42(36.8)	26(50.0)	26(50.0)	37(39.8)	56(60.2)
	Cluster %	35.0	65.0	44.3	55.7	39.3	70.7	26.6	73.3
screening									
15	HIV test	4(2.7)	144(97.3)	8(7.0)	106(93.0)	3(5.8)	49(94.2)	4(4.3)	89(95.7)
16	Urine test for protein and sugar	12(8.1)	136(91.9)	10(8.8)	104(91.2)	5(9.6)	47(90.4)	4(4.3)	89(95.7)
17	Blood test for anaemia	17(11.5)	131(88.5)	13(11.4)	101(88.6)	6(11.5)	46(88.5)	7(7.5)	86(92.5)
18	Blood test for malaria parasite	21(14.2)	127(85.8)	31(27.2)	83(72.8)	23(44.2)	29(55.8)	15(16.1)	78(83.9)
19	BP measurement	2(1.4)	146(98.6)	3(2.6)	111(97.4)	2(3.8)	50(96.2)	3(3.2)	90(96.8)
	Cluster %	7.6	92.4	11.4	88.6	15.0	85.0	7.1	92.9
Immunization									
20	TT1 dose	3(2.0)	145(98.0)	10(8.8)	104(91.2)	12(23.1)	40(76.9)	2(2.2)	91(97.8)
21	TT2 dose	31(20.9)	117(79.1)	39(34.2)	75(65.8)	15(28.8)	37(71.2)	36(38.7)	57(61.3)
22	TT3 dose	140(94.6)	8(5.4)	99(86.8)	15(13.2)	46(88.5)	6(11.5)	87(93.5)	6(6.5)
23	TT4 dose	147(99.3)	1(0.7)	112(98.2)	2(1.8)	52(100.0)	0(0.0)	93(100.0)	0(0.0)
24	TT5 dose	146(98.6)	2(1.4)	105(92.1)	9(7.9)	41(78.8)	11(21.2)	92(98.9)	1(1.1)
	Cluster %	63.1	36.9	64.0	36.0	63.8	36.2	66.7	33.3
	Overall %	24.5	75.5	28.1	71.9	27.0	73.0	24.7	75.3

Table 4 shows the overall per cent total of level of utilization of ANC services among pregnant women. Respondents who have 3-4 children (28.1%) recorded the highest followed by those who have 5 children and above (27.0%) and pregnant women with first pregnancy (24.7), while pregnant women 1-2 children (24.5%) recorded the lowest utilization. In health education, the highest utilization was recorded among respondents with 5 children and above (5.0%) followed by those with 3-4 children (3.5%), first pregnancy (3.4%) while respondents with 1-2 children (2.6%) recorded the

lowest utilization. In routine drugs, the highest utilization was recorded among respondents with 5 children and above (22.3%) followed by those with 3-4 children (20.5%), first pregnancy (20.0%) and respondents with 1-2 children (16.6%) recorded the lowest utilization. In physical examination, pregnant women with 3-4 children (44.3%) recorded the highest utilization followed by those with 5 children and above (39.3%), 1-2 children (35.0%) and those with first pregnancy (26.6%) recorded the lowest utilization. In screening, respondents with 5 children and above (15.0%) recorded the highest utilization followed by those with 3-4 children (11.4%), 1-2 children (7.6%) while respondents with first pregnancy (7.1%) recorded the lowest utilization. In immunization, respondents with first pregnancy (66.7%) recorded the highest followed by respondents with 3-4 children (64.0%); 5 children and above (63.8%) while respondents with 1-2 children (63.1%) recorded the lowest utilization

Table 5
Summary of Chi-square (χ^2) Analysis Testing the Null hypothesis of no significant difference in the utilization of ANC services among pregnant women based on age

S/n	Age	Below 19 years (n=60)		19 – 25 years (n=161)		26 – 32 years (n=111)		33 – 45 years (n=67)		46 yrs & above (n=8)		χ^2	D f	Sig. P										
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes													
		o	e	O	e	o	e	o	e	o	e				o	e								
Health																								
Education																								
1	Exclusive breast feeding	2	1.9	58	58.1	3	5.1	158	155.9	2	3.5	109	107.5	5	2.1	62	64.9	1	.3	7	7.7	7.810	4	.099
2	Nutrition	2	1.3	58	58.7	3	3.6	158	157.7	3	2.5	108	108.5	1	1.5	66	65.5	0	.2	8	7.8	.904	4	.924
3	Family planning	1	1.3	59	58.7	3	3.6	158	157.4	2	2.5	109	108.5	2	1.5	65	65.5	1	.2	7	7.8	4.360	4	.359
4	Personal hygiene	3	1.3	57	58.7	2	3.6	159	157.4	3	2.5	108	108.5	1	1.5	66	65.5	0	.2	8	7.8	3.322	4	.505
5	Exercise	3	4.1	57	55.9	9	11.1	152	149.9	10	7.6	101	103.4	4	4.6	63	62.4	2	.6	6	7.4	5.721	4	.221
												Cluster Value	31.737	16	.011									
Routine Drugs																								
6	Ferrous sulphate	0	.7	60	59.3	2	2.0	159	159.0	2	1.4	109	109.4	1	.8	66	66.2	0	.1	8	7.9	1.185	4	.881
7	Folic acid	0	2.9	60	57.1	6	7.9	155	153.1	5	5.5	106	105.5	7	3.3	60	63.7	2	.4	6	7.6	14.925	4	.005
8	Multivitamin tab	2	2.4	58	57.6	6	6.3	155	154.7	2	4.4	109	106.6	4	2.6	63	64.4	2	.3	6	7.7	11.548	4	.021
9	Vitamin Bco	40	40.7	20	19.3	118	109.2	43	51.8	69	75.3	42	35.7	43	45.4	24	21.6	6	5.4	2	2.6	4.469	4	.346
10	Vitamin C tablets	14	10.9	46	49.1	17	29.3	144	131.7	24	20.2	87	90.8	17	12.2	80	54.8	2	1.5	6	6.5	10.821	4	.029
												Cluster Value	20.411	12	.060									
Physical																								
Examination																								
11	Abdominal palpation	1	1.5	59	58.5	6	4.0	155	157.0	2	2.7	109	108.3	1	1.6	66	65.4	0	.2	8	7.8	1.900	4	.754
12	Breast examination	30	21.7	30	39.3	56	58.1	105	102.9	35	40.1	76	70.9	25	24.2	42	42.8	1	2.9	7	5.1	8.123	4	.087
13	Examination of skin	40	29.9	20	30.1	71	80.3	90	80.7	47	55.4	64	55.6	39	33.4	28	33.6	6	4.0	2	4.0	15.316	4	.004
14	Examination of private part	43	30.8	17	29.2	70	82.7	91	78.3	50	57.0	61	54.0	40	34.4	27	32.6	6	4.1	2	3.9	19.335	4	.001
												Cluster Value	38.283	12	.000									
Screening																								
15	HIV test	2	2.8	58	57.2	7	7.5	154	153.5	7	5.2	104	105.8	3	3.1	64	63.9	0	.4	8	7.6	1.344	4	.854
16	Urine T. for protein and sugar	5	4.6	55	55.4	11	12.3	150	148.8	3	8.5	108	102.5	10	5.1	57	61.9	2	.6	6	7.4	12.515	4	.014
17	Blood test for anaemia	8	6.3	52	53.7	13	17.0	148	144.0	8	11.7	103	99.3	12	7.1	55	59.9	2	.8	6	7.2	8.458	4	.076
18	Blood test for malaria p.	17	13.3	43	46.7	18	35.6	143	125.4	22	24.5	89	86.5	28	14.8	39	52.2	5	1.8	3	6.2	35.500	4	.000
19	BP measurement	2	1.5	58	58.5	3	4.0	158	157.0	4	2.7	107	108.3	1	1.6	66	65.4	0	.2	8	7.8	1.499	4	.827
												Cluster Value	48.167	16	.000									
Immunization																								
20	TT1 dose	1	4.0	59	56.0	4	10.7	157	150.3	5	7.4	106	103.6	13	4.4	54	62.6	4	.5	4	7.5	49.606	4	.000
21	TT2 dose	22	17.8	38	42.2	49	47.9	112	113.1	22	33.0	89	78.0	24	19.9	43	47.1	4	2.4	4	5.6	9.402	4	.052
22	TT3 dose	54	54.8	6	5.2	154	147.2	7	13.8	96	101.5	15	9.5	62	61.2	5	5.8	6	7.3	2	.7	10.110	4	.039
23	TT4 dose	60	59.6	0	.4	160	159.8	1	1.2	109	110.2	2	.8	67	66.5	0	.5	8	7.9	0	.1	2.752	4	.600
24	TT5 dose	60	56.6	0	3.4	159	151.9	2	9.1	106	104.7	5	6.3	55	63.2	12	3.8	4	7.5	4	.5	58.134	4	.000
												Cluster Value	25.808	20	.172									
												Overall Value	35.598	16	.003									

Cal χ^2 35.598, P value = .003, df = 16, P < .05

Table 5 the X^2 calculated value of 35.598 with corresponding P-value of .003 which is less than .05 level of significance at 16 degree of freedom. The null hypothesis of no significant difference

in the utilization of ANC services among pregnant women based on age is therefore rejected. This means that utilization of ANC services differ significantly based on age.

Table 6

Summary of Chi-square (χ^2) Analysis Testing the Null hypothesis of no significant difference in the utilization of ANC services among pregnant women based on location

S/n	Location	Urban area (n=120)				Rural area (n=287)				Value	Df	Sig. P
		No		Yes		No		Yes				
		O	e	o	e	o	e	o	e			
Health Education												
1	Exclusive breast feeding	0	3.8	120	116.2	13	9.2	274	277.8	5.615	1	.018
2	Nutrition	2	2.7	118	117.3	7	6.3	280	280.7	.233	1	.629
3	Family planning	1	2.7	119	117.3	8	6.3	279	280.7	1.494	1	.222
4	Personal hygiene	2	2.7	118	117.3	7	6.3	280	280.7	.233	1	.629
5	Exercise	2	8.3	118	111.7	26	19.7	261	267.3	7.219	1	.007
Cluster Value										19.826	4	.001
Routine Drugs												
6	Ferrous sulphate	0	1.5	120	118.5	5	3.5	282	283.5	2.117	1	.146
7	Folic acid	0	5.9	120	114.1	20	14.1	267	272.9	8.795	1	.003
8	Multivitamin tab	2	4.7	118	115.3	14	11.3	273	275.7	2.311	1	.128
9	Vitamin Bco	84	81.4	36	38.6	192	194.6	95	92.4	.373	1	.541
10	Vitamin C tablets	14	21.8	106	98.2	60	52.2	227	234.8	4.856	1	.028
Cluster Value										8.272	3	.041
Physical Examination												
11	Abdominal palpation	2	2.9	118	117.1	8	7.1	279	279.9	.444	1	.505
12	Breast examination	50	43.3	70	76.7	97	103.7	190	183.3	2.271	1	.132
13	Examination of skin	57	59.9	63	60.1	146	143.1	141	143.1	.385	1	.535
14	Examination of private part	58	61.6	62	58.4	151	147.4	136	139.6	.620	1	.431
Cluster Value										6.172	3	.104
Screening												
15	HIV test	3	5.6	117	114.4	16	13.4	271	273.6	1.798	1	.180
16	Urine T. for protein and sugar	2	9.1	118	110.9	29	21.9	258	265.1	8.562	1	.003
17	Blood test for anaemia	4	12.7	116	107.3	39	30.3	248	256.7	9.419	1	.002
18	Blood test for malaria parasite	11	26.5	109	93.5	79	63.5	208	223.5	16.561	1	.000
19	BP measurement	1	2.9	119	117.1	9	7.1	278	279.9	1.872	1	.171
Cluster Value										23.419	4	.000
Immunization												
20	TT1 dose	6	8.0	114	112.0	21	19.0	266	268.0	.733	1	.392
21	TT2 dose	31	35.7	89	84.3	90	85.3	197	201.7	1.237	1	.266
22	TT3 dose	111	109.7	9	10.3	261	262.3	26	24.7	.262	1	.609
23	TT4 dose	118	119.1	2	.9	286	284.9	1	2.1	2.010	1	.156
24	TT5 dose	114	113.2	6	6.8	270	270.8	17	16.2	.135	1	.713
Cluster Value										6.170	5	.290
Overall Value										32.278	4	.000

Cal χ^2 32.278, P value = .000, df = 4, P < .05

Table 6 show the X^2 calculated value of 32.278 with corresponding P-value of .000 which is less than .05 level of significance at 4 degree of freedom. The null hypothesis of no significant difference in the utilization of ANC services among pregnant women based on location is therefore rejected. This means that utilization of ANC services differ significantly based on location.

Table 7
Summary of Chi-square (χ^2) Analysis Testing the Null hypothesis of no significant difference in the utilization of ANC services among pregnant women based on parity

S/n	Parity	1-2 children (n=148)		3-4 children (n=114)		5 children & above (n=52)		first pregnancy(n =93)		Value	Df	Sig. P								
		No		Yes		No		Yes												
		O	e	o	e	o	e	o	e				o	e						
Health Education																				
1	Exclusive breast feeding	3	4.7	145	143.3	4	3.6	110	110.4	3	1.7	49	50.3	3	3.0	90	90.0	1.804	3	.614
2	Nutrition	3	3.3	145	144.7	2	2.5	112	111.5	1	1.1	51	50.9	3	2.1	90	90.9	.596	3	.897
3	Family planning	2	3.3	146	144.7	2	2.5	112	111.5	3	1.1	49	50.9	2	2.1	91	90.9	3.662	3	.300
4	Personal hygiene	3	3.3	145	144.7	2	2.5	112	111.5	1	1.1	51	50.9	3	2.1	90	90.9	.596	3	.897
5	Exercise	8	10.2	140	137.8	10	7.8	104	106.2	5	3.6	47	48.4	5	6.4	88	86.4	2.075	3	.557
Cluster Value													15.044	12	.239					
Routine Drugs																				
6	Ferrous sulphate	0	1.8	148	146.2	4	1.4	110	112.6	0	.6	52	51.4	1	1.1	92	91.9	7.391	3	.060
7	Folic acid	3	7.3	145	140.7	7	5.6	107	108.4	7	2.6	45	49.4	3	4.6	90	88.4	11.705	3	.008
8	Multivitamin tab	3	5.8	145	142.2	6	4.5	108	109.5	4	2.0	48	50.0	3	3.7	90	89.3	4.027	3	.259
9	Vitamin Bco	100	100.4	48	47.6	73	77.3	41	36.7	31	35.3	21	16.7	72	63.1	21	29.9	6.282	3	.099
10	Vitamin C tablets	17	26.9	131	121.1	27	20.7	87	93.3	16	9.5	36	42.5	14	16.9	79	76.1	12.930	3	.005
Cluster Value													32.201	9	.000					
Physical Examination																				
11	Abdominal palpation	2	3.6	146	144.4	6	2.8	108	112.1	0	1.3	52	50.7	2	2.3	91	90.7	5.847	3	.119
12	Breast examination	58	53.5	90	94.5	52	41.2	62	72.8	10	18.8	42	33.2	27	33.6	66	59.4	13.511	3	.004
13	Examination of skin	73	73.8	75	74.2	72	56.9	42	57.1	25	25.9	27	26.1	33	46.4	60	46.6	15.835	3	.001
14	Examination of private part	74	76.0	74	72.0	72	58.5	42	55.5	26	26.7	26	25.3	37	47.8	56	45.2	11.488	3	.009
Cluster Value													27.488	9	.001					
Screening																				
15	HIV test	4	6.9	144	141.1	8	5.3	106	108.7	3	2.4	49	49.6	4	4.3	89	88.7	2.868	3	.412
16	Urine T. for protein and sugar	12	11.3	136	136.7	10	8.7	104	105.5	5	4.0	47	48.0	4	7.1	89	85.9	2.015	3	.569
17	Blood test for anaemia	17	15.6	131	132.4	13	12.0	101	102.0	6	5.5	46	46.5	7	9.8	86	83.2	1.178	3	.758
18	Blood test for malaria parasite	21	32.7	127	115.3	31	25.2	83	88.8	23	11.5	29	40.5	15	20.6	78	72.4	23.807	3	.000
19	BP measurement	2	3.6	146	144.4	3	2.8	111	111.2	2	1.3	50	50.7	3	2.3	90	90.7	1.417	3	.701
Cluster Value													38.862	12	.000					
Immunization																				
20	TT1 dose	3	9.8	145	138.2	10	7.6	104	106.4	12	3.4	40	48.6	2	6.2	91	86.8	31.630	3	.000
21	TT2 dose	31	44.0	117	104.0	39	33.9	75	80.1	15	15.5	37	36.5	36	27.6	57	65.4	10.171	3	.017
22	TT3 dose	140	135.3	8	12.7	99	104.2	15	9.8	46	47.5	6	4.5	87	85.0	6	8.0	6.052	3	.109
23	TT4 dose	147	146.9	1	1.1	112	113.2	2	.8	52	51.6	0	.4	93	92.3	0	.7	2.697	3	.441
24	TT5 dose	146	136.6	2	8.4	105	107.6	9	6.4	41	49.1	11	2.9	92	87.7	1	5.3	33.300	3	.000
Cluster Value													20.378	15	.158					
Overall Value													19.446	12	.078					

$Cal\chi^2_{19.446}, Pvalue=.078, df=12, P>.05$

Table 7 the X^2 calculated value of 19.446 with corresponding P-value of .078 which is greater than .05 level of significance at 12 degree of freedom. The null hypothesis of no significant difference in the utilization of ANC services among pregnant women based on parity is therefore accepted. This means that utilization of ANC services does not differ significantly based on parity.

Discussion

Data in Table 1 showed that most (73.8) pregnant women utilized the components of ANC services. The table reveals the proportion of the respondents that utilized specific components of ANC services as follows: health education (96.7%), screening (90.5%), routine drugs (80.8%), physical examination (65.0%) and immunization (35.7%). The increase in the utilization of ANC services was expected because of the free ANC services initiated by the State and Federal Government. It is expected that pregnant women utilize ANC services to prevent pregnancy complications, improve maternal health and improve neonatal health. This result is in line with Kulkarni and Nimbalkar (2012) findings who reported that the utilization of antenatal care by pregnant women was 78.8 percent. Conversely, Awusi, Anyanwu, and Okeleke (2012) reported that, of the 200 pregnant women studied, 113 (57%) utilized ante-natal care services during pregnancy while 87 (43%) did not. Furthermore, Adewoye, Musa, Atoyebi and Babatunde (2013) reported that there was high antenatal care utilization, (76.8%) among pregnant women. Similarly, Chukwuma, Uche, Kelechi, Kelvin, Irene, Henry and Chima (2015) indicated that a good proportion of the mothers (90.1%) utilized antenatal services, at least, once during their most recent pregnancies, while 80.3% had skilled attendants at delivery.

Data in Table 2 showed that, pregnant women aged 46 years and above (33.3%) recorded the highest utilization of ANC services, followed by pregnant women aged 33-45 years (28.9%), below 19 years (28.6) and 19-25 years (24.6%). This means that pregnant women aged 46 years and above utilized ANC services more than others. This finding is expected because pregnant women at these

age bracket (46 years and above) had various experiences/ complications which may prompt them to utilize ANC services; more so, pregnant women at these age group are at high risk of pregnancy complications. Even though pregnant women aged 19 years and below are also at high risk of pregnancy complications but, they may not utilize ANC services due to fear of stigmatization and feeling of shame. However, Overbosch et al (2002) stated that, pregnancy is a natural process and pregnant women with some experience due to their age might consider utilization of ANC services less necessary. In contrast, the author further reported that women aged above 45 years are also possibly more confident and influential in decision making which may prompt them to utilize ANC services than women below 20 years. In addition, Burgard (2004) reported that early age pregnant women are more likely to suffer from severe complications during pregnancy, which may result in higher morbidity and mortality for both themselves and their fetuses; this may trigger them to utilize ANC services. Furthermore, older women may belong to older traditional cohorts and thus be less likely to use modern facilities than young women (Navaneetham & Dharmalingam, 2002).

Result in Table 5 showed that there was significant difference in the utilization of ANC services among pregnant women based on age. This finding is expected because Burgard (2004) view mother's age to play an important role in utilization of ANC services, though the direction of the effect is often contradictory.

Based on location of the pregnant women in the study as indicated in Table 3, pregnant women in rural area (26.9%) utilized ANC services than their counterparts in the urban area (23.4%). This is perplexing and unexpected because pregnant women who live in urban area are supposed to be more civilized and advanced; these should prompt them to utilize ANC services more. This finding is not congener with that of Abor and Abekah (2009) that urban dwellers may utilize ANC services more than rural dwellers due to distance from health facility. Similarly, Overbosch et al. (2002) reported that currently, utilization of ANC services prompts a number of rural women to travel more than 5km to the health facilities. This shows that urban dwellers may utilize ANC services more than their rural counterpart. In the same way, Chakraborty (2003) stated that proximity to a health facility has been found to affect the utilization of ANC services especially in rural areas as these facilities are usually located at long distances. Moreso, Celik and Hotchkiss, (2012) concluded that differential access to health care facilities between the rural and urban centres reduced utilization of ANC services for the rural dwellers.

Result Table 6 showed that there was significant difference in the utilization of ANC services among pregnant women based on location. This finding implies that location influences utilization of ANC services. This finding is expected and have collaborates with that of Acharya and Cleland, (2000) who reported a negative effect of distance and/ or travel time to ANC utilization. In contrast, Overbosch et al., (2002) reported a positive association with quality of ANC services. Place of residence (rural/urban) and geographical location (region) may also affect the utilization of ANC services; urban dwellers may be relatively closer to health care facilities than rural dwellers in most developing countries (Abor & Abekah, 2009).

Based on parity of the pregnant women as indicated in Table 4, pregnant women who had 3-4 children (28.1%) recorded the highest utilization of ANC services followed by pregnant women who had 5 children and above (27.0%) and those with first pregnancy (24.7) while respondents with 1-2 children (24.5%) recorded the lowest. Little or no surprise came from this result in view of available literature. Magadi (2005) revealed that, women with 2-4 children ever born were twice as likely to utilize ANC services as women with only one child. In contrast, due to uncertainty and the perception of risk associated with first pregnancies, women are more likely to utilize ANC services for first-order births than subsequent ones. Moreover, having many children may cause resource constraint, which has been found to be negatively associated with ANC services utilization (Chakraborty, 2003). Similarly, the greater confidence and experience of the older and higher parity women, together with greater responsibilities within the household and for child care, have been suggested as explanatory factors for their tendency to use services less frequently (Kwast & Liff, 2008). Furthermore, if a woman ever had a stillbirth in a previous pregnancy, the utilization of ANC services would be higher because of known risk involve in childbirth (Furuta & Salway, 2006).

Table 7 showed that there was no significant difference in the utilization of ANC services among pregnant women based on parity. This implies that utilization of ANC services is the same according to different parity status of pregnant women. Literature has it that parity has a strong

relationship that has been shown to exist between birth order and utilization of ANC services (Kamal, 2009). However, Raghupathy (2006) reported that a higher number of previous pregnancies are associated with less utilization of ANC services. This means that number of living children of the pregnant women may affect her utilization of ANC services.

Conclusion

Based on the result of the findings, the following conclusions were drawn:

1. Overall per cent (73.8%) proportion of pregnant women utilizing of ANC services. Pregnant women aged 46 years and above recorded the highest (33.3%) while those aged 19-25 years recorded the lowest (24.6%) utilization of ANC service.
2. Slightly lower of proportion of pregnant women in rural area (26.9%) recorded the highest while pregnant women in the urban area (23.4%) reported lowest utilization of ANC services.
3. Proportion of ANC services utilization based on parity by pregnant women with 3-4 children (28.1%) recorded the highest while pregnant women with 1-2 children (24.5%) reported lowest.
4. There was significant difference in the utilization of ANC services among pregnant women based on age and location among pregnant women, while was no significant difference in the utilization of ANC services among pregnant women based on parity.

Recommendations

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

1. Health education and campaign on adequate utilization of antenatal care services (especially physical examination & immunization) should be conducted by health educators and other health care professionals regularly at health centres, schools, churches, social media, among others.
2. Also, contentions of staff to patients should be advocated by ANC clinics so that more pregnant women (particularly young mothers) will be encouraged to utilize ANC services.
3. Government should provide more health care centres in various areas in order to avoid distance as being an excuse of location of health care centre, or if possible, vehicles be provided to various local government to bring about efficient transportation to the health care centres.
4. Campaigns against social norms that is harmful to women's health such as early marriage and high parity; and stigmatization of unwed teenage mothers.

References

- Dairo, M. D., & Owoyokun K. E. (2010). Factors affecting the utilization of antenatal care services in Ibadan, Nigeria. *Journal of Post graduate Medicine*. 12,1-6.
- Emelumadu, O.F., Ukegbu, A. U., Ezeama, N.N., Kanu, O.O. Ifeadike, C.O. & Onyeonoro, U. (2015). Socio- Demographic Determinants of Maternal Health- Care Service Utilization Among Rural Women in Anambra State, South East Nigeria, *Reproductive Sciences* DOI: 10.4236/arsci.2015.33005.
- Federal Ministry of Health. (2005). National Reproductive Health Policy and Strategy. Abuja, Nigeria: Federal Ministry of Health.
- Federal ministry of health. (2012). Road map for accelerating the attainments of MDGs related to maternal and newborn health in Nigeria.
- Fosu, G. B. (2011). "Childhood morbidity and health services utilization: cross national comparisons of user-related factors from DHS data", *Social Science Medicine*, 38, (9) 1209-1220.
- Gemson, G.S. & Kyamru, J.I. (2013). *Theory and practice of research methods for the health and social sciences* (Rev ed). Jalingo: Livingstone Educational Publishing Enterprise (Nig).
- Ikeoluwapo, O. A, Damilola, C. Osakinle, (2013). Socio demographic factors determining the adequacy of antenatal care among pregnant women visiting Ekiti State primary health centres. Available from: <http://www.reproductive-health-journal.com/content/pdf/1742-4755-6-9.pdf> .

- Jibo, A. A. (2005). Utilization of antenatal services at the Provincial Hospital, Mongomo, Guinea Equatoria. *African Journal Reproductive Health*, 7, 49-54.
- Magadi, M. A., Agwanda, A. O., & Obare, F. O. (2007). A comparative analysis of the use of maternal health services between teenagers and older mothers in sub-Saharan Africa: Evidence from demographic and Health Surveys (DHS). *Social Science Medicine* 64:1311–1323.
- Onah, H. E., Ikeako, L. C., & Iloabachie, G. C. (2006). 'Factors associated with the use of maternity services in Enugu south east Nigeria'. *Social Sciences Medicine*, 2006 Oct; 63(7): 1870-78 [Online] Retrieved from: <http://www.sciencedirect.com.ezproxy.liv.ac.uk/science>.
- Toan, T. K. (2012). Antenatal And Delivery Care Utilization in Urban and Rural Contexts in Vietnam: A study in two health and demographic surveillance sites, thesis at the Nordic School of Public Health NHV Gothenburg, Sweden.
- UNDP (2016). Socio-cultural influences on the reproductive health of migrant women: A review of literature in Vitenam. Hanoi: Vietnam Country Office.
- Villar, J. (2012) WHO antenatal care randomised trial for the evaluation of a new model of routine antenatal care. *The Lancet* 357(9268), 1551–1564.
- WHO (2005). The World Health Report 2005. WHO, Geneva. World Health Organization .The World Health Report (2005), Geneva.
- WHO (2009). Improved accesses to maternal health services. WHO 98.7, Geneva.
- WHO (2010). The WHO Antenatal Care: Randomized Controlled Trial- Manual for implementation of the new model. In: *WHO programme to map best reproductive health practices*, Geneva.
- WHO (2012). Save the Children: Women on the Front Lines of Health Care: State of the World's Mothers, Connecticut, USA.
- WHO, UNICEF & UNFPA (2007). Advocacy Brief: In Family Planning/Child Birth Spacing for Health and national Development Action Points for Policymaker. Produced by the Federal Ministry of Health with support from ENHANCE project/USAID.