

EFFECT OF EDUCATIONAL INTERVENTION ON PREGNANT WOMEN'S UTILIZATION OF ANTENATAL CARE AND DELIVERY SERVICES IN SELECTED HEALTH CENTERS IN LAGOS STATE, NIGERIA (PILOT STUDY)

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ABSTRACT:

Primary health care (PHC) is an essential health care that provides comprehensive services to the people, including antenatal care (ANC), where they live and work. Primary health care has played an important role in reducing maternal mortality, morbidity and complications of pregnancy. This study employed a quasi- experimental design, to find out the effect, of educational intervention on pregnant women's utilization of ANC and delivery services at the primary health centers level. Study population consists of 80 pregnant women in their first trimester. They were selected by simple random sampling method. Forty for intervention group (IG) and control groups (CG) respectively. Two comprehensive primary health centers (PHCs) in Ikorodu, Lagos state were purposively selected. A structured modules developed by the researcher were used during the first, second, third trimesters to educate the pregnant women. Data was collected utilizing a self-structured questionnaire for the pre-test and post-test. The demographic variables were presented in tables, graph and Chi Square was used in testing the statistical relationship between the two groups. All the descriptive and inferential statistics for analysis were used at a significant level of ≤ 0.05 . The study revealed that there is no significant association between the pre and post-test knowledge of ANC and delivery services among the IG and CG with $p = 0.263$ pre-test and $p = 0.311$ at post-test while $p = 0.548$ at pre-test and $p = 0.311$ at post-test respectively. The findings from the study shows that parity has no significant association with utilization of ANC and delivery services with $p = 0.577$ and $p = 0.566$ respectively. There is no significant association between the pre-test utilization of ANC among the IG and CG with $p = 0.146$, while there is a significant association between the post-test utilization of ANC among the IG and CG with $P=0.044$. Also the

result shows that there is no significant deference between the pre-test utilization of delivery services among the IG and CG with $p = 0.123$, while at post-test there is a significant deference between the utilization of delivery services among the IG and CG with $p = 0.043$. They indicated that they were going to utilize the ANC and delivery services but not all of them did even after the intervention. More effort should be focused on the PHCs and communities to educate women on the importance of utilizing skilled delivery.

Keywords: Maternal Mortality, Morbidity, Primary Health Care Centers.

INTRODUCTION

Primary health care (PHC) is an essential health care that provides comprehensive services to the people, including antenatal care (ANC) where they live and work, (WHO, 2005). Primary Health Care has played an important role in reducing maternal mortality, morbidity and complications of pregnancy. Despite the emphasis laid on the importance of ANC at primary health care centers (PHCs) as a tool in reducing maternal morbidity and mortality some pregnant women still deliver at faith homes and with traditional birth attendances (TBAs), (Titaley, Hunter, Heywood and Dibley 2010). One of the most important functions of ANC is to offer health information and services that can significantly improve the health of women and their infants. According to WHO (2014) 99% of all maternal deaths occur in developing countries each year and are higher in women living in rural areas and poorer communities. More than half of this

99 percent happen in sub-Saharan Africa. Millions of women in these countries lack access to adequate care during pregnancy. Benefits of ANC may be more effective when its services are accessed early in pregnancy.

Literature reveals that timely and adequate antenatal care is effective in reducing the likelihood of low birth weight and other adverse pregnancy outcomes, (Akanbiemu, Manuwa-Olumide, Fagbamigbe and, Adebowale, 2013). Antenatal care is also viewed as an important point of contact between health workers and women and an opportunity for provision of health education. Maternal mortality rate (MMR) in Nigeria is still estimated to be 814 per 100,000 live births, (WHO, UNICEF, UNFPA, World Bank Group, and the United Nations Population Division 2015). Inadequate ANC use as related to the national recommendations are caused by low education, low economic status, and exclusive use of private ANC. These indicate the need to continuously educate the pregnant women on the important of ANC and delivery services. Pregnant women in the rural areas with low level of education do not utilize ANC and delivery services provided by skilled health workers, (NPC and ICP, 2013). Sixty percent (60%) of women in the lower income bracket and rural areas deliver with traditional birth attendants and at faith homes, (WHO, UNICEF, UNFPA, World Bank Group, and the United Nations Population Division 2015).

The Lagos state Government inaugurated a committee to offer technical guidance on the various modalities needed for the reduction of the maternal mortality ratio using the national guidelines for the integrated maternal, new born and child health strategy. This program was launched in 2009 to help in combating the high maternal mortality rate. The maternal and child mortality reduction program has led to an increase in the utilization of the primary health care centres but a wide gap between the numbers of women who use the facilities for

delivery. However, figures show that only 11.07% of the women that register for antenatal deliver at the primary health centres in Lagos state. (Lagos State Ministry of Health, 2017).

The study assessed the effect of educational intervention on utilization of ANC and delivery services among pregnant women in selected primary health centers in Lagos state, Nigeria.

MATERIALS AND METHOD

Quasi-experimental method was used. The study took place in two purposively selected Primary Health Centers in the rural setting of Lagos state. The state is located on the southwestern part of Nigeria, on the narrow plain of the Bight of Benin and occupies 3,345 square kilometres. Lagos State is bounded in the North and East by Ogun State of Nigeria, in the west by the Republic of Benin and stretches over 180 kilometres along the Guinea Coast of the Bight of Benin on the Atlantic Ocean.

The target population were pregnant women utilizing ANC in Ikorodu local government area of Lagos State.

Two Primary Health Centres were selected purposively. Ijede Primary Health Centre as the control and Igbo-Olomu Primary Health Centre as the experimental, all in Ikorodu local government area.

An estimate of one hundred and twenty (120) pregnant women were seen at ANC in the two PHCs during the period of selecting respondents for study. Simple random sampling method was used to select forty (40) respondents at each facility, so that they can be given equal chance of being selected and it is also based on the proportion of the attendance at ANC, thus, the equal total is 80 .

Inclusion criteria: pregnant women who registered in the selected primary health centres and in their first trimester.

The instruments for data collection consist of self-structured questionnaire divided into six

sections, record of utilization of ANC and delivery service. In view of the fact that the instruments was administered to heterogeneous group of illiterate/literate women, it was translated into Yoruba which is the main language spoken by the people in area of study. Reliability: Pre-test was conducted at the first trimester and post-test was 6 weeks post-natal. Test- retest method was used to ensure reliability, $r = 0.6773$. Correlation coefficient was computed to ensure stability. Internal consistency was ensured by using coefficient alpha.

Data collection: Debriefing took place at the control site after the post test. Descriptive and inferential statistics were used at a significant level of $P \leq 0.05$.

RESULTS

Table1; shows that all of the intervention group (IG) 40(100%) and majority of the control group (CG) 24 (60%) were within 20-29 years.

Forty (100%) of the IG and 26(65%) of the CG were married. Twenty six (65%) of the IG and 20(50%) of the CG had secondary education, while 24(60%) of the IG and 14(35%) of the CG husbands also had secondary school education. Only 8(20%) of the IG and 14(35.6%) of the CG had tertiary education. Also 16(40%) of the IG and 22(55%) of the CG husbands had tertiary education. Majority of the IG 22(55%) and 34(85%) of the CG are multipara women. Twenty-four (60%) of the IG and 10(25%) of the CG were Muslims while 16(40%) of the IG and 20(50%) of the CG were Christians. Only 4(10%) of the IG and 6(15%) of the CG earn a monthly income of fifty thousand naira and above. Result also shows that majority of the experimental groups 28 (70.0) and 10 (25.0) of the control group were business women, 4 (10.0) of the experimental and 8(20.0) of the control groups were civil savants, 8(20.0) from both groups were professionals while 14(35.0) of the control were unemployed.

Table 1:
Frequency Distribution of Socio Demographic Variables of respondents

Variables	IG Freq. (%)	CG Freq. (%)	Total n=80
Age			
< 20-29	40(100.0)	24(60.0)	64
30-39	0	12(30.0)	12
>=40	0	4(1.0)	4
Total	40	40	80
Marital status:			
Married	40(100.0)	26(65.0)	66
Single	0	10(25.0)	10
Separated	0	4(10.0)	4
Total	40	40	80
Highest Educational Level			
Primary	6(15.0)	4(10.0)	10
Secondary	26(65.0)	20(50.0)	46
Tertiary	8(20.0)	14(35.6)	22
No education	0	2(5.0)	2
Husband Occupation:			
Professional	4(10.0)	4(10.0)	8
Skilled	30(75.0)	10(25.0)	40
Unskilled	4(10.0)	20(50.0)	24
Unemployed	2(5.0)	6(15.0)	8
Husband's Highest Educational Level			
Primary	0	2(5.0)	2
Secondary	24(60.0)	14(35.0)	38
Tertiary	16(40.0)	22(55.0)	38
No education	0	2(5.0)	2
Parity:			
Null Para	18(45.0)	6(15.0)	24
Multipara	22(55.0)	34(85.0)	56
Religion:			
Islam	24(60.0)	10(25.0)	34
Christian	16(40.0)	20(50.0)	36
Indigenous	0	10(25.0)	10
Monthly Income			
<10,000	4(10.0)	10(25.0)	14
10,000 -29,999	28(70.0)	16(40.0)	44
30,000- 49,999	4(10.0)	8(20.0)	12
50,000 and above	4(10.0)	6(15.0)	10
Total	40(100.0)	40(100.0)	80

Key:

IG = intervention group

CG = control group

Table 2, shows that 21(52.5) of the IG and CG at pre-test and 38(95.0) of the IG and 28(70.0) of the CG at post-test know that ANC is care given to pregnant mothers. Also 30(75.0) of the IG and 26(65.0) of the CG at pre-test and 38(95.0) of the IG and 13(65.0) of the CG at post-test knew that the purpose of ANC is to care for the pregnant mother and the unborn child. However, 30 (75.0) of the IG and 18(45.0) of the CG at pre-test and 40(100.0) of the IG and 30(75.0) of the CG at post-test know the services rendered at ANC. While 26(65.0) of the IG and 24(60.0) of the CG at pre-test and 38(95.0) of the IG and 26(65.0) of the CG at post-test knew that infant welfare is not one of the services rendered at ANC.

Also, table 2, shows that 36(90.0) of the IG and 22(55.0) of the CG at pre-test and 40(100.0) of the IG and 30(65.0) of the CG at post-test know

that antenatal care helps to detect complications during pregnancy. Also 20(50.0) of the IG and 14(70.0) of the CG at pre-test and 36(90.0) of the IG and 24(60.0) of the CG at post-test know that pregnant mothers should register at the ANC during the first trimester of pregnant. However 22(55.0) of the IG and 22(55.0) of the CG at pre-test and 34(85.0) of the IG and 21(52.5) of the CG at post-test know that a normal pregnant woman should visit the ANC four times and above before birth. However 16(40.0) of the IG and 12(30.0) of the CG at pre-test and 28(70.0) of the IG and 14(35.0) of the CG post-test know that a pregnant woman with problem should visit the ANC anytime there is problem. Meanwhile 26(65.0) of the IG and 18(45.0) of the CG at pre-test and 40(100.0) of the IG and 30(75.0) of the CG post-test know that information given at ANC is call health education.

Table 2:
Frequency distribution of respondent's Knowledge of ANC in PHCS

Variables	Pre-test		Total	Post -test		Total n=80
	IG Freq. (%)	CG Freq.(%)		IG Freq. (%)	CG Freq. (%)	
What do you understand by ANC						
Care given to mothers	19(47.5)	17(42.5)	36	2(5.0)	12(30.0)	14
Care given to children	0	2(5.0)	2	0	0	0
Care given to pregnant mothers	21(52.5)	21(52.5)	42	38(95.0)	28(70.0)	66
What is the purpose of ANC						
To care for the pregnant mother	10(25.0)	10(25.0)	20	2(5.0)	8(30.0)	10
To care for the mother	0	4(10.0)	4	0	2(5.0)	2
To care for the pregnant mother and unborn child	30(75.0)	26(65.0)	56	38(95.0)	30(65.0)	68
Know the services rendered at antenatal clinic						
Yes	30(75.0)	18(45.0)	48	40(100.0)	30(75.0)	70
No	10(25.0)	22(55.0)	32	0	10(25.0)	10
Services given at ANC include all except						
Identification of pre-existing health conditions	4(10.0)	6(15.0)	10	0	5(12.5)	5
Early detection of complications arising during pregnancy	2(5.0)	4(10.0)	6	0	0	0
Health promotion and disease prevention	6(15.0)	2(5.0)	8	2(5.0)	5(12.5)	7
Birth preparation and complication planning	2(5.0)	4(10.0)	6	0	4(10.0)	4
Infant welfare	26(65.0)	24(60.0)	50	38(95.0)	26(65.0)	64
A pregnant mother should book at ANC during						
<i>1-3 months (first trimester)</i>	20(50.0)	20(50.0)	40	36(90.0)	24(60.0)	60
<i>4-6 months (second trimester)</i>	18(45.0)	10(25.0)	28	4(10.0)	16(40.0)	20
<i>7-9 months (third trimester)</i>	2(5.0)	10(25.0)	12	0	0	0
A normal pregnant woman should visit ANC						
<i>Once</i>	0	6(15.0)	6	0	0	0
<i>Two times</i>	12(30.0)	6(15.0)	18	0	0	0
<i>Three times</i>	6(15.0)	6(15.0)	12	6(15.0)	19(47.5)	25
<i>Four times and above</i>	22(55.0)	22(55.0)	44	34(85.0)	21(52.5)	55
Pregnant women with problem should visit ANC						
<i>When she want</i>	8(20.0)	5(12.5)	13	4(10.0)	6(15.0)	10
<i>On appointment days</i>	16(40.0)	23(57.5)	39	8(20.0)	20(50.0)	28
<i>Anytime there is problem</i>	16(40.0)	12(30.0)	28	28(70.0)	14(35.0)	42
Information given at ANC is called						

Table 3, shows that 40(100.0) of the IG and 8(40.0) of the CG at pre-test and 40(100.0) of the IG and 30(75.0) of the CG at post-test know about the delivery services at the PHC. Also 30(75.0) of the IG and 18(45%) of the CG at pre-test and 40(100.0) of the IG and 24(60.0) of the CG at post-test know that delivery services at PHCs are conducted by skilled health workers. However 20(50%) of the IG and 6(15.0) of the CG at pre-test and 36(90.0) of the IG and 20(50.0) of the CG at the post-test know

that delivery services at the PHCs are only for low risk women. While 24(60.0) of the IG and 18(45.0) of the CG at pre-test and 40(100.0) of the IG and 25(62.5) of the CG at post-test know that delivery at the PHCs reduces maternal/infant morbidity and mortality. Meanwhile 36(90.0) of the IG and 18(45%) of the CG at pre-test and 40(100%) of the IG and 20(50.0) of the CG at post-test know that delivery at PHCs ensure identification of complications and its management.

Table 3:

Frequency distribution of knowledge on delivery services provided by health personnel at PHCs

Variables	Pre- test		Total	post test		n =80
	IG Freq.(%)	CG Freq. (%)		IG Freq (%)	CG Freq (%)	Total
Do you know about delivery services at PHC						
<i>Yes</i>	40(100.0)	16(40.0)	56	40(100.0)	30(75.0)	70
<i>No</i>	0	24(60.0)	24	0	10(25.0)	10
Delivery services at PHCs are conducted by						
<i>Skilled Health workers</i>	30(75.0)	18(45.0)	48	40(100.0)	24(60.0)	64
<i>Unskilled Health workers</i>	10(25.0)	22(55.0)	32	0	16(40.0)	16
Delivery services at PHCs are only for						
<i>High risk women</i>	20(50.0)	34(85.0)	54	4(10.0)	20(50.0)	24
<i>Low risk women</i>	20(50.0)	6(15.0)	26	36(90.0)	20(50.0)	56
Does delivery at the PHCs reduces maternal/infant morbidity and mortality						
<i>Yes</i>	24(60.0)	18(45.0)	42	40(100.0)	25(62.5)	66
<i>No</i>	16(40.0)	22(55.0)	38	0	15(37.5)	15
Does delivery at PHCs ensures identification of complications and its management						
<i>Yes</i>	36(90.0)	18(45.0)	54	40(100.0)	20(50.0)	60
<i>No</i>	4(10.0)	22(55.0)	26	0	20(50.0)	20

In table 4, shows 28(70.0) of the IG and 24(60.0) of the CG at pre-test and 12(30.0) of the IG and 4(10.0) of the CG at post-test said that they visit the ANC three times in one month. Six (15.0) of IG and 3(7.5) at pre-test and 28(70.0) of the IG and 16(40.0) of the CG at post-test have visited the ANC five time in the last six months. Also 18(45.0) of the IG and 24(60.0) of the CG at pre-test and 30(75.0) of the IG and 20(50.0) of the CG at post-test attend ANC at their appointment days. 38(95%) of the IG and 22 (55.0) of the CG at pre-test and 40 (100.0) of the experimental and 15(75.0) the

CG at post-test attend ANC in the morning. Eight (20.0) of the IG and 16(40.0) of the CG at pre-test and 32(80.0) of the IG and 20(50.0) of the CG at post-test said they received three doses of tetanus toxoid injection at ANC. Thirty (75.0) of the IG and 20(50.0) of the CG at pre-test and 40(100%) of the IG and 30 (60.0) of the CG at post-test said they received prophylaxis for malaria at ANC. While 28(70.0) of the IG and 14 (35.0) of the CG at pre-test and 38 (95.0) of the IG and 10 (50.0) of the CG at post-test said they received drugs for intestinal parasite at ANC.

Table 4:
Frequency distribution of utilization of ANC services provided by health personnel

Variables	Pre-test		Total	Post test		n=80 Total
	IG Freq. (%)	CG Freq. (%)		IG Freq. (%)	CG Freq. (%)	
How often do you visit ANC clinic						
<i>Once in a month</i>	28(70.0)	24(60.0)	52	16(40.0)	28(70.0)	44
<i>Two times in a month</i>	6(15.0)	10(25.0)	16	12(30.0)	8(20.0)	20
<i>Three times in one month</i>	6(15.0)	6(15.0)	12	12(30.0)	4(10.0)	16
How many visits have you made in the last six months						
<i>Two</i>	17(42.5)	30(75.0)	47	6(15.0)	8(20.0)	14
<i>Three</i>	17(42.5)	4(10.0)	21	6(15.0)	4(10.0)	10
<i>Four</i>	0	3(7.5)	3	0	4(10.9)	4
<i>Five</i>	6(15.0)	3(7.5)	9	28(70.0)	16(40.0)	52
Pattern of attending ANC after booking						
<i>Appointment days</i>	18(45.0)	24(60.0)	42	30(75.0)	20(50.0)	30
<i>When I have complaints</i>	22(55.0)	16(40.0)	38	10(25.0)	20(50.0)	50
Attendance time of antenatal clinic						
<i>In the morning</i>	38(95.0)	22(55.0)	60	40(100.0)	15(75.0)	55
<i>Anytime I want</i>	2(5.0)	18(45.0)	20	0	25(10.0)	25
How many Tetanus toxoid injection will you receive at ANC						
<i>Single dose</i>	14(35.0)	2(5.0)	16	0	0	0
<i>Two dose</i>	18(45.0)	22(55.0)	40	8(20.0)	20(50.0)	28
<i>Three dose</i>	8(20.0)	16(40.0)	24	32(80.0)	20(50.0)	52
Did you receive prophylaxis for malaria at ANC						
<i>Yes</i>	30 (75.0)	20(50.0)	50	40(100.0)	30(75.0)	70
<i>No</i>	10 (25.0)	20(50.0)	30	0	10(25.0)	10
Did you receive drugs for intestinal parasite at ANC						
<i>Yes</i>	28(70.0)	14(35.0)	42	38(95.0)	20(50.0)	58
<i>No</i>	12(30.0)	26(65.0)	28	2(5.0)	20(50.0)	22

Table 5, shows that 15(37.5) of the IG and 12(30.0) of the CG at pre-test and 25(62.5) of the IG and 14(35.0) of the CG gave their babies OPV and BCG immediately after delivery. However, 10(25.0) of the IG and 12(30.0) of the CG at pre-test and 20(50.0) of the IG and 14(35.0) CG at post-test said they have delivered 1-2 of their babies at the PHC.

34(85.0) of the IG and 22(55.0) of the CG at pre-test intend to deliver at PHC, while 34(85.0) of the IG and 20(50.0) of the CG at post-test deliver at the PHC. Many reasons were given why they do not want to deliver at the PHC, majority 25(75.0) said it is because they receive special care from the churches and TBAs.

Table 5:
Frequency distribution of utilization of delivery services provided by health personnel at PHC

Variables	Pre-test		Total	Post-test		n=80 Total
	IG Freq. (%)	CG Freq. (%)		IG Freq. (%)	CG Freq. (%)	
Which vaccine will be/ was given to your baby immediately after delivery at PHC						
<i>DPT and measles vaccine</i>	10(25.0)	12(30.0)	22	0	6(15)	6
<i>OPV and BCG</i>	15(37.5)	12(30.0)	27	25(62.5)	14(35.0)	39
<i>T.T and BCG</i>	15(37.5)	16(40.0)	31	15(37.5)	20(50.0)	35
How many of your children did you deliver at PHC						
<i>None</i>	20(50.0)	20(50.0)	40	6(10.0)	12(30.0)	18
<i>1-2</i>	10(25.0)	12(30.0)	22	20(50.0)	14(35.0)	34
<i>3-5</i>	10(25.0)	8(20.0)	18	14(40.0)	14(35.0)	28
Do you intend to deliver at PHC/post-test Do you deliver at PHC						
<i>Yes</i>	34(85.0)	22(55.0)	56	34(85.0)	20(50.0)	54
<i>No</i>	6(15.0)	18(45.0)	24	6(15.0)	20(50.0)	26

Table 6, shows that 34(85.0) of the IG and 22(55.0) of the CG at pre-test, also 16(40.0) of the IG and 10(50.0) of the CG at post-test said the attitude of the health care provider is a barrier. However 34(85.0) of the IG and 22(55.0) of the CG at pre-test and 10(25.0) in the IG and 10(50.0) of the CG at post-test said availability of facilities/equipment is a barrier. Also 26(65.0) of the IG and 10(50.0) of the CG pre-test and 32(80.0) of the IG and 22(55.0) of the CG at post-test said that lack of knowledge about the existing services in ANC is not a barrier.

Meanwhile 30(75.0) of the IG and 19(45.0) of the CG at pre-test and 28(70.0) of the IG and

26(65.0) of the CG post-test said that language is not a barrier. Twenty-two (55.0) of the IG and 18(45.0) of the CG at pre-test and 30(75.0) of the IG and 32(80.0) of the CG at post-test said the cultural acceptance is not a barrier. Twenty-six (65.0) of the IG and 18(45.0) of the CG at pre-test and 10(25.0) of the IG and 20(50.0) of the CG at post-test said that religion acceptance of the services rendered is not a barrier. However, 24(60.0) of the IG and 20(50.0) of the CG pre-test and 24(60.0) of the IG and 13(65.0) of the CG post-test said that husband's acceptance of the services rendered is a barrier.

Table 6:
Frequency distribution perceived barriers to the Utilization of ANC and delivery services provided at PHCs among the IG and CG

Variables	Pre-test			Post-test		n= 80
	IG Freq (%)	CG Freq (%)	Total	IG Freq (%)	CG Freq (%)	Total
Attitude of the health care provider						
<i>Yes</i>	34(85.0)	22(55.0)	56	36(90.0)	30(75.0)	66
<i>No</i>	6(15.5)	18(45.0)	24	4(10.0)	10(25.0)	14
Availability of facilities/equipment						
<i>Yes</i>	34(85.0)	22(55.0)	56	38(95.0)	30(75.0)	68
<i>No</i>	6(15.0)	18(45.0)	24	2(5.0)	10(25.0)	12
Lack of knowledge about the existing services in PHCs						
<i>Yes</i>	14(35.0)	20(50.0)	34	10(25.0)	18(45.0)	28
<i>No</i>	26(65.0)	20(50.0)	46	30(75.0)	22(55.0)	52
Language barrier						
<i>Yes</i>	10(25.0)	22(55.0)	32	6(15.0)	16(40.0)	22
<i>No</i>	30(75.0)	18(45.)	48	34(85.0)	24(60.0)	58
Schedule of ANC						
<i>Yes</i>	26(65.0)	22(55.0)	48	30(75.0)	24(60.0)	54
<i>No</i>	14(35.0)	18(45.0)	32	10(25.0)	16(40.0)	26
Cultural acceptance						
<i>Yes</i>	18(45.0)	22(55.0)	40	18(45.0)	24(60.0)	42
<i>No</i>	22(55.0)	18(45.0)	40	22(55.0)	16(40.0)	36
Religious acceptance of the services rendered						
<i>Yes</i>	14(35.0)	22(55.0)	36	30(75.0)	20(50.0)	50
<i>No</i>	26(65.0)	18(45.0)	44	10(25.0)	20(50.0)	30
Husband's acceptance of the services rendered						
<i>Yes</i>	24(60.0)	20(50.0)	44	24(60/0)	22(55.0)	46
<i>No</i>	16(40.0)	20(50.0)	36	16(40.0)	18(45.0)	34
Distance to nearest ANC service (in km)						
<4	20(50.0)	24(60.0)	44	20(50.0)	24(60.0)	44
5-7	14(35.0)	8(20.0)	22	14(35.0)	8(20.0))	22
>=8	6(15.0)	8(20.0)	14	6(15.0)	8(20.0)	14
Waiting time for ANC service (minutes)						
>=30	6(15.0)	6(15.0)	12	6(15.0)	6(15.0)	12
<30	34(85.0)	34(85.0)	68	34(85.0)	34(85.0)	68
Mother in law's acceptance of the services rendered						

Table 7, shows that 30 (75.0) of the IG and 24 (60.0) of the CG had knowledge of ANC services with a Chi-square of 1.253 and P-value of 0.263 at pre-test. Also 40 (100.0) of the IG and 32 (80.0) of the CG had good knowledge of ANC services with a chi-square of 1.026 and p-value of 0.311 at post-test. This shows that there is no significant difference between the IG and CG knowledge of ANC at pre and post-test. However, 30 (75.0) of the IG

and 26 (65.0) of the CG had knowledge of delivery services with a Chi-square of 0.360 and P-value of 0.548 pre-test while 40 (100.0) of the IG and 16 (80.0) of the CG had good knowledge of delivery services with a Chi-square of 1.026 and a p-value of 0.311 at post-test. This shows that there is no significant difference between the IG and CG knowledge of delivery services at pre and post-test.

Table 7:
Level of Knowledge of ANC and delivery services, among IG and CG

Variables	Post-test					Post-test				
	IG Freq. (%)	CG Freq. (%)	Total n=80	χ^2	P-value	IG Freq. (%)	CG Freq. (%)	Total n= 80	χ^2	P-value
Level of knowledge of ANC services										
Good Knowledge	30(75.0)	24(60.0)	54	1.253	0.263	40(100.0)	32(80.0)	72	1.026	0.311
Poor Knowledge	10(25.0)	16(40.0)	26			0	8(20.0)	8		
Level of Knowledge of delivery services										
Good Knowledge	30(75.0)	26(65.0)	56	0.360	0.548	40(100.0)	32(80.0)	72	1.026	0.311
Poor Knowledge	10(25.0)	14(35.0)	24			0	8(20.0)	8		

Table 8 shows that there is no significant difference between parity of the respondents' utilization of ANC services with a chi-square of 0.750 and a p- 0.577. Also that there is no significant relationship between parity of the respondents' utilization of delivery services with a chi-square of 0.749 and a p- 0.566.

There is no significant relationship between respondents' income and utilization of ANC services with a chi-square of 0.459 and a p- 1.558. Also shows that there is no significant relationship between respondents' income and utilization of delivery services with a chi-square of 0.467 and a p-1.560.

Table 8
Parity, income and utilization of ANC and delivery services among the IG and CG

Variables	Adequate utilization of ANC	In-adequate utilization of ANC	Total n=80	χ^2	P-value
Null parity	30(75.0)	15(37.5)	24	0.750	0.577
Multi-parity	25(62.5)	10(25.0)	56		
Delivery services					
Null parity	20(83.3)	4(16.7)	24	0.749	0.566
Multi-parity	46(82.1)	10(17.9)	56		
Income					
	Adequate utilization of ANC	Inadequate utilization of ANC	Total n=80	χ^2	P-value
<=20000	34(85.0)	6(15.0)	40	0.459	1.558
20000-40000	14(70.0)	6(30.0)	20		
>40000	18(90.0)	2(10.0)	20		
Income					
	Adequate utilization of ANC	Inadequate utilization of ANC	Total n=80	χ^2	P-value
<=20000	30(75.0)	10(25.0)	40	0.467	1.560
20000-40000	12(60.0)	8(40.0)	20		
>40000	16(80.0)	4(20.0)	20		

Table 9 shows that there is no significant association between the pre-test utilization of ANC among the IG and CG with $p = 0.146$ while there is a significant association between the post-test utilization of ANC among the IG and CG with $P=0.044$. Also that there is no

significant difference between the pre-test utilization of delivery services among the IG and CG with $p = 0.123$, while at post-test there is a significant difference between the utilization of delivery services among the IG and CG with $p=0.043$.

Table 9:

Levels of utilization to ANC and delivery services among Pregnant Women in the Intervention group (IG) and Control Group (CG)

Variables	Pre-test		χ^2	P-value	Post-test		χ^2	P-value
	IG N=40	CG N=40			IG N=40	CG N=40		
Level of utilization of ANC								
Low utilization	20(50.0)	22(55.0)	0.970	0.146	8(20.0)	20(50.0)	4.014	0.044
High utilization	20(50.0)	18(45.0)			32(80.0)	20(50.0)		
Level of utilization of delivery service								
Low utilization	15(37.5)	18(45.0)	2.382	0.123	4(10.0)	20(26.2)	4.841	0.043
High utilization	25(62.5)	22(55.0)			36(90.0)	20(73.8)		

DISCUSSION OF FINDINGS

From the demographic result majority of the respondents were within the child bearing age, all the respondents in the IG and majority of the CG were married. This is supported by studies conducted in this area by many authors including, (Dairo, and Owoyokun 2010). Majority of the respondents were from the south west political zone, this is because the study took place in the south west political zone of Nigeria. This is the same in another study by (Iyaniwura. and Yussuf 2009). Although not majority of the respondents and their husbands were civil servants or professionals only few of them were unemployed, majority were business women.

However few of the respondents and their husbands do not have any form of education at all, most had secondary school education and few with primary education. Supported by Pender et al (2006), Tran, Gottvall, Nguyen, Ascher and Petzold, (2012), maternal

education, household income, parity, women's age and occupation, cost and availability of services are factors commonly correlated to the use of ANC in their studies also supported by health promotion model's individual characteristics and experience variables. This is contrary to (Adamu, 2011). Occupation and level of education of the respondent's husbands improved utilization of ANC and delivery services in the study by Houweling, *et al*, 2007

This study revealed that there is no significant difference between the IG and CG knowledge of ANC and delivery services at pre and post-test. This finding is the same with that of NPC and ICP, (2013) and Tran, Gottvall, Nguyen, Ascher and Petzold, (2012). A new analysis from this publication using previously published methodology suggests that if 90 percent of women received ANC, up to 14 percent, or 160,000 more new born lives, could be saved in Africa. (Lincetto, Mothebesoane-Anoh, Gomez, and Munjanja, 2006). This is

not the case as the rate of maternal morbidity and mortality related to pregnancy and delivery is still high in Nigeria. This was in line with Ayedes' (2012) submission that maternal care services are still not optimal in Nigeria despite several campaigns.

Our study revealed that there is no significant relationship between parity of the respondents' and utilization of ANC and delivery services with $p = 0.577$ and 0.566 respectively. The women parity has no effect on her utilization of ANC and delivery services. There is no significant relationship between respondents' income and utilization of ANC and delivery services with $p = 1.558$, and $p = 1.560$ respectively. Women with income ≤ 20000 adequately utilize ANC and delivery services at the PHCs than others with higher income. This is not supported by a study carried out by Tran, Gottvall, Nguyen, Ascher and Petzold, (2012) in Vietnam. Financial difficulty emerged as the major issue among women who did not fulfill the minimum requirements of four antenatal care services or two postnatal care services within the first month after delivery. This was related to the cost of health services, transportation costs, or both.

There is no significant association between the pre-test utilization of ANC among the IG and CG with $p = 0.146$ while there is a significant association between the post-test utilization of ANC among the IG and CG with $P = 0.044$. Also, there is no significant difference between the pre-test utilization of delivery services among the IG and CG with $p = 0.123$, while at post-test there is a significant difference between the utilization of delivery services among the IG and CG with $p = 0.043$. Ten (25.0) of the IG and 12(30.0) of the CG at pre-test and 20(50.0) of the IG and 14(35.0) CG at post-test said they have delivered 1-2 of their babies at the PHC. However, 34(85.0) of the IG and 20(50.0) of the CG at post-test deliver at the PHCs. This finding shows the positive effect of the educational intervention on the respondents'

utilization of ANC and delivery services. Some of the women that did not deliver at the PHCs said that they received individualized, special, and spiritual care from the homes/churches where they delivered. Even after all the health education, the IG indicated to deliver in the PHC, not all the pregnant women delivered at the PHCs. They all planned to deliver at the PHC but one reason or the other prevented them from doing so. In the present study, the women identified some barriers which prevented them from utilizing the ANC and delivery services at PHCs. Attitude of health workers, waiting time, Schedule of ANC, cultural, religion, language, cost of services, mother in-law and husband's acceptance of care were some of the factors effecting utilization of ANC by women.

The place of residence, urban or rural area, is also a factor affecting the use of ANC and delivery services. The study took place in the sub-rural area of Lagos state. According to the study by Tran, Gottvall, Nguyen, Ascher and Petzold, (2012) there is a difference between the urban and rural areas in knowledge, attitude and practices of women towards antenatal care. In remote areas, the limited availability of health services was also a problem in their study, especially if the village midwife frequently travelled out of the village. The distances from health facilities, in addition to poor road conditions were major concerns, particularly for those living in remote areas. Lack of community awareness about the importance of these services was also found, as some community members perceived health services to be necessary only if obstetric complications occurred.

According to Titaley, Hunter, Heywood and Dibley, (2010) in their study found that the main reason women attended antenatal care services was to ensure the safe health of both mother and infant after which they go to the TBAs to have their babies and immunization at the health centres. The result of this study is

showing that the educational intervention had a positive effect on the utilization of ANC and delivery services among the respondents.

IMPLICATION FOR NURSING

It has made the nurses to know why some of the pregnant women after coming for ANC do not come back to deliver at the PHCs. The nurses have to put in place all the resources man and materials that will attract or make the pregnant women to deliver at the PHC

CONCLUSION AND RECOMMENDATIONS

The pilot study shows that the respondents had knowledge of ANC and the delivery service at PHCs. Majority of the respondents at post-test utilized the ANC and delivery services at PHCs. Health interventions on the importance of utilizing ANC and skilled delivery should be focused on at PHCs and communities thus reducing maternal and infant death during pregnancy and delivery. The study also revealed that there are a lot of barriers which have prevented the pregnant women from effectively utilizing both the ANC and delivery services at PHCs. An interventional study focusing on these barriers is needed to reduce its effect on utilization of ANC and delivery services at PHCs in the remote areas.

It was recommended that, all women should be given accurate information using the language they understand most, about the importance of antenatal care and delivery their babes with a skilled health personnel before or during pregnancy. The health personnel working at the PHC should try to always develop good interpersonal relationship with the women. The health personnel should try to reduce the waiting time at the antenatal clinics (ANC). Women that have registered for ANC should be followed up to find out what barriers they are facing that can prevent them from delivery with

a skilled personnel. Public health programmes should targets men and religious institutions because of their role in the decision making process involving facility to be utilized for maternity care services. Also, religious organizations should be encouraged to motivate their members to utilize skilled-based maternity care service and should make use of skilled midwives in their mission homes

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