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Analysis of Knowledge and practice of the New Antenatal Care Guidelines among Pregnant Women Attending Antenatal Clinics in Surulere Area, Lagos

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Abstract: *Pregnant women in developing countries have an increased risk for pregnancy-related complications and death and the infants of these mothers have an increased risk for complications during birth or shortly after delivery. However, many of the complications are preventable with appropriate antenatal care (ANC). Antenatal care is a key strategy to improve maternal and infant health. This study was proposed to explore the awareness, attitude, practice of the new antenatal care guidelines among pregnant women attending antenatal clinics (ANC) in Surulere area of Lagos State.*

This study adopted descriptive cross-sectional design and simple convenient sampling technique in trying to understand the views of pregnant women regarding the new guidelines of ANC released in 2016 by the WHO. A forty seven (47) item validated and structured questionnaire was used to collect data. The knowledge question was measured on a twenty two point ration scale, respondent perception was measured on a nineteen point rating scale, and attitude and practice of respondents was measured on twenty one point rating scale each. The data was collected, coded and analyzed using Statistical Package for Social Science (SPSS).

Majority of the study respondents are between the age of 26-27years (33.9%) and the least age range falls between 19-24years (8.30%). About 57.8% of respondents have had about 2-3 safely delivered pregnancy. Most of the respondents believe that ANC visit should not be either once, or two, three or four times (98%, 87.9%, & 78.6%) but at least four times or more (47.1%). However, about 18% of respondents feel ANC contacts should be above six times. When asked about the new WHO ANC model, about 96% of respondents do not know about it. This number proved practice of the new policy guideline is low. Of the remaining 4%, only 9.7% knew about it through a conference, most of them (15%) heard about it through a school.

In conclusion, Respondents seem to have a relatively fair practice of the antenatal care services however, there is need for immediate and urgent training and education of concerned health care providers on the importance of adhering to the WHO recommended guidelines so as to foster an effective antenatal care services that enables pregnant women have a positive pregnancy experience.

Keywords: *Knowledge ,Practice,New Antenatal Care Guidelines,*

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I. Introduction

Antenatal care is a type of preventive healthcare. Its goal is to provide regular checkups that allow doctors, and midwives to treat and prevent potential health problems throughout the course of the pregnancy and to promote healthy lifestyles that will benefit both mother and child. During this process, the pregnant women receive medical information over maternal physiological changes in pregnancy, biological changes and prenatal nutrition including prenatal vitamins (WHO, 2016).One of the highlight of this model is recommendations on management and health lifestyle changes (Mathew *et al.*, 2015). He further stated that the availability of routine prenatal care, including prenatal screening and diagnosis has played a part in reducing frequency of maternal deaths, miscarriages, birth defects, neonatal infections and other preventable health problems.

Exactly 100years ago, Ballantyne wrote in an article on Antenatal Therapeutics (Ballantyne, 1899) that much was to be done for mothers and babies for them to have a better pregnancy experience. He noted that alcohol, nicotine, lead as well tuberculosis are major risk factor that might put pregnancy at risk of complication or disease and more needs to be done to prevent these complication especially for women who had an history of still birth. This aim of his he noted can only be achieved using the tool of ANC. Two years later in 1901, he published a plea for a pre-maternity hospital, a concept of vital importance in the development of ANC.

Previously, pregnant women needing hospitalization were admitted under the care of general physicians with no particular expertise in obstetric.Ballantyne in 1901 therefore he taught that for a better understanding of some risk factors to pregnancy like eclampsia, hyperemesis, pregnancy jaundice, hydraminos mole and congenital malformations we have to study the physiology of pregnancy, changes in the blood and circulation, origins of the amniotic fluid and the nature of the placental exchanges.

He made a passionate plea for a pro-maternity hospital where obstetricians could study both normal and abnormal pregnancy. With great vision, he stated that such a unit would need skilled x-ray services and an experienced physiological chemist.As a result of this plea, Dr. Freeland Barbour, Gynecological physician to the Edinburgh Royal Infirmary and President of the Edinburgh Obstetric Society, donated €1000 in 1901 to endow the first antenatal bed at the Royal Maternity Hospital in Edinburgh. Ballantyne was put in charge. The first patient admitted had hydramnios (Historical Insights: John William Ballantyne 1861-1923).

According to the World Health Organization (2002), the essence of ANC is to prepare women for birth and parenthood and prevent problem for pregnant women and babies through early detection, alleviation and or management of health problems that affect mothers and babies during pregnancy. They noted that the success of any ANC depends on the policy formulation and implementation. It also depends on functional and operational continuum of care with affordable, accessible, high quality care during & after pregnancy and childbirth (Felicia, 2015).For ANC programme to be effective, important components of ANC must be provided. Inadequate ANC both in terms of coverage and quality has been associated with adverse pregnancy outcomes (WHO, 2018).

Although maternal mortality ratio (MMR) is impacted by many causes including obstetric, social, cultural and economic factors, adequate use of ANC could contribute to reduction of the ever high MMR in Nigeria (WHO, 2016).Nigeria with MMR of 560 per 100000 compared to global average of 210 undoubtedly needs an improved ANC coverage as well as high quality ANC service delivery. Trends in ANC use worldwide, especially as it affects developing countries prompted WHO to define a new ANC model, "focused ANC" based on 4-goal oriented visits. This model was further broken into what services are rendered in each visit and emphasized minimum of 4 visits and what must be done in each of the visits. The present model as proposed by the WHO in 2016 has increased the number of visits to eight. Although ANC coverage has improved in Nigeria, it alone can't guarantee success of ANC services (ICF, 2014).

Asides increase in coverage of ANC services, provision of quality ANC services will have the greatest impact on women accessing these services. It isn't sufficient for a pregnant woman to visit ANC facility, she must meet minimum requirement and be offered necessary components of ANC.Also, there is no consensus on the indicators for quality of ANC; it may include early initiation and having 4 or more ANC visits and coverage of essential interventions delivered through ANC services.To close this section are the words UNICEF used in highlighting the importance of ANC and they are… "ANC can help women prepare for delivery and understand warning signs during pregnancy and child birth. It can be a source of micronutrient supplementation, treatment of hypertension to prevent eclampsia, immunization against tetanus, HIV testing, in addition to medications to prevent mother-to-child transmission of HIV cases of HIV positive pregnant women. In areas where malaria is endemic, health personnel can also provide pregnant women with medications and insecticide-treated mosquito nets to help prevent this debilitating and sometimes deadly disease" (UNICEF, 2016).

Due to the success rate associated with the FANC, the WHO has issued a new series of recommendations to improve quality of ANC and reduce the risk of still births and pregnancy complications and which will ultimately give women a positive pregnancy experience. The new guidelines throw open the door for pregnant women to have limitless number of contacts with their skilled care givers. According to the health body in 2016, increased access to, and use of, high quality health care during pregnancy and child birth can prevent many of these deaths and diseases, as well as improve women and adolescent girl's experience of pregnancy and childbirth.One focal point of the policy is increased number of visit women make to Antenatal clinics during pregnancy. At present, only 64% of women receive antenatal care four or more times throughout their pregnancy (Abalos *et. al*, 2015). In 2016, UNICEF stated that globally about 86% of pregnant women access antenatal care with skilled health personnel at least once, out of which only three in five (62%) receive at least four antenatal visits (UNICEF, 2016).

The report of UNICEF which spanned a six year period also stated that in regions with the highest rates of maternal mortality, such as Africa, even fewer women received at least four antenatal visits (52%).Regular contact with a doctor, nurse or midwife during pregnancy allows women to receive services vital to their health and that of their future children (Sarah, Maurice, Ozge, & Juan, 2017).The 2016 WHO ANC model alms to provide pregnant women with respectful, individualized, person centered care at every contact and to ensure that each contact delivers effective, integrated clinical practices (interventions and test), provides relevant and timely information, and offer psychosocial and emotional support by practitioners with good clinical and interpersonal skills working in a well-functioning health system.

Given evidence that perinatal deaths increase with only four ANC visits (Islau *et al.,* 2018; WHO, 2015) and that an increase in the number of ANC contacts, regardless of the country, is associated with an increase in maternal satisfaction, WHO recommends a minimum of eight contacts: five contacts in the third trimester, one contact in the first trimester and two contacts in the second (WHO, 2016).WHO assumes in the report that each country will tailor the new model to its context based on the country's defined core package of ANC services and consensus on what care is provided at each contact, who provides ANC care (which health care), where care is provided (which system level), and how care is provided (platforms) and coordinated across all eight ANC contacts. Within the reports are some major highlights as will be explained below.

II. Methodology

Research Design

This study is a cross sectional design that was conducted to provide in depth understanding on the population under study.

This study was conducted inSurulere area of Lagos State. Surulere is a residential/commercial hub of the mainland Lagos. With an area of 23km square, at the last census in 2006, there were 503,975 inhabitants. The LGA is bordered by Yaba, Mushin, and Ebute Meta. This Local government is known to have the high number to health clinics in the state among which are LUTH, SPHC center and GHR, Surulere was chosen because despite been one of the few LGA in Lagos state with highest number of Fourth Antenatal visit (9440 women in 2016) it still has the highest number of complication during pregnancy (148 women in 20116) according to a research conducted by UNFPA and Lagos State government in 2016 (UNFPA, 2016).

Population

This study was conducted among pregnant women who accessed ANC at LUTH, RGH and SPHC. The daily Antenatal care attendance register was used as a sample frame. The ANC in LUTH is run on Tuesdays and Thursday, while that of RGH is run on Mondays and Thursdays and SPHC is run on Thursday.The average daily ANC attendance in these clinics is Sixty five (65), forty (40) and thirty (30) respectively.

Inclusion/Exclusion Criteria

For this work, pregnant women attending antenatal clinic were recruited. Especially those who were pregnant some two years back after the implementation of the new policy guideline in 2016. Those who have used the clinic consistently during their previous pregnancy experience within the stated timeline were given priority. Women who did not understand or write English were excluded from the study. Also, women visiting antenatal clinic for this first time/first pregnancy were also excluded from this study.

Sample size and sampling Technique

Sample size Determination

The sample size (Larger population) was determined using the Cochran (1963) formula. The level of prevalence level of ANC utilization accounts for 55% in Nigeria by (Emmanuel, 2017).

$n = Pq(z^2)/e^2$. Where:

N – Sample size

Z – The confidence limit

p – Is the assumed prevalence of the dependent variable.

q – Is given by 1-p. is the acceptable deviation from the true value for this study.

e – Margin of error (0.05)

By substitution,

Z – 1.96 for CI at 95%

P – 55% = 0.55 (UNICEF in 2016 found that 55% of women in Nigeria had at least four antenatal care contact with their skilled care provider).

Q – 1-0.55 = 0.45

$(0.55)(0.45)(1.96)^2 / (0.05)^2$

0.951/0.0025 = 215

For this study, the sample size was rationed at 220 and provision for questionnaire that was not filled properly a non-response rate of 10% was added to the sample size. This made the minimum sample size approximate to be 220.

Sampling Techniques

Simple convenience sampling technique was used to select participants for this study in Surulere area of Lagos state

Test of significance and Null Hypothesis testing

The research hypothesis was validated using the following null hypothesis so as to establish a statistical basis for the research hypothesis. It was tested at 5% level of significance. The research hypothesis is stated below;

1) There is no significant relationship between knowledge and utilization of the new recommended ANC guidelines
2) There is no significant relationship between social status and the number of contacts women had with their skilled care givers.

Instrumentation

Data for this research was collected using a researcher developed questionnairemeasured on a forty one (41) point rating scale. The instrument consists of five (5) sections. It was used to gather data from the respondents for the study. It was prepared in English.

Section A: Collected information on socio-demographic characteristics. This ranged from age, marital status, social status and educational backgrounds.

Section B: Gathered information on the level of knowledge about the new recommended antenatal care guidelines among women attending antenatal clinics in Surulere area of Lagos State. The numbers of visits respondents have had prior to this survey was also taken into account. This was measured on a twenty two (22) point rating scale.

Section C: Gathered information on the perception of respondents about the eight contact visit. This was measured on a nineteen (19) point rating scale

Section D: Gathered information about the attitude of pregnant women on the new eight contact visit. This was measured on a twenty one (21) point rating scale.

Section E: Provided information on the practice of attendance according to the eight contact visit. This was measured on a twenty one (21) point rating scale.

Validity and Reliability of Instrument

Validity

The instrument was validated with the help of my supervisor and experts in the field of ANC. This was done in order to evaluate whether the questions agreed with the scope of the items and whether the question reflects the research problems. To ascertain the validity of the instrument, a pilot test was conducted using 10% of the estimated sample size (23). It was analyzed using the reliability statistics on SPSS 21. After necessary adjustments, the result for Cronbach Alpha was 0.82 for all items in the instrument which showed good fit of the instrument.

Reliability

Test re-test reliability was done. The result yielded a correlation of 0.82 (82%), which translated to a very high reliability test.

Method of Data Collection

First, Ethical clearance was obtained from Babcock University Health Ethics Research committee (BUHREC) before I set out to collect my data. Secondly, coordinating board of the various health institutions to be used for the study were approached for formal consent written to the Chief Medical Director and the permanent secretary as the case may be. Upon reception of my letter, approval was granted within 2week after careful consideration. Prior to the approval of my application, I trained two research assistants that helped in distribution of questionnaire. Within six weeks results were collated, sorted and analyzed.

Method of Data Analysis

The data was collected, entered, coded and analyzed using statistical package for social science (SPSS) version 21. Descriptive statistic i.e. frequency, mean, percentage and standard deviation was used to describe the respondents' demographics and to provide answers to the 5 research questions. The hypothesis was tested using simple linear regression. The level of significance was set at 5%.

III. Results

Question 1: What is the knowledge of pregnant women attending antenatal clinics in Surulere area of Lagos State about ANC generally?

Table 1: Knowledge Characteristics of Correct Responses of the Respondents

Questions for Consideration	Respondents in this study; N=396			
	No		Yes	
	(N)	(%)	(N)	(%)
Have you heard of antenatal care	200	97.1	6	2.9
Doctors/Midwifes treat pregnant women in antenatal care	2	1.0	198	96.1
Antenatal care visits should be once	202	98.1	4	1.9
Antenatal care visits should be 2-3 times	181	87.9	25	12.1
Antenatal care visits should be 4 times	162	78.6	44	21.4
Antenatal care visits should be 4-6 times	109	52.9	97	47.1
Antenatal care visits should be 6 times and above	169	82.0	37	18.0
I have had only one antenatal care visit	196	95.1	10	4.90
I have had only 2 times contact visit	186	90.3	20	9.70
I have had only 3 times contact visit	169	82.0	37	18.0
I have had only 4 contact times	162	78.6	44	21.4
I have had only 4-6 times contact visits	153	74.3	53	25.7
I have had only 6 times contact visits	165	80.1	41	19.9
I am supposed to make 1-2 visits in all	190	92.2	16	7.80
I am supposed to make 3-4 visits in all	143	69.4	63	30.6
I am supposed to make 4-6 visits in all	140	68.0	66	32.0
I am supposed to make 6 and above visits in all	150	72.8	56	27.2
Having more than 4 visits will help check complications	105	51.0	101	49.0
Having more than 4 visits will kill Malaria	196	95.1	10	4.90
Having more than 4 visits allows checking mothers' body	106	51.5	100	48.5
Having more than 4 visits allows for continuous screening	190	92.2	16	7.80
Having more than 4 visits adds nothing	196	95.1	10	4.90
Knowledge of WHO recommended antenatal care guideline	198	96.2	8	3.90
Is this your regular visit	191	92.7	15	7.30
I had my last pregnancy one year ago	170	82.5	36	17.5
I had my last pregnancy 2years ago	109	52.9	97	47.1
I had my last pregnancy last 3-4 years	162	78.6	44	21.4
This is my first pregnancy	186	90.3	20	9.70
I heard about the new antenatal care through a conference	186	90.3	20	9.70
I heard about the new antenatal care through a school	175	85.0	31	15.0
I heard about the new antenatal care through radio	179	86.9	27	13.1
I heard about the new antenatal care through television	186	90.3	20	9.70
I heard about the new antenatal care through social media	187	90.8	19	9.20
I heard about the new antenatal care through other means	199	96.6	7	3.40
Check-up during pregnancy reduces complications	11	5.30	195	94.7
First antenatal ultrasound scan is done within first 3months	10	4.90	196	95.1
Delivery by Traditional Birth Attendants (TBAs) is healthy	11	5.30	195	94.7
Several antenatal contacts does not reduce infants' deaths	12	5.80	194	94.2
Tetanus Injection helps both child and mother	28	13.6	178	86.5

*** Frequency (N), Percentage (%)**

Knowledge Distribution among Respondents

The concept of antenatal care is somewhat strange to the respondents as over 97% do not know the concept, meanwhile, as the concept was explained in the second question, respondents were excited to understand what antenatal care is all about (97%). Most of the respondents believes that antenatal visit should not be either once, or 2-3 times and 4 times (98%, 87.9% and 78.6% respectively), about 47.1% believes antenatal visits should be 4 times and above, while 18% of the respondents feels antenatal visit contacts should be six contact visits. Similarly, most of the respondents have never completed the antennal care visits as stipulated and in overall 80% of is the respondents do not know how many visits in all required of them, while about 4% knows about the new WHO antenatal care guidelines against 96% who doesn't know about it. Of the 4% that knows about the WHO new antenatal care guidelines, only 9.7% knew about it through a conference, most of them (15%) heard about it through a school. On having more than one visit, about 49% of the respondents believes it helps reduce complications, and other 48% believes it helps to check mother and baby, less than half (49%) of the respondents had their last baby within the last two years.

In addition, most of the respondents (94.7%) believes that check-up during pregnancy reduces complications, about 95% knows the first ultrasound should be done within the first three months, they also believes (94.7%) that delivery by traditional birth attendance is healthy which could be traced to the low antenatal visits above.

Research question 2: What are the practices of attendance of antenatal care according to the new recommended guidelines of eight contacts during pregnancy?

Table 2: Practice of Attendance According to the Eight Contact Visit. N=206

Statements for Consideration	NA	R	S	VO
	N (%)	N (%)	N (%)	N (%)
I received counselling about healthy eating and keeping fit at 20weeks	24(11.7)	90(43.7)	63(30.6)	29(14.1)
At 30 weeks, my health care provider did not ask about my tobacco use	32(15.5)	76(36.9)	67(32.5)	31(15.0)
I received a 7-day antibiotic regime to prevent asymptomatic bacteria that causes preterm babies	33(16.0)	77(37.4)	63(30.6)	33(16.0)
I was referred for ultrasound scan before 24-weeks of pregnancy	58(28.2)	61(29.6)	58(28.2)	29(14.1)
At 20 weeks, I was advised on diet and lifestyles	50(24.3)	64(31.1)	61(29.6)	31(15.0)
During my last pregnancy, I had the habit of coming to the hospital regularly for more than 8 times?	57(27.7)	60(29.1)	60(29.1)	29(14.1)
I carry my case note myself during my last pregnancy	42(20.4)	64(31.1)	62(30.1)	38(18.4)

*** Frequency (N), Percentage (%)**

The study results shows that, 30.6% and 14.1% of respondents receives counselling about healthy eating and keeping fit sometimes and very often respectively compare to 43.7% of the respondents who rarely received counselling. At 30 weeks, 36.9% of the respondents says the healthcare workers rarely ask them about tobacco use, while about 33% says the healthcare worker sometimes would ask about tobacco use, 37.4% of the respondents rarely received a 7-day antibiotic regime to prevent asymptomatic bacteria while 31% of them received it.

On ultrasound, 28% of the respondents never was referred at the 24 weeks of pregnancy, 29.6% were rarely referred, and 28.2% were sometime referred while 14.1% were very often referred, at 20 weeks, 24.3% of the respondents said they were never advised on diet, 31.1% rarely received such counsel, 29.6% of the respondents were sometimes received diet counselling while 15.0% of the respondents received such diet counsel very often.

IV. Discussion

The level of knowledge among the respondents indicated that almost the entire population had a poor knowledge on the recommended WHO antenatal care guideline similar to the findings of *Amanpreetr, Jagdeep, Harpreet, Harpreet, Priyanka, &Vikram (2018).*These translate that having a high level of education does not usually translate to having a high knowledge about a particular phenomenon. The low knowledge could also be probably due to the fact that much sensitization and awareness is yet to be created on the recommended WHO antenatal care guideline among pregnant women. This supports the assertion of Brown, Sohani, Khan, Lilford, and Mukhwana (2008), that adequate sensitization on a health program enables the people to possess adequate knowledge on it.

Majority do know that it's the duty of the doctors and nurses to attend to women during their antenatal visit. Majority had a wrong knowledge about antenatal care visits to the hospital. Majority of the respondents had had at least a visit to the ANC clinic which is in line with the findings of Islam & Masud (2018), this similarities can be because women will usually attend at least one antenatal session at the point of registering to the hospital the moment pregnancy is discovered, however only few of the women have received the WHO recommended eight or more ANC visits and only 66% received at least four ANC visits which of course is still similar to the above mentioned study.

It was reported by respondents also reported that health care providers on daily basis do question them on alcohol consumption similar to the findings of Abalos, Chamillard, Diaz, Tuncalp & Gülmezoglu (2016) and Amy, Jamie, Emilie, Mohamed, Juliana & Rob (2016); similarities in studies may be as a result of the health care providers offering consistent and appropriate advice and support to the pregnancy women, although in-depth training on the WHO recommended guideline on antenatal services is still required. A good number of respondents were never sent for scan and was rarely advised on lifestyles and diet which is in variance to the findings of Amy, Jamie, Emilie, Mohamed, Juliana & Rob (2016) and Abalos, Chamillard, Diaz, Tuncalp & Gülmezoglu (2015); the difference in findings may be because a developing countries like Nigeria may not have the standard tools to get in line with the WHO recommended guideline.

V. Conclusion

This study revealed a poor level of knowledge of antenatal care services which may translate to the need for adequate sensitization of a health program on the subject matter. Delivery by traditional birth attendance was reported to be healthy, of course this translate to one of the major reasons to respondents low turnout to antenatal services. However the traditional birth attendance should be educated and trained to better utilize the antenatal care services.

VI. Recommendation

1. For further improvement of maternal and child health, it is recommended that the ANC program need to be redesigned in the light of updated WHO guidelines focusing on at least eight ANC visits and adequate level of ANC content. Having adequate level of ANC visits and ANC content may contribute to early detection and timely management of risk for adverse pregnancy outcome.
2. It is also recommended that policy makers could focus on improving women's empowerment, improving women's education, reducing wealth inequity and facilitating improved utilization of ANC through modifications on the supply side factors such as geographic location and focus on hard to reach women. These structural changes in policy can indubitably have wider ramifications than merely improving ANC visits

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