Knowledge of Birth Preparedness and Complications Readiness: An Urban- Rural Comparison of Maternal and Child Health Clinic Attendees in Anambra State, Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Author UMU designed the study, managed the literature searches and performed the statistical analysis. Authors CNO and EDA designed the study and edited the main paper. Author CCN designed the study, managed the interpretation of results and wrote the first draft of the manuscript. All authors read and approved the final manuscript.

Article Information

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ABSTRACT

Background: Birth preparedness and complications readiness (BP/CR) remains a key component of safe motherhood programs, articulated to help improve maternal and child health care. This study determined and compared the knowledge of BP/CR among maternal and child health (MCH) clinic attendees in urban and rural areas of Anambra State, Nigeria.

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Materials and Methods: This was a descriptive cross sectional comparative study of knowledge of BP/CR among 707 MCH clinic attendees in urban- rural areas of Anambra State, selected by multi-stage sampling technique conducted between January and May 2014. Data were collected using a pre-tested, semi-structured, interviewer-administered questionnaire and analyzed using SPSS version 22. Descriptive data were presented as tables and charts, while associations between variables were determined using chi square test for proportions and Z-test for means. Level of significance was set at p-values ≤ 0.05.

Results: Mean ages of respondents were 28. (±5.2) for urban and 29.1(±5.9) for rural. Majority of respondents (54.5%) in the urban, compared to (50.4%) in the rural had fair knowledge of BP (p= 0.109). Also, more respondents (59.5%) in urban and (62.1%) in rural had poor knowledge of CR (*p* =0.005). Bleeding was the most reported danger sign of pregnancy (73.6% for urban, and 85.2% for rural respondents).

Conclusions: Our study findings showed an overall fair knowledge of BP/CR though better in urban than rural. .Appropriate interventions should be scaled up to improve the knowledge of the women concerning BP/CR.

Keywords: Knowledge; birth preparedness; complication readiness; maternal and child health clinic attendees.

1. INTRODUCTION

Birth preparedness and complications readiness is the process of planning for normal birth and anticipating the requisite actions in case of emergencies pre-, peri- and post- partum [1]. Key elements of birth preparedness include: attending antenatal care at least four times during pregnancy; identifying a skilled provider and making a plan for reaching the facility during labour; setting aside personal funds to cover the costs of travelling to and delivering with a skilled provider and any required supplies; recognising signs of complications; knowing what community resources like emergency transport, funds, communications are available in case of emergencies; having a plan for emergencies i.e. knowing what transport can be used to get to the hospital, setting aside funds; identifying person(s) to accompany to the hospital and/or to stay at home with family; and identifying a blood donor [2].

Maternal mortality is a universal cause of concern and a public health burden in developing countries. Nigeria has one of the highest mortality ratios in the world with 1 in 23 maternal deaths for every live birth according to World Health Organization (WHO) estimates for 2008 [3]. Intra-Country, Maternal Mortality Ratios (MMR) in Nigeria vary considerably among states and between rural and urban areas with higher estimates in the earlier than the later [4]. Thus, BP/CR has been documented as an essential component of safe motherhood programs [5]. In other to improve maternal and child health care, make pregnancies and deliveries safer, as well as meet up with the current goals of the Sustainable Development Goals (SDGs) of reducing the global maternal mortality to less than 70 per 100,000 live births by the year 2030, women should be well informed about births and the health of their babies [6]. Awareness and knowledge of the danger signs of obstetric complications thus remains the first step in the appropriate and timely referral for essential obstetric care [7,8,9].

However, some women do not start making birth plans from the moment of conception as they believe they are uncertain of the likelihood of the pregnancy to be carried to term. In some others, may be coincidental conception and so reluctantly accept the pregnancy and do not make birth plans readily [10]. Some pregnant women and their families do not know how to recognize the danger signs of complications in pregnancy and as a result are not usually prepared for them if and when they occur [6,11].

Studies in Kebbi state Northwest Nigeria [9] and in Ile-Ife, Southwest Nigeria, [11] on CR and knowledge of signs of severe maternal illness for which immediate care should be sought in an appropriate health facility was low. In a community based study conducted in Adigrat Ethiopia, among 534 pregnant women on knowledge of respondents about danger signs during pregnancy, a relatively small percentage of them spontaneously mentioned vaginal bleeding(10.9%), blurred vision(2.2%) and swollen hands/face(5.2%) as danger signs during pregnancy, respectively. Only 15.4% spontaneously mentioned at least one key

danger sign, 12.6% mentioned at least two key danger signs and 0.4% mentioned all three key danger signs [12].

Urban and rural populations differ in several ways including cultural practices, socio-economic and demographic characteristics availability and accessibility to formal and informal treatment sources, provision of basic infrastructure and childhood nutritional status [13]. In a community-based house-to-house survey conducted in Alexandria Egypt, urban women had a higher mean total score for their knowledge on ANC than their rural counterparts, with a statistical significant difference [14]. In a study among slum women in Indore India, awareness of at least one danger sign of pregnancy (79.2%), delivery (78.5%) and new born complications (85.1%) was high [15]. Raising awareness of pregnant women therefore on the danger signs would improve early detection of problems and reduce the delay in deciding to seek obstetric care [1]. In order to reduce significantly the morbidity and mortality associated with pregnancy, it is necessary to determine the knowledge of BP/CR among women and to improve on their knowledge. Therefore, this study was designed to determine and compare knowledge of BP/CR among maternal and child health care clinic attendees in the urban and rural health care facilities in Anambra State of Nigeria.

2. METHODOLOGY

2.1 Study Area

This study was done in Anambra State, South-East Nigeria. The study sites comprised 24 health care facilities offering maternal and child healthcare services in the urban and rural communities of the state. Twelve of the centers were located in urban area (Nnewi North Local Government, which has a total population of 155,443 males 77,517 and females 77,926), while the other 12 were from the rural area (Anaocha Local Government with a total population of 284,215 males 142,961 and females 141,254). Nnewi north is made up of four villages with ten political wards; while Anaocha is comprised of ten towns with nineteen political wards [16].

2.2 Study Design and Population

This was a descriptive cross-sectional comparative survey among pregnant women and mothers presenting six weeks post partum at the MCH care facilities in the study areas. This survey was conducted between January and May, 2014.

Women of reproductive age attending maternal and child healthcare services at the health facilities (tertiary, secondary and primary health care facilities in the study areas). Those who met the inclusion criteria (the pregnant women and six weeks post-partum who delivered in the healthcare facilities and were booked) were included in the study, while the women who delivered in the healthcare facilities but did not give consent to the study were excluded.

2.3 Sample Size Determination

The minimum sample size for this study was determined using the formula for calculating sample size for comparison of two proportions [17]. The minimum sample size calculated sample size was 360 women per LGA.

2.4 Sampling Technique

A multi-stage sampling technique was used. The first stage involved the selection of the study Local Government Areas (LGAs). The 21 LGAs in the State were stratified into seven (7) urban and 14 rural LGAs. Simple random sampling technique using balloting system was used to select one LGA in each urban and rural stratum namely Nnewi North and Anaocha LGAs respectively. Second stage was selection of the health facilities. The facilities in each selected LGA were stratified based on level of care into primary, secondary and tertiary health facilities. The facilities were further stratified based on ownership status into private and public. In Nnewi North LGA a total of twelve facilities were selected. For Anaocha LGA, also 12 health facilities were selected. Third stage was selection of respondents. From each of the selected health facilities (12 urban and 12 rural), 30 respondents were selected using systematic random sampling. Thus, a total of 720 respondents (360 per LGA).Every consenting and eligible respondent was administered the questionnaire at the point of exit from the health facility till the required number for the health facility was attained.

2.5 Data Collection Method

Data were collected using a pre-tested, semi-structured, exit interviewer- administered questionnaire. Four trained research assistants were involved in the study. The study tool was

pre-tested on women assessing MCH services in Onitsha-North, an urban LGA and Ekwusigo, a rural LGA who were not part of the study population but share similar characteristics. The questionnaire was translated to Igbo, the local language for ease of communication and translated back to English to ensure the original meanings were maintained.

2.6 Data Analyses and Management

Data collected were checked for completeness and then analysed using computer software the Statistical Package for the Social Sciences (SPSS windows version 22.) [18]. Results were presented in tables and charts. Percentage distribution (frequencies), means and standard deviations of relevant variables were employed. The Z-test and chi-square test were used to determine statistically significant associations between variables, with p value set at $\leq$ 0.05. Knowledge of BP was measured by calculating the total score for positive responses on questions assessing knowledge with a total score of 14. Scores were graded on three levels: Good (11-14), Fair (7-10) and Poor (1-6). Knowledge of CR on the other hand had a total score of 20, rated as: Good (15-20), Fair (10-14) and Poor (1-9).

2.7 Ethical Consideration

Approval to conduct this study was obtained from Nnamdi Azikiwe University Teaching Hospital Ethical Committee (NAUTHEC). Permission to conduct this study was obtained from the appropriate authorities, while the informed written consent was obtained from the respondents both for participation of study and the publication of the findings. All authors hereby declare that this study was conducted in accordance with the ethical standards laid down in the 1964 declaration of Helsinki.

3. RESULTS

A total of 720 questionnaires were administered, out of which 707 were retrieved giving a response rate of 98.2%. In Nnewi urban there were 356 respondents, while there were 351 respondents from the rural communities. Table 1 shows the socio-demographic characteristics of the respondents from both urban and rural areas. The mean age of the respondents was 28±5.2 for the urban and 29.1±5.9 for the rural. The modal age groups were 20 -29years (61%) urban and (51%) rural. There was a statistically significant difference between the parity of women in both urban and rural areas (Z= 7.07, p<0.001). Majority of the urban (96.1%) and the rural (95.2%) women were married. There was a statistically significant difference in the distribution of occupation in the urban and rural women. (x^2= 72.872, p<0.001). There was also a statistically significant difference in the distribution of the educational status of the women (x^2= 50.826, p<0.001).

Fig. 1. illustrates the electronic media gadgets owned by the respondents, A good percentage of women in both urban (87.9%) and rural (88%) had mobile phones.
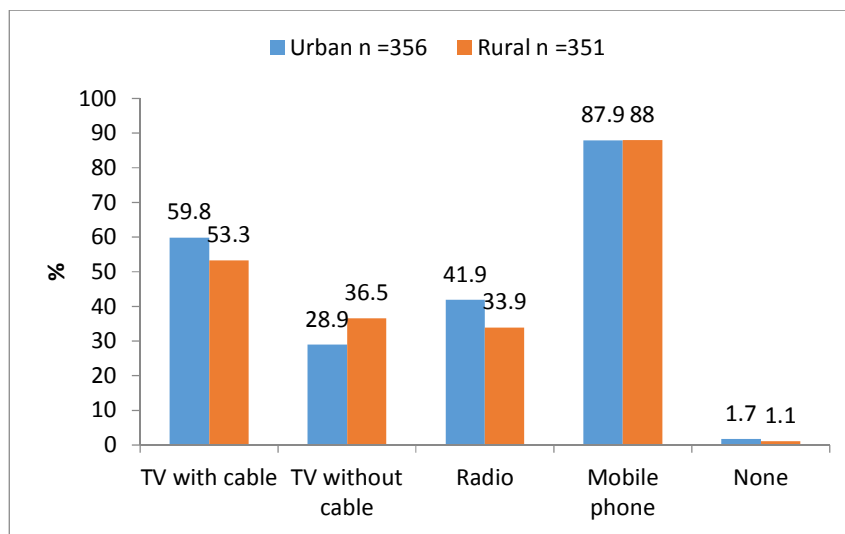

Fig. 1. Electronic media gadgets owned by the urban and rural respondents

Table 1. Socio-demographic characteristics of respondents by location

Variables	Urban LGA Frequency (%) (n=356)	Rural LGA Frequency (%) (n =351)	Statistics	p-value
Agegroup(years)				
<20	11(3.1)	11 (3.1)		
20 -29	219 (61.6)	179 (51)		
30 -39	115 (32.2)	140 (39.8)	Z = 2.63	0.009
>40	11 (3.1)	21 (6.1)		
Mean age ± SD	28.0 ± 5.2	29.1 ± 5.9		
Parity:				
0 (nulliparous)	100 (28.1)	38 (10.8)		
1(primiparous)	92 (25.8)	61 (17.4)		
2-4 (multiparous)	155 (43.5)	226 (64.4)	Z = 7.07	< 0.001*
>5(grandmultiparous)	9 (2.6)	26 (7.4)		
Mean parity ±SD	1.57 ± 1.42	2.32± 1.40		
Marital status:				
Ever married	350 (98.3)	342 (97.4)	χ2 = 0.66	0.428
Unmarried	6 (1.7)	9 (2.6)		
Occupation:				
Trader	117 (32.9)	178 (50.7)		
Student	82 (23.0)	15 (4.3)		
Public servant	79 (22.2)	47 (13.4)	χ2 = 72.872	<0.001*
Artisan	38 (10.7)	57 (16.2)		
Housewife	40 (11.2)	54 (15.4)		
Education:				
No formal	7 (2.0)	11 (3.2)		
Primary	20 (5.6)	45 (12.8)	χ2 = 50.826	< 0.001*
Secondary	192 (53.9)	240 (68.4)		
Tertiary	137 (38.5)	55 (15.7)		
Spouses' occupation:				
Trader	201 (56.5)	185 (52.7)		
Public servant	75 (21.0)	54 (15.4)	χ2 = 35.722	< 0.001*
Artisan	57 (16.0)	109 (31.0)		
Others	23 (6.5)	3 (0.9)		
Spouses' education:				
No formal	4 (1.1)	20 (5.7)		
Primary	64 (18.0)	92 (26.2)	χ 2= 29.536	< 0.001*
Secondary	217 (61.0)	204 (58.1)		
Tertiary	71 (19.9)	35 (10.0)		
Religion:				
Catholic	167 (46.7)	194 (55.3)		
Anglican	101 (28.5)	60 (17.1)	χ2= 14.581	0.002*
Pentecostal	80 (22.4)	82 (23.4)		
Others	8 (2.4)	13 (4.2)		

*Statistically significant

Table 2 shows the women's responses to questions on knowledge of BP and composite knowledge of BP in both localities. Booking for ANC was the most common knowledge of how to prepare for birth in both communities though higher in the rural (80.3%) than (66.3%) in the urban.. A higher proportion of women in the rural (51.6%) than in the urban (48.9%) responded correctly on when to start ANC visits. However for the knowledge on the minimum number of ANC visits, the women in the urban (53.7%) answered correctly (minimum of four visits) than the women in the rural (37.0%). More than half of the women in the rural, (57.3%) didn't know the minimum number of ANC visits expected compared to (39.3%) for the urban. Almost half the respondents in both urban (45.5%) and rural (49.6%) had poor knowledge of BP with a

Table 2. Knowledge of birth preparedness and composite knowledge of BP in both localities

Knowledge	Urban LGA Frequency (%) (n = 356)	Rural LGA Frequency (%) (n= 351)
How to prepare for birth:		
Book for ANC	236 (66.3)	282 (80.3)
Identify place of delivery	195 (54.8)	188 (53.6)
Save money	213 (59.8)	205 (58.4)
Start to purchase materials	206 (57.9)	228 (65.0)
Others	7 (2.0)	5 (1.4)
When should you start ANC:		
Within 1st 3months	174 (48.9)	181 (51.6)
Within 2nd 3months	62 (17.4)	38 (10.8)
Within last 3months	52 (14.6)	8 (2.3)
Anytime	56 (15.6)	113 (32.2)
Don't know	12 (3.4)	11 (3.1)
Minimum number of visits:		
1	7 (2.0)	4 (1.1)
2	4 (1.1)	3 (0.9)
3	14(3.9)	13 (3.7)
4	191 (53.7)	130 (37.0)
Don't know	140 (39.3)	201 (57.3)

Composite knowledge of BP in both localities

Score	Urban n=356 (%)	Rural n = 351 (%)	Grade	Statistics χ2	p-value
1 -6	162 (45.5)	174 (49.6)	Poor		
7 – 10	179 (50.3)	171 (48.7)	Fair	4.433	0.109
11 – 14	15 (4.2)	6 (1.7)	Good		

positive score of 1-6 out of 14 knowledge items. Slightly more than half of the respondents in the urban (50.3%) and slightly less than half in the rural (48.7%) had a fair knowledge of BP.

Table 3 summarizes the knowledge of complication readiness before delivery and composite knowledge of CR in both localities. The commonest knowledge among the women in both communities on how to prepare for complications before delivery was knowledge of danger signs. There was a similarity noted in the responses of women in the urban and rural areass on knowledge of danger signs (62.4%). A higher percentage of women in the rural (53.0%) than in the urban (35.1%) knew to identify skilled provider. There was poor knowledge of identifying/making arrangement for blood donor among the women in both study areas though the urban women (17.7%) were higher than the rural (8.3%). A good percentage of women in the two study areas urban (82.6%) and rural (85.8%), knew that danger signs could lead to death. A greater percentage of the women in the urban mentioned government (62.1%) and private hospitals (50.8%) as where to get skilled birth attendants compared to their rural counterparts who mentioned government (45.6%) and private hospitals (30.8%). About two-thirds of respondents in rural (62.1%) and urban (59.5%) had poor knowledge of CR with a positive score of 1-9 out of 20 knowledge items. 29.8% of urban women and 33.6% rural had a fair score with a total of 10 -15 scores out of 20. A smaller percentage of the urban (4.2%) and rural (1.7%) had good knowledge with a positive score of 11 -14. The overall difference in CR knowledge level between rural and urban women was statistically significant (*p* =0.005).

Table 4 Knowledge of complication readiness during and after delivery A greater percentage of women in the urban area (77.8%) than rural (52.7%) knew that women can get adequate partum and post partum care from doctors, while (28.5%) of the rural women are of the opinion that the TBAs give adequate partum and post partum care compared to (3.4%) of the urban women. Bleeding was the commonest complication mentioned arising after delivery.

Urban women (79.2%) mentioned bleeding as compared to (84.3%) rural women. Convulsion was the least mentioned in the urban (27.5%) while in the rural it was asphyxiated baby (8.8%).

Table 3. Knowledge of complication readiness before delivery and composite knowledge of CR in both localities

Knowledge	UrbanLGA Frequency(%) (n = 356)	Rural LGA Frequency (%) (n=351)
How to prepare for complications from delivery:		
Knowledge of danger signs.	222 (62.4)	219 (62.4)
Save money	165 (46.3)	162 (46.2)
Identify skilled provider	125 (35.1)	186 (53.0)
Identify mode of transport	103 (28.9)	156 (44.4)
Identify blood donor	63 (17.7)	29 (8.3)
Unforeseen pregnancy problems can endanger life of pregnant woman:		
Yes	288 (80.9)	323 (92.0)
No	15 (4.2)	4 (1.1)
Don't know	53 (14.9)	24 (6.9)
A woman can die from complications:		
Yes	294 (82.6)	301 (85.8)
No	20 (5.6)	21 (6.0)
Don't know	42 (11.8)	29 (8.3)
Where a pregnant woman can get attention of (doctors, nurses, midwives):		
Government hospitals	221 (62.1)	160 (45.6)
Private hospitals	181 (50.8)	108 (30.8)
Health center	96 (27.0)	119 (33.9)
Maternity home	93 (26.1)	120 (34.2)
TBA	13 (3.7)	109 (31.1)
Home	5 (1.4)	5 (1.4)
Don't know	10 (2.8)	1 (0.3)

Composite knowledge of CR in both localities

Score	Urban n=356 (%)	Rural n = 351(%)	Grade	Statistics χ^2	p-value
1 -9	212 (59.5)	218 (62.1)	Poor		
10 – 15	106(29.8)	118(33.6)	Fair	10.673	0.005*
16 – 20	38(10.7)	15(4.3)	Good		

* Statistically significant

Table 4. Knowledge of complication readiness during and after delivery

Knowledge	Urban LGA Frequency (%) (n = 356)	Rural LGA Frequency (%) (n=351)
Who can give adequate care during and after child birth:		
Doctors	277 (77.8)	185 (52.7)
Nurses	67 (18.8)	66 (18.8)
TBA	12 (3.4)	100 (28.5)
Complications can arise after delivery:		
Yes	316 (88.8)	310 (88.3)
No	40 (11.3)	41 (11.7)
Complications arising after delivery:		
Bleeding	282 (79.2)	296 (84.3)
Asphyxiated baby	108 (30.3)	31 (8.8)
Fever	99 (27.8)	169 (48.1)
Convulsion	99 (27.5)	60 (17.1)

4. DISCUSSION

The study determined and compared the knowledge of BP/CR among maternal and child care clinic attendees in urban and rural communities of Anambra State, Nigeria. Booking for ANC was the most frequently mentioned component of BP in both localities urban (66.3%) and rural (80.3%) and this could be because majority of the women studied in both localities had attained secondary education. It is anticipated that from women attending ANC are assisted to develop a birth plan that ensures BP/CR in event of pregnancy or childbirth [2]. Such a birth plan is expected to assist women in making choices that would contribute to good pregnancy outcome.

Studies have demonstrated a relationship between knowledge of maternal services, literacy and access to media. It has been shown that literacy and access to mass media were directly associated with good knowledge and perception of maternal and child health services utilization and indirectly with the actual utilization of such services [19,20]. The women studied in both urban and rural areas were literate. A good proportion had attained secondary education and they had access to mass media. This could more likely inform their awareness of booking for ANC as a BP/CR component.

From the findings of this study, a good proportion of the women (62.4%) in the urban and (62.4%) rural were able to mention at least one or more key danger signs in pregnancy labour and post partum. This finding agrees with the reports of the study carried out in Ile-Ife [10] which had almost eight in ten (79.2%) and (78.5%) respectively for danger signs in pregnancy and labour. In the study carried out in Adigrat Ethiopia [11] among slum women only 15.4% mentioned at least one key obstetric danger signs, unlike the study among slum women in Indore India, [15] awareness of at least one danger sign of pregnancy was not low being 79.2%. Vaginal bleeding was the most mentioned key danger signs of pregnancy 73.6% for urban and 85.2% for rural.

The findings of the current research showed there was a fair knowledge of BP among the urban women (50.3%) compared to the women in the rural (48.7%). There was no statistically significant difference noted. Knowledge of CR was poor among the respondents in both urban and rural communities, (59.5%) and (62.1)% respectively, though poorer in the rural than urban p<0.005. This finding is consistent with the findings of the study in Ile-ife, which also showed a low level of knowledge among the women [11].

5. LIMITATIONS OF THE STUDY

This study is based on self-reported health seeking behaviors, and the data is therefore subject to reporting errors. Also a number of the respondents were unable to understand the questions. This was minimized by mandating research assistants to read and interpret aspects of the questionnaire as the need arose; it was also time consuming.

6. CONCLUSION

The findings of the study show that respondents in the urban setting had a slightly better knowledge of BP/CR. About half the respondents in urban and rural communities studied, had from fair to good knowledge of BP. There was poor knowledge of CR among the respondents. Noting the level of knowledge of BP/CR from the study and its implication to the high maternal mortality in the country, it is imperative that health professionals involved in maternal and child health care services should initiate programs that will be directed at improving maternal knowledge and all issues relating to birth and its complications.

7. RECOMMENDATION

The findings of this study may have implications for safe motherhood programs targeted at both communities using a bottom–top approach. The cohesive efforts of stake holders namely individuals, heath facilities and the community are needed to effectively implement BP/CR as a means of reducing maternal and child mortality. We therefore recommend as follows.

1) There should be greater emphasis by antenatal service providers on birth preparedness and complication readiness especially on identifying blood donors and making arrangement for blood during antenatal visits.

8

2) There should be increased awareness on the radios and TVs in our local to effectively deliver the clear messages on the key danger signs as a good number of women in both study areas have access to them.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. John Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO); Birth preparedness and complications readiness: A matrix of shared responsibilities. Baltimore; MD: JHPIEGO. 2001;2.

2. John Hopkins Program for International Education in Gynecology and Obstetrics (JPHIEGO). Monitoring birth preparedness and complications readiness: Tools for maternal and newborn health. JHPIEGO. 2004;12.

3. National Population Commission (NPC) (Nigeria) and ICF, International: Nigeria Demographic and Health Survey 2013. Abuja, Nigeria and Rockville, Maryland, USA: NPC and ICF International. 2014;203-232.

4. Shiffman J, Okonofua F. The state of political priority for Safe Motherhood in Nigeria: Br J Obstet. Gynaecol. 2007;114:127-33.

5. World Health Organization (WHO). Division of family health Geneva: WHO. Mother Baby Package Implementing Safe motherhood in countries Practical Guide Maternal Health and Safe Motherhood Program.

6. United Nations. Transforming our world: The 2030 agenda for sustainable development. United Nations- Sustainable Development knowledge platform. In: Sustainable Development Goals. From Wikipedia, the free encyclopedia. (Accessed online on 07.08.2016)

7. Perreira KM, Bailey PE, de Bocaletti E, Hintado E, Recinos de Villagrain S, Matute J. Increasing awareness of danger signs in pregnancy through community- and clinic-based education in Guatemala. Matern Child Health J. 2002;6(1):19–28.

8. Killewo J, Anwar I, Bashir I, Yunus M, Chakraboty J. Perceived delay in healthcare seeking for episodes of serious illness and its implications for safe motherhood interventions in rural Bangladesh J Health Popul Nutr. 2006; 24:403-12.

9. Gummi FB, Hassan M, Shehu D, Audu L. Community education to encourage use of emergency obstetric services Kebbi state Nigeria: The Sokoto prevention of maternal mortality (PMM) team. Int J Gynaecol Obstet. 1997;59(l2):191-200

10. Mutiso SM, Qureshi Z, Kinuthia J. Birth preparedness among antenatal clients. East Afr Med J. 2008;85:275-83

11. Onayade AA, Akanbi OO, Oyeniyi CF, Togun OO, Okunola HA. Birth preparedness and emergency readiness plans of antenatal clinic attendees in Ile-Ife. Niger Postgrad Med J. 2010;17(1):30-9.

12. Mihret H, Mesganaw F. Birth preparedness and complication readiness among women in Adigrat town, North Ethiopia. Ethiopia J Health Dev. 2008;22(1):14-20.

13. National Population Commission (NPC). Nigeria and ORC Macro Nigeria, Nigeria Demographic and Health Survey 2003. Calverton, Maryland: National Population Commission and ORC/ Macro. 2004;51-197.

14. Kishk NA. Knowledge, attitude and practice of women towards Antenatal care rural-urban comparison. J Egypt Public Health Assoc. 2002;77(5-6):479-98.

15. Agarwal S, Sethi V, Srivastana K, Prabhat K, Banqui AH. Birth preparedness/ complication readiness among slum women in Indore, India. J Health Pop Nutr. 2010;28(4):383-91.

16. Annual Abstract of Statistics National Bureau of Statistics. Federal Republic of Nigeria; 2012.

Available:www.nigeriastat.gov.ng
(Accessed 24/2/2014)

17. Kirkwood BR, Sterne JAC. Essential medical statistics. 2nd ed. Massachusettes: Blackwell Science. 2003;420.

18. Statistical Package for Social Sciences (IBM SPSS) 22.0 version. Armonk NY: IBM United States. IBM Corp; 2013.

19. United Nations Fund for Population Activities (UNFPA). State of the world's population 2007; Unleashing the potential of urban growth UNFPA .New York, USA; 2008.

20. Babalola S. Adewuyi A. Factors influencing immunization uptake in Nigeria: Theory – based research in six related states in Abuja Paths; 2005.