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Influence of Clinic-Based Health Education on Pregnant Women's Knowledge and Attitudes in Relation to Pregnancy Management: Evidence from Ogun State, Nigeria

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Influence of Clinic-Based Health Education on Pregnant Women's Knowledge and Attitudes in Relation to Pregnancy Management: Evidence from Ogun State, Nigeria

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Abstract- The study assessed the influence of clinic-based health education on women's knowledge and attitudes in relation to pregnancy management in Ogun State. Stratified sampling method was used to allocate 48 pregnant women each to experimental and control groups, making a total of 96 respondents. Structured questionnaire was used to gather data from the respondents. The women in the experimental group were exposed to two hours of health education discussion addressing pertinent maternal health issues weekly for five weeks. Data were analyzed using descriptive statistics and independent t-test. All tests were measured at $p \leq 0.05$ level of significance. Results showed that the women were between 19 and 24 years, had up to secondary education, recorded parity of 1-2 while timing of first visit was between 20 and 24 weeks of gestation and number of Ante-natal visits were ≥ 4. At baseline, there were no significant difference in all the knowledge variables and attitudes measured for the experimental and control groups. However, after intervention, the mean scores for all the knowledge variables and measured attitudes in the experimental group increased and were significantly higher than the control group. In conclusion, corroborative intervention directed at creating more awareness on maternal reproductive health and providing necessary education for pregnant women should be encouraged.

Keywords: clinic-based, health education, pregnant women, knowledge and attitudes, pregnancy management.

I. Introduction

Several studies have shown the nexus between pregnant women's decision to use the primary health care facility especially for delivery and their knowledge of normal signs and symptoms of pregnancy, labour and puerperium, danger signs and symptoms of pregnancy, labour and puerperium, birth preparedness and complication readiness plans during pregnancy, labour and puerperium (JHPIEGO, 2004; Ujah et al., 2005; Abass, 2008). Further studies have shown that about 75% of all maternal deaths, globally, are those associated directly and indirectly with some sort of health care facility particularly during delivery and the week immediately after (Choudhry, 2005; FMOH, 2009). The situation is particularly bad in developing countries like Nigeria (Bale, Stoll and Lucas, 2003; Ekele, Bello, Adamu, 2003).

Nigeria is still one of the forty countries that had high Maternal Mortality Ratio (MMR) (defined as MMR ≥ 300 maternal death per 100,000 live births) giving a life time risk of maternal death 1 in 18 (WHO, UNICEF, UNFPA and the World Bank, 2010). When these rates are viewed globally, approximately 1 in 9 maternal deaths occur in Nigeria alone (USAID, 2009). Beyond mortality cases, many other women suffer from injuries, infections or diseases related to pregnancy basically from lack of adequate knowledge (WHO, UNICEF, UNFPA, 2012). It is estimated that for every maternal death, at least thirty women suffer short to long term disabilities such as Vesico- Vaginal Fistula (VVF). For example, Nigeria accounts for 40% of the global burden of VVF (FMOH, 2007). This condition arises from prolonged unmanaged labour and complicated deliveries. For example, when the pregnant woman is still contemplating on going to the health facilities for delivery, she encounters three other delays according to Thaddeus and Mane (1994):

1. Delay at home in recognizing complications and deciding to seek for care. A woman may delay in deciding to seek care because of ignorance, inability to recognize danger signs or because of cultural inhibitions.
2. Delay in accessing the appropriate health facilities. A further delay occurs when a woman is unable to reach a health facility due to distance, poor communication, inability to mobilize transport or to pay for transportation.
3. The delay in receiving care. The third delay occurs at the health facility when trained personnel and supplies are not immediately available to provide critical, life-saving care.

All these have a lot of bearing on the health and well-being of families, communities and in the social and economic situations of the societies. Each year an

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estimated US $15.5 billion is lost in potential productivity due pregnancy complications or when women and newborns die (WHO 2007). Every year an additional two million children worldwide are maternal orphans (WHO, 2007). Children without a mother are less likely to be immunized and are more likely to suffer from malnutrition (WHO, 2007).

Many intervention projects, programmes and policy strategies have been initiated globally and nationally in many countries including Nigeria to reduce complications surrounding pregnancy and parturition such as the Safe Motherhood Initiative (Berer, 1988), International Planned Parenthood Federation (IPPF) and the Population Council (WHO, 2006). Some of these efforts are profiled in Table 1. Despite all these efforts, maternal death tolls increase is still a phenomenon (Moore, Hart & George 2011; Ishola, 2011). Research into collaborative intervention efforts is therefore pertinent and imperative for the achievement of the Millennium Development Goal (MGD) of reducing MMR by 75% between 1990 and 2015 (WHO, UNICEF, UNFPA and World Bank, 2012). It is against this backdrop that this study examined the effects of motivational health education in improving pregnant women's knowledge of signs, symptoms, birth preparedness and complication readiness in Ikenne Local Government Area of Ogun State.

II. Theoretical Framework

The study focused on health information dissemination necessary to equip selected pregnant women with the necessary knowledge and skills that will bring about changes in their attitudes and decrease in maternal death. A theoretical model that suggested effective approach to ensure participants in the intervention complied with the information delivered and thus increased their knowledge level leading to decisions for better patronage of the healthcare facility was employed. The Comprehensive Health Education model (CHEM) was employed.

Following Farotimi (2011) the CHEM model was applied following six steps thus:

Step I: The participants (pregnant women) were involved in an active learning process.

Step II: At the end of the program, these pregnant women were able to have in-depth understanding on Normal Symptoms of Pregnancy, Labour, Delivery and Puerperim; have better understanding as regards birth Preparedness and Complication Readiness (BP/CR) and to demonstrate positive attitudes towards Birth Preparedness and Complication Readiness (BP/CR).

Step III: The *a priori* expectation was that significant increase in knowledge of the participant will improve their attitudes and responses to health care services and consequently reduce complications associated with pregnancy and maternal mortality.

Step IV: The sampled women for the study were categorized into experimental and control groups. The experimental group were exposed to the motivational education and compared with the control group for knowledge increase.

Step V: Necessary resources were acquired and utilized to implement the program

Step VI: Evaluation was done with the use of questionnaire.

Table 1: Policies to Reduce Maternal Morbidity and Mortality in Nigeria

Polices	Goals
The International Safe Motherhood Initiative launched in Nairobi, Kenya, 1987	To reduce maternal mortality in the country by 50% by the year 2000
The National health policy and strategy. Developed in 1988, revived in 1998 and 2004.	To achieve health for all Nigerians, emphasizing Primary Health Care as key to developing the health care
The National Policy on Population for Development, Unity, Progress and Self Reliance, 1998	To promote maternal health especially vulnerable groups such as adolescents.
The National Economic Empowerment Development Strategy (NEEDS) 1999.	To reduced the level of poverty in Nigeria
The National Reproductive Health Policy (NRHP) developed by FMOH in 2001.	a) To "achieve quality reproductive and sexual health for all Nigerians b) To "reduce maternal morbidity and mortality due to pregnancy and childbirth by 50% by 2006
The National Reproductive Health Strategic Framework, developed by FMOH 2002	To reduce maternal mortality. (FMOH, 2002)
The National Guidelines for Women's Health, developed by (FGN)2002	To establish women-friendly services at all levels of the health care system. (FMOH and UNICEF, 2002)
The Health Sector Reform policy, developed (FMOH) 2003	To improve the functioning of Nigeria's health system as a way of reducing maternal mortality in the country.
National Strategic Plan for Reproductive Health Commodity Security developed (FMOH) 2003	To develop a strategy to secure the supply of reproductive health commodities.

Revision of the government's National Policy on Population for Sustainable Development. 2004.	To reduce maternal mortality ratio to 75% by the year 2015 (FMOH), 2004
The National Family Planning/Reproductive Health Policy Guidelines and Standards of Practice. 2004	To improve the quality of reproductive health and family planning.
A National Strategic Framework and Plan for Vesico-Vaginal Fistula (VVF) Eradication in Nigeria Developed by (FMOH &UNFPA, 2005)	To improve the quality of life of women by eliminating obstetric fistulae by 80% and a 300% increase in health care services to repair them between 2005 and 2010 (FMOH &UNFPA, 2005).
National Health Promotion Policy (NHPP). Developed by (FMOH, 2006)	To expand and elaborate on the health promotion/education component of (NHPP)
Integrated Maternal, Newborn and Child Health (IMNCH) Strategy Developed by 2007	a) To build synergy among many programs designed to reduce maternal and child mortality in Nigeria. b) To ensure a continuum of care from pregnancy
National Breastfeeding Policy. Developed in 1994	To reduce maternal mortality and morbidity in Nigeria
National Adolescent Health Policy Developed in 1995	To reduce maternal mortality and morbidity in Nigeria
National Policy on HIV/STIs Control Developed in 1997	To reduce maternal mortality and morbidity in Nigeria
National Policy on the Elimination of Female Genital Mutilation Developed in 1998	To reduce maternal mortality and morbidity in Nigeria

III. Research Methodology

a) Study area and Description of Population

This study was carried out in Ikenne Local Government Area (LGA) in Ogun state, Nigeria. Ikenne community houses culturally diversified people of different background. This LGA is semi-urban comprising of five towns- namely, Ikenne-Remo (the LGA headquarter), Ilishan-Remo, Iperu-Remo, Ogere-Remo and Irolu-Remo. Estimated population of women of reproductive age is 27, 713 (Nigeria Demographic and Health Survey [NDHS], 2008). However, the target population included women who were pregnant and in the third trimester of pregnancy (28-40 weeks of pregnancy). The health facilities available in the LGA include Babcock University Teaching Hospital at Ilishan, State General Hospital at Ikenne, State Hospital at Iperu, Community Hospital at Ilishan and ten (10) Primary Health Care (PHC) Centres in Wards situated in the five towns.

There are also eight registered Private Hospitals/Clinics, some Traditional Birth Attendants and religious Health Care Centres within the Local Government Area.

IV. Sampling Technique and Data Collection

The multi-stage sampling technique was used to select a total of 96 participants from the five healthcare centres in the study area offering maternity care. The healthcare facilities were stratified into two for the control and experimental groups. Ikenne PHC ward II, Ilisan town PHC ward VII and Irolu PHC ward X were in the control groups while Iperu PHC, ward V and Ogere PHC VII were in the experimental group. Forty eight pregnant women were purposively selected from each group to represent the sample frame. Structured questionnaires designed in line with the developed Motivational Health Education Information (MHE) and with study objectives were used to gather data from the respondents. Reliability analysis was applied to test the internal consistency of the questionnaire. Result of the analysis showed that the average Cronbach's alpha value for the instrument was 0.82. Items of an instrument were considered to represent a measure of high internal consistency if the total Cronbach's alpha value was more than 0.7 (Graham, 2008 and Muhamad, 2010). The intervention group was exposed to 5 weeks of intervention education following the focus group discussions.

V. Method of Data Analysis

Both descriptive and inferential statistics were employed in analyzing data collected in the study. Frequency tables were used to present results for the descriptive analysis. Each construct of the questionnaire was coded along the appropriate ranking scale. Maximum point-scales were generated for each construct to measure the stated research variables, mean scores were also computed. The t-test was used to determine significant difference in the mean of the analyzed variables in the experimental and control groups. All statistical analysis were done using the statistical package for social science (SPSS version 17) and set at $P \leq 0.05$ levels of significances. Ethical clearance was obtained from the Ethical Review Committee, Babcock University and consent forms were filled by all participants.

VI. Results and Discussion

a) Socio-demographic information of respondents

Results in Table 1 show that the respondents generally were below 35 years old (79% for control and 92% for experimental groups), mostly married (96% for control and 100% for experimental groups), from Yoruba ethnic group (75% for control and 76% for experimental groups) and largely Christians (50% for control and 57% for experimental groups). The result for educational level showed that the respondents had relatively good level of education with majority having secondary education and

above (92% for control and 72% for experimental groups). The nexus between education and adoption of innovations for behavioral change has been detailed in previous studies (Babalola et al., 2013; Omeonu et al., 2014; Babalola, 2014). Thus the intervention is expected to have a significant impact on knowledge and attitude of the respondents. However, most of them were artisans (41% for control and 38% for experimental groups) and their monthly income was below ₦16,000 (<$81) (42% for control and 66% for experimental groups) which is clearly below the national minimum wage of ₦18,000. This implies that although, most of these women may depend on their husbands for household financial sustenance, poverty level is likely high among the women. This may pose a challenge to the women's capacity to afford certain financial requirements for necessary healthcare.

Further results in Table 1 showed that within the control group the majority of the respondents (67%) had 1-2 children and also in the experimental group (45.2%) had 1-2 children. Thus the women are expected to have certain knowledge about pregnancy management since they have had children before. Results of antenatal care (ANC) showed that most of the women (67% for control and 74% for experimental groups) had their first visit to the healthcare center between 20th and 24th weeks of pregnancy. However, the majority of the respondents (63% for control and 62% for experimental groups) visited the healthcare facility up to 4 times during ANC.

VII. Result of the Intervention Effort

The women in the experiment group were exposed to 5weeks of intervention education as earlier stated. The knowledge levels and attitude, with respect to the earlier stated pregnancy management factors and practices, for both the control and experimental groups were assessed both at the beginning (baseline) and at the end of the intervention exercise. Results are in Tables 3 and 4.

Generally, at baseline, the knowledge levels for all variables were relatively low compared to the respective maximum point on scale of measure (MPS). The knowledge variable about signs and symptoms about normal pregnancy for the experimental group measured at baseline (MPS =20) had a mean score of 14.26 ± 1.64 while the control group had a mean of 13.98 ± 1.67.

Comparing the two mean scores, there was no significant difference between these mean scores (P=0.348). However, at immediate post-intervention, the experimental group had a mean score of 16.9405 ± 1.07 which was significantly higher than that of the control group (14.08 ± 1.72)(P=0.04).

Table 2 : Demographic information of respondents

Variables	Groups			
	Control (n= 48)		Experimental (n= 48)	
	Freq	%	Freq	%
Age				
19-24yrs	16	33.3	15	31.0
25-29yrs	10	20.8	11	23.8
30-34yrs	12	25.0	18	38.1
35-39yrs	4	8.3	4	7.1
≥40	6	12.5	0	0
Marital status				
Married	46	95.8	48	100.0
Tribe				
Yoruba	36	75	37	76.2
Non-Yoruba	12	25	11	23.8
Religion				
Christianity	24	50	27	57.1
Islam	22	45.8	18	38.1
Traditional	2	4.2	3	4.8
Education				
Below Secondary	4	8.3	14	28.6
Secondary and above	44	91.8	34	71.5
Husbands' Education				
Below Secondary	6	12.5	10	21.4
Secondary and above	44	87.5	38	78.6
Occupation				
Farming	14	28.8	16	32.4
Civil Servant	8	16.8	9	19.5
Artisans	20	40.8	18	38.4
Housewives	7	13.6	5	9.7
Income level (₦)				

≤15,000	20	41.6	32	66.6
16,000-30,000	10	20.8	9	19.0
31,000-45,000	6	12.5	3	7.1
>45,000	12	25.1	4	7.3
Parity				
None	2	4.2	7	14.3
1-2	32	66.7	22	45.2
3 and above	14	29.1	19	40.5
Timing of ANC first visit				
8-16 weeks	6	13	6	12.0
20-24 weeks	32	66.7	35	74.0
28 weeks +	10	20.8	7	14.0
No. of ANC visits				
1 ANC visit	4	8.3	5	9.5
2 ANC visit	12	25.0	10	21.4
3ANC visit	2	4.2	3	7.1
4 and above	30	62.5	30	61.9

Source: Computed from field Survey (2013)

The knowledge variable about signs and symptoms of normal child birth measured at baseline (MPS = 20) showed no significant difference in respondents' knowledge level for experimental group (mean score of 16.45 ± 2.69) and the control group (mean of 16.2±2.16) (P=0.281). At immediate post-intervention, there was a significant difference between the mean score of the knowledge level of the experimental group (18.88±1.03) and the control group (16.47±2.10) (P=0.001). The knowledge variable about signs and symptoms of normal puerperium measured at baseline (MPS = 20) also showed no significant difference in the respondents' level of knowledge for experimental (mean score of 16.20±2.24) and the control groups (mean of 16.50±1.82) (P=0.409). The knowledge variable for the experimental group measured at immediate post-intervention increased to 17.92±1.66 which was significantly higher than that of the control group (16.45±1.80) (P=0.048).

The knowledge variable about danger signs during pregnancy, measured at baseline (MPS = 24), had mean scores of 17.17 ± 2.84 and 16.83 ± 2.25 for the experimental and control groups respectively. There was no significant difference in the knowledge level for both groups at baseline (P=0.459). However, after the intervention, the mean scores knowledge level measured were 18.85 ± 0.96 and 16.83 ± 2.14 for the experimental and control groups respectively. Comparing the two mean scores, there was a significant difference between the mean scores (P=0.041). The knowledge variable about danger signs during labour, measured at baseline (MPS =12) on scale, had mean scores of 7.12 ± 1.81 and 6.67 ± 1.23 for the experimental and control groups respectively. The test statistics for significant difference showed no statistical significant difference between these two mean scores (P=0.09). After intervention, mean scores changed to 6.02±0.15 and 6.79±1.30 for the experimental and control groups respectively. The test statistics for significant difference showed statistically significant difference between the two mean scores (P=0.001). The knowledge variable about danger signs 7 days after delivery, measured at baseline (MPS =12), had mean scores of 7.69 ± 2.09 and 7.33 ± 1.81 for the experimental and control groups respectively. There was no significant difference between the mean scores for the two groups (P=0.306). After the intervention, the knowledge mean scores for experimental group became significantly higher (9.00 ± 0.01 and 7.25 ± 1.83 for the experimental and control groups respectively) (P=0.001). The knowledge variable about birth preparedness and complication readiness measured at baseline (MPS = 30), had mean scores of 19.81 ± 1.90 and 21.25 ± 2.21 for the experimental and control groups respectively. The test statistics for significant difference showed no significant difference between the two mean scores (P=0.126). When measured at immediate post-intervention, the mean scores were 26.18 ± 1.13 and 21.79 ± 1.87 for the experimental and control groups respectively indicating significantly higher knowledge level for experimental group (P=0.001).

Table 3 : Pre-intervention (clinic-based education) or baseline result for control and experimental group

Variables	Groups	Max points on scale of measure	Mean	±SD	Std. Error Mean	Level of Sig
Knowledge about signs & symptoms of normal preg	control	20	13.9792	1.669	.24095	0.348
	experiment		14.2619	1.636	.17854	
Knowledge about signs and symptoms of normal labour & delivery	control	20	16.2167	2.161	.31204	0.281
	experiment		16.4524	2.694	.29404	
Knowledge about signs and symptom of normal puerperium	control	20	16.5000	1.821	.26296	0.409
	experiment		16.2024	2.237	.24414	
Knowledge about danger signs and symptoms of preg	control	24	16.8333	2.253	.32526	0.459
	experiment		17.1667	2.836	.30946	
Knowledge about danger signs and symptoms during labour	control	12	6.6667	1.226	.17699	0.091
	experiment		7.1190	1.812	.19781	
Knowledge about danger signs and symptoms after delivery (puerperium)	control	12	7.3333	1.814	.26184	0.306
	experiment		7.6905	2.088	.22785	
Knowledge about birth preparedness and complication readiness	control	30	21.2500	2.207	.31860	0.126
	experiment		19.8095	1.904	.20776	
Attitudes towards birth preparedness & complication readiness plans	control	52	24.8333	4.411	.63674	0.324
	experiment		22.7381	4.854	.52970	

Source: Computed from field survey (2013)

Table 4: Post-intervention (clinic-based education) results for control and experimental groups.

Variables	Groups	Max points on scale of measure	Mean	±SD	Std. Error Mean	Level of Sig
Knowledge about signs & symptoms of normal preg	control	20	14.0833	1.723	.24882	0.049
	experiment		16.9405	1.068	.11655	
Knowledge about signs and symptoms of normal labour	control	20	16.4667	2.096	.30267	0.001
	experiment		18.8810	1.026	.22109	
Knowledge about signs and symptoms about normal puerperium	control	20	16.4583	1.797	.25950	0.048
	experiment		17.9286	1.663	.18146	
Knowledge about danger signs and symptoms during preg	control	24	16.8333	2.137	.30847	0.041
	experiment		18.8452	0.963	.10508	
Knowledge about danger signs and symptoms during labour	control	12	6.7917	1.303	.18821	0.001
	experiment		9.0238	0.153	.01673	
Knowledge about danger signs and symptoms after delivery (puerperium)	control	12	7.2500	1.827	.26380	0.001
	experiment		9.0000	0.010	.00100	
Knowledge about birth preparedness and complication readiness	control	30	21.7917	1.867	.26955	0.001
	experiment		26.1786	1.131	.12349	
Attitudes towards birth preparedness & complication readiness plans	control	52	24.3750	4.123	.59521	0.001
	experiment		41.3690	4.250	.46377	

Source: Computed from field survey (2013)

The attitude variable towards birth preparedness and complication readiness for the experimental group measured at baseline (MPS = 52) had a mean score of 22.73±4.85 while the control group had a mean of 24.83±4.41. There was no significant difference between these mean scores (P=0.324). At immediate post-intervention, the mean score for the experimental group (41.37±4.85) was

significantly higher than that for the control group (24.83±4.12) (P=0.001). This result confirmed that the intervention influenced the participants by improving their knowledge and attitudes towards pregnancy management, birth preparedness and complication readiness.

VIII. Conclusion and Recommendation

This study assessed the influence of clinic based education on pregnant women's knowledge on normal pregnancy, danger signs and symptoms of pregnancy, labour and puerperium and their attitudes towards Birth Preparedness and Complication Readiness. The participants were selected from Ikenne LGA of Ogun state Nigeria. The investigation concluded by affirming significant impact of the motivational education on the stated knowledge variables and the attitudes of the respondents. Based on the findings of the study, the following recommendations have been suggested for policy action:

- Corroborative intervention programme initiatives, directed at creating more awareness and necessary education for pregnant women should be encouraged
- There is the need for improvement in the education given to pregnant women for general pregnancy management and care during delivery especially following recommended benchmark by WHO.
- Pregnant women should be encouraged to start ANC appointments earlier and any cost implication subsidized to motivate use of healthcare facilities.

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