CHILD SURVIVAL STRATEGIES BY WOMEN OF CHILD BEARING AGE IN A SEMI-URBAN COMMUNITY IN AKWA IBOM STATE

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ISSN: 2141 – 3290
www.wojast.com

ABSTRACT

The study was aimed at determining the Child Survival Strategies (CSS) including exclusive breastfeeding, growth monitoring, immunization, family planning, Oral Rehydration Therapy (ORT) and use of Insecticide Treated Nets (ITN) undertaken by women of child bearing age in a semi-urban community in Akwa Ibom State. The study was conducted in Ibagwa, a military settlement in Akwa Ibom State, between January and February 2014. Precisely 216 respondents participated in the study. Data was collected with a structured interviewer-administered questionnaire and analyzed using IBM SPSS version 20.0. Most of the respondents were aged 20-30 (69.4%), 18.1% had primary education, 63.9% had secondary education, while 10.6% had post secondary education. 56.4% were housewives/ unemployed and 51.4% had no income. The rate of exclusive breastfeeding was 7.0%, while 13.2% of the mothers continued breastfeeding until 24 months. Regular use of ITN and ORT was 57.4% and 60.5% respectively. 100% of respondents had fully immunized their children. Age had a statistically significant ($p<0.05$) association with use of ORT and ITN, with younger mothers adopting these CSS more frequently. Younger mothers were also less likely to give breast milk as the infant's first food, practice exclusive breast feeding and more likely to stop breastfeeding completely before 24 months. Uptake of ORT was significantly higher among the more educated mothers ($P<0.05$). Similarly, exclusive breastfeeding, regular growth monitoring and use of ITN were higher among educated women, though the difference was not statistically significant ($p>0.05$). The total income of respondents was significantly ($p<0.05$) associated with uptake of ORT and breastfeeding behavior. This study has revealed that suboptimal breast feeding practices in Nigeria were associated with lower maternal age and education. Uptake of immunization is optimized by proximity and easy accessibility. Use of ORT was associated with younger age of mothers, educational level and household income. Drugs were still being used by the majority of mothers as a first line treatment for diarrhea, despite widespread knowledge of ORT.

INTRODUCTION

The health and nutritional status of infants and young children, which has improved remarkably in many parts of the world, has remained dire in developing countries including Nigeria (Engle, *et al,* 2009; Black *et al*, 2003). The determinants of child health and nutritional status include at the distal level, socio-economic factors, intermediate level of environmental and behavioural risk factors and immediate causes which include under nutrition, infectious disease and injury (Black *et al*, 2003; Guatham, 2016).

Child Survival Strategies (CSS) include; breast-feeding, immunization, oral rehydration therapy, growth monitoring and promotion, female education, family planning and food fortification (USAID, 2002). Nigeria is one of the countries that remained off track for meeting the related MDG targets and the second-highest under-five mortality in the world. According to World Bank (2016), of the 9000 children under five who die daily in the world, 2300 are Nigerian sons and

daughters. These deaths are caused by preventable or treatable infectious diseases (Engle, *et al,* 2009; Black *et al*, 2003).

The Acting On The Call-to-action (AOTC, 2016) report reveals that there has been only minimal improvement in the child health and nutritional indices of children in Nigeria. The worst affected are maternal indices that directly impact child survival, such as 750 thousand maternal deaths yearly, translating to maternal mortality rate of 818 per 100,000, being the second highest globally. Though there exist serious inconsistencies in the figures, as supplied by different sources. Ayenigbara and Olorunmaye (2012) reported that too frequent pregnancies, age of expectant mother poor nutrition, poverty and lack of medical care were the leading factors associated with infant mortality in a community in Western Nigeria.

The aim of the study was to determine the characteristics of women (of child bearing age) that are associated with uptake or non-uptake of child survival strategies.

MATERIALS AND METHODS

Study Site

The study was conducted in Ibagwa, a military settlement in Abak Town, Akwa Ibom state, Nigeria. Abak is a semi-urban community, located between latitude 4^0,59^1 North of the equator and 7^0 47^1 East of the Greenwich meridian. Ibagwa is about 50km from Uyo, the capital city of Akwa Ibom State. The survey was approved by the ethical committee of the Akwa Ibom State Ministry of Health. Permission for the study was obtained from the military hierarchy concerned.

Sample Size Determination

Sample size was determined by the method of Snedecor and Cochran [1972] as follows;

$$n = z^2pq/d^2$$

Where z= 1.96, p =probability of event occurring (taken as 0.5, if the prevalence is not known as in this case), q = 1-p =1-0.5=0.5, d= 0.05 (acceptable margin of error), n= 1.96^2x (0.5x0.5)/0.05^2 = 196

Sample Selection

The sample size was rounded to 200 women, minimum sample size. It was further made up to 230, using an attrition rate of 15%. From a sampling frame of all women in the study area, a total of 230 women of child bearing age (18-49) were selected through simple random sampling. In all, 216 were eligible and available in their homes or duty posts and participated in the study. The data was collected with the use of a well-structured questionnaire, an adaptation of Sanusi and Gbadamosi (2009).

Section A; Socio-demographic characteristics of respondents

This information was either self-administered or interviewer administered depending on the literacy level of each respondent.

Section B; Anthropometric data

The study participants were weighed with an electronic digital scale (Health o meter scale model BFM145-63). The heights of study participants were measured using an inelastic measuring tape. Waist circumference was measured halfway between the lowest rib and iliac crest to the nearest 0.1cm using an inelastic tape. BMI was derived from weight (in kilograms) divided by height (in meter) squared. BMI and abdominal girth were then categorized using WHO (2003) criteria and the method of Kellishadi (2007), respectively;

Section C; Uptake of Child Survival Strategies

Respondents were asked to produce the immunization record of child/children under two years of age to determine their growth monitoring and immunization status. They were asked about their breast feeding practices. They were also asked about use of ITN, family planning, and ORT.

The respondents were also asked their sources of health information regarding CSS and their health seeking behavior during the most recent illness episode.

RESULTS

Socio-demographic Characteristics of Respondents

The age of study participants ranged between 20 and 49 years. Most of the respondents were age 20-30(69.4%), followed by 31-40 (23.6%), while only 3(1.4%) were less than 20 years of age. Majority of the respondents (63.9%) had secondary level of education. Majority (51.4%) reported no income, 36.6%, reported a monthly income of less than 10 thousand to 30 thousand naira, while 9.8% and 2.3% reported earning 31,000 - 70000 naira, and 71,000 - 110,000 naira monthly respectively. Most of the respondents were housewives/students (31.9%). Majority of respondents were Christians (68.5%) and the rest Muslims, (31.5%), (Table 1).

Most of the respondents had 2-4 people in their households (50.0%). Most of the respondents had 1 or 2 children (45.4%), 34.7%, had 3 or 4 children, 8.8% had 5 or 6 children ,while only 1.9% had more than 6 children.

Table 1: Socio-demographic characteristics of women of child bearing age in Ibagwa, Akwa Ibom State, Nigeria. 2010

Age (years)	N (%)
<20	3(1.4)
20-30	150(69.4)
31-40	51(23.6)
41-50	10(4.7)
Educational level:	
No formal education	3(1.4)
Primary	39(18.1)
Secondary	138(63.9)
Post secondary	23(10.6)
Occupation:	
Soldier	1(0.5)
Civil servant	8(3.7)
Businesswoman/trader	38(17.6)
Artisan	35(16.2)
Farmers	10(4.4)
Housewife/student	71(31.9)
Unemployed	53(24.5)
Total monthly income:	
No income	111(51.4)
<#10,000-#30,000	79(36.6)
#31,000-#70,000	21(9.8)
#71,000-#110,000	5(2.3)
Religion:	
Christian	148(68.5)
Muslim	68(31.5)

Uptake of CSS by respondents:

The breast feeding practices of respondents is shown on Table 2. Majority of respondents(67.2%), gave breast milk as baby's first food, followed by 15.3% who gave plain water, 6.9% gave glucose water, while 7.6% gave artificial milk, ($P > 0.05$).

Some mothers used other fluids and drinks as early as <1 month of age (8.5%), some between 1-2 months (11.6%), others at 3-4months (27.1%), most between 5-6 months, only 7% of mothers introduced other fluids and drinks at 6 months. The reason mothers gave for introducing other fluids, foods and drinks was that the baby was not satisfied with only breast milk (63%).

Table 2: Distribution of respondents by Uptake of CSS infant and child feeding practices

Baby's First food	n	%
Plain water	20	15.3
Glucose water	9	6.9
Breast milk	88	67.2
Artificial milk	10	7.6
Others	4	3.1
Age at introducing other foods:		
<1month	11	8.5
1-2months	15	11.6
3-4months	35	27.1
5-<6months	59	45.7
6months	9	7.0
Age at stopping breast feeding completely:		
7 -12months	28	21.7%
13-18months	83	64.3%
19 - <24months	17	13.2%
≥24months (recommended age at stopping breastfeeding completely)	1	0.8%
Reason for giving other fluids before 6months:		
Child not satisfied by BM alone	75	63.0
Child not growing well	5	3.4
Don't know	2	0.4
Other reasons	38	8.6
Not always at home	0	0.0
Reason for stopping breastfeeding:		
Another pregnancy	2	1.6
Child stopped by its self	2	1.6
Child is old enough to be stopped	115	89.8
Work pressure	1	0.8
Others	8	6.3
Use of ITN regularly:		
Yes	62	57.4
No	46	42.6
Use of ORT for your baby:		
Yes	78	60.5
No	51	39.5
First thing given when/if child has diarrhea:		
Salt sugar solution	29	22.1
Raw pap	3	2.3
Herbal preparation	1	0.8
Other/drugs	98	74.8
Child's growth monitored regularly at the clinic:		
Yes	80	61.1
No	51	38.9
Child completed immunization for age (card sighted):		
Yes	124	100.0
No	0	0.0

Majority of respondents stopped giving breast milk to their children completely between one year and a year six months (64.3%). The reason given by almost all respondents (89.8%) for stopping breast feeding was that the child was old enough to be stopped. Only one respondent (0.8%), continued breast feeding until the child was 2years of age (Table 2).

Majority of mothers (57.4%) used ITNs consistently, while 42.6% did not use it at all, though all respondents reported owning ITNs. Most respondents reported using ORT when their babies had

diarrhea (60.5%), however only 22% reported using ORS as first treatment for diarrhea, while majority (74.8%) gave drugs/other remedies as the first response to child having diarrhea.

All the children had received all the immunizations for their age. This was the only CSS adopted by all the respondents. Majority (61.1%) reported that their children's growth was monitored regularly, while the rest reported non regular monitoring (38.9%) Table 2.

Association of characteristics of respondents and uptake of CSS

Age: The association of age of respondents to uptake of Child Survival Strategies is shown on Table 3. Age had a statistically significant association with uptake of ORT and use of ITN ($p<0.05$ in each case), with younger mothers adopting these CSS more frequently. More women of younger age gave breast milk as the infant's first food, were more likely to introduce other fluids and soft foods earlier and stopped breast feeding completely at an earlier age. ($p<0.05$) in each case (Table 4).

Education

The education of women of child bearing age was significantly associated with uptake of ORT ($P<0.05$), (Table 3). Respondents with higher educational level agreed that breast milk alone was enough for the baby in the first six months ($p>0.5$). Higher level of education was associated with higher use of ITNs ($p>0.05$), use of ORT as first response when child has diarrhea ($p<0.05$) and regular growth monitoring ($p>0.05$).

Religion

The religion of respondents was not significantly associated with their practice of CSS. Out of the small percentage of mothers (7.0%), who agreed that breast milk alone was enough for the baby for the first six months of life, there were slightly more proportion of Christians than Muslims (72.4% and 57.8% respectively). Muslim respondents reported introducing other foods/drinks earlier, however they reported breastfeeding for longer before completely stopping, though the differences by religion were not statistically significant ($p>0.05$ and $p>0.05$ respectively).

Occupation

The occupation of respondents was significantly associated with use of ORT, adoption of family planning and reason for stopping breastfeeding ($p<0.05$, $p<0.05$ and $p<0.05$ respectively). The relationship to other CSS was not significant. (Tables 3 and 4).

Total income

The total income of respondents was significantly associated with their use of ORT, and their breastfeeding behavior. More respondents with higher total incomes gave baby breast milk as its first food ($p<0.05$), continued with breast feeding for longer ($p<0.05$) and use ITN regularly ($p>0.05$).

Number of children / Number in household; There was a statistically significant association ($p<0.05$) between the number of respondents' children and reasons for stopping breast feeding. The number of people in respondents household had a statistically significant association with their use of ORT and family planning ($p<0.05$ and $p<0.05$ respectively), (Table 3).

Source of CSS information; Respondents source of information on CSS, had a statistically significant association with their practice of ORT, immunization and family planning. ($p<0.05$, $p<0.05$ and $p<0.05$ respectively). Analysis of the association of the source of information on breastfeeding behavior revealed that the radio/television had a more positive effect on baby's first food, age of introduction of other foods/drinks, and age at stopping breast feeding completely. Respondents whose sources of information was hospital/clinic, were more likely to use drugs as first response to their child having diarrhea, and the difference in this practice by source of information on CSS was statistically significant ($p<0.05$).

Table 3; Association of characteristics of WCBA with uptake of CSS in Ibagwa, Akwa Ibom State, Nigeria.

Characteristic	Uptake of CSS (Chi Square; p value)					
	Growth monitoring	ORT	BF	Immuni-zation	Family Planning	Use of ITN
Age	1.82 (0.41)	18.14(0.01)*	9.12(0.31)	1.45(0.59)	12.62(0.32)	8.48(0.01)
Education level	4.26 (0.20)	18.11 (0.04) *	10.71 (0.51)	0.91 (0.93)	11.76 (0.79)	1.98 (0.38)
Religion	2.41(0.12)	2.09 (0.64)	4.61 (0.17)	0.002 (0.96)	4.08(0.37)	0.24 (0.62)
Occupation	7.68 (0.15)	26.96 (0.01) *	16.24 (0.46)	4.04 (0.50)	29.24 (0.04)*	6.00 (0.30)
Total income	5.66 (0.44)	38.87 (0.01) *	35.25 (0.01)*	2.55 (0.93)	35.05 (0.36)	4.30 (0.70)
Number of children	3.43 (0.48)	26.85 (0.03) *	17.67 (0.35)	2.34 (0.69)	30. 04 (0.07)	3.43 (0.51)
Number in the household	2.43 (0.51)	20.02 (0.02) *	9.31 (0.73)	2.56 (0.54)	24.83 90.01) *	0.96 (0.95)
Source of CSS information	2.57 (0.47)	17.70 (0.04) *	11.37 (0.31)	8.63 (0.02) *	18.09 (0.01) *	3.78 (0.31)

WCBA=Women of child bearing age; CSS=child survival strategies;
AKS=Akwa Ibom State. * Significant at p<0.05

Table 4. Factors associated with breastfeeding behavior of WCBA in a semi-urban community in AKS

	Breast feeding practices (Chi square; P value)					
Characteristics of WCBA	Exclusive Breastfeeding	Baby's first food	Age of introducing other foods	Reasons for stopping BF	Age of stopping BF	Prolonged BF up to 24months
Age	X^2=8.3 P=0.18	X^2=150.5 P=0.01*	X^2=10.1 P=0.07	X^2=5.8 p=0.06	X^2=5.5 P=0.04*	X^2=8.4 P=0.07
Level of maternal education	X^2=4.6 P=0.6	X^2=12.6 P=0.04*	X^2=12.4 P=0.06	X^2=4.4 P=0.06	X^2=6.9 P=0.04*	X^2=8.1 P=0.06
Total family income	X^2=5.0 p=0.5	X^2=47.3 P=0.03*	X^2=10.5 P=0.05	X^2=149.0 P=0.01*	X^2=27.7 P=0.04*	X^2=19.4 P=0.04*
Occupation	X^2=4.3 P=0.9	X^2=8.0 P=0.08	X^2=23.3 P=0.05	X^2=32.4 P=0.03*	X^2=13.3 P=0.07	X^2=6.3 P=0.08
No. of children	X^2=4.1 P=0.9	X^2=8.8 P=0.05	X^2=19.0 P=0.05	X^2=57.2 P=0.03*	X^2=23.3 P=0.06	X^2=5.1 P=0.06
BMI	X^2=6.2 P=0.1	X^2=8.1 P=0.05	X^2=11.5 P=0.05	X^2=14.0 P=0.06	X^2=13.2 p=0.07	X^2=1.5 P=0.07
Abdominal obesity	X^2=5.8 P=0.07	X^2= 3.1 P =0.08	X^2= 2.0 P =0.08	X^2= 3.0 P =0.08	X^2=2.0 P=0.08	X^2= 2.01 P =0.07
HSB	X^2=13.4 P=0.04*	X^2=28.0 P=0.06	X^2=46.1 P=0.06	X^2=49.5 P=0.06	X^2=16.7 P=0.07	X^2=12.4 P=0.06
Religion	X^2=3.4 P=0.2	X^2=9.37 P=0.04 *	X^2 =2.64 p=0.64	X^2=12.1 P=0.09*		X^2 =4.61 P=0.17
Source of information	X^2=13.4 P=0.04*	X^2 =11.3 P=0.5		X^2 =12.3 P=0.20		

WCBA=Women of Child Bearing Age; HSB=Health Seeking Behavior; BF=Breast Feeding .*significant at p<0.05

Effect of BMI, Abdominal obesity and Health seeking behavior: The respondents BMI and abdominal obesity did not have significant association with breast feeding behavior. Table 4.

Respondents' knowledge of CSS and their source of that knowledge;
Majority of the respondents are aware of family planning (96.4%) female education (93.1%) and food supplementation (85.5%). A good number (62.7%) had heard of food fortification, while all the respondents (100%) knew about exclusive breast feeding, growth monitoring and ORT respectively. The major source of information on the CSS was the hospital/clinic (76.9%).

Family, friends and others contributed 13.8%, while print media and radio/Television contributed 2.35 and 6.9% respectively.

Table 5; Knowledge and Sources of information of CSS

Knowledge of CSS	Yes (%)	No (%)
Family planning	127(96.4)	4(3.1)
Female education	122(93.1)	9(6.9)
Food fortification	74(62.7)	44(37.3)
Food supplementation	112(85.5)	19(14.5)
Immunization	144(100.0)	0(0.0)
Growth monitoring	146(100.0)	0(0.0)
ORT	158(100.0)	0(0.0)
Exclusive breast feeding	169(100.0)	0(0.0)
Source of information on these CSS		
Print media	3(2.3)	--
Radio/Television	9(6.9)	--
Hospital/clinic	100(76.9)	--
Others/family /friends	18(13.8)	--

DISCUSSION

Although majority of the respondents (67.2%) introduced breast milk as the baby's first food, the rate of exclusive breastfeeding up to 6 months was very low (7%), compared to reported rates in other parts of Nigeria. EBF rates of 12.5% were reported in Owerri and Enugu respectively (Maduforo *et al*, 2013; Ndiokwelu *et al*, 2013), 13.5% in a Nigerian demographic and health survey (NHDS, 2015), 37.3% reported in Anambra state and 52.9% reported in Lagos respectively by Ukegbu *et al*, (2011) and Okafor *et al*, (2014). Although the study population has different tribe and culture from the locations cited above, it is apparent that Exclusive breast feeding is not being reinforced in the health centers where most of the mothers attended. This study has also shown that early introduction of artificial feeds may be "elitist", emanating from subtle competition among mothers living in close proximity, such as in barracks. The phenomenon however needs further study. Most of the mothers (63%) in the present study, believed that breast milk alone was not sufficient for the child. This belief is widespread in Nigeria as reported by researchers in South-western Nigeria and Edo State. (Agunbiade *et al*, 2012; Alutu *et al,* 2005). Socio-cultural beliefs like water is needed by the baby may also be a contributing factor (Agunbiade *et al,* 2012). Another possible reason for non-EBF was the poor growth of the child. This may be due to inadequate lactation resulting from improper breast feeding practices.

Several studies have identified sex of the baby, household wealth, geopolitical residence, maternal occupation, maternal age and family pressures as the demographics associated with delay in initiation of breast feeding and non-practice of exclusive breast feeding (Ogbo *et al,* 2015; Agunbiade, 2012; Qureshi *et al*, 2011). Health service factors such as number of antenatal visits, delivery at the government hospital and mode of delivery have been implicated in sub optimal breast feeding practices and non-practice of exclusive breast feeding (Ogbo *et al*, 2015; Ukegbu *et al*, 2011; Yahya, 2003). Ukaegbu *et al* (2011), reported that women who gave birth in government hospitals and by normal delivery are more likely to practice EBF than those who gave birth in private hospitals, traditional birth attendants homes and by caesarean section.

There was a strong correlation between lower maternal age and sub optimal breast feeding practices in this study. This correlation has previously been reported by Ukegbu *et al*, (2011), Yahya, (2003) and Qureshi *et al,* (2011). Younger mothers may be inexperienced in correct infant feeding practices and thus more likely to engage in suboptimal feeding practices. Late initiation of lactation, problems with attachment and positioning of the baby, poor antenatal preparation

for lactation, especially among first time mothers and poor support from family members who have not bought into the idea of EBF may be some of the reasons why young mothers find it more difficult to practice EBF.

Adequate support and counseling is an important strategy for promoting exclusive breastfeeding practice in women (Qureshi *et al,* 2011). Similarly, using breastfeeding peer support strategy is also effective in ensuring exclusive breastfeeding among mothers (kaunonen *et al*, 2012). These approaches could be employed in Nigeria to improve the uptake of exclusive breastfeeding among younger mothers in communities. In this study, higher maternal education was associated with exclusive breastfeeding practice. This finding is supported by results of previous studies by Ogbo et al, (2015), Maduforo *et al*, (2013) and Okafor *et al,* (2014).

Only 13.2% of the respondents' breast fed for up to 24 months. This is lower than the 16.7% reported elsewhere in Nigeria (Ndiokwelu *et al,* 2013). The complementary feeding period generally from 6-24 months is a particularly vulnerable period in the lives of children. It is the peak period for growth faltering, deficiency of certain micronutrient and high prevalence of some childhood illnesses like diarrhoea and respiratory infection. Malnutrition from inadequate breastfeeding and poor complementary feeding practices is a particular risk in this age group of children in resource-poor countries of sub-Saharan Africa and contributes significantly to high child mortalities in this region (WHO, 1998). Exclusive breastfeeding up to six months of age and breastfeeding up to 12 months as well as with complementary feeding starting at six months are recognized as the top interventions to reduce under 5 mortality.

Our study has revealed a 100% immunization compliance rate, and this can be ascribed to where the study was conducted (a military settlement, with its own health center). This made immunization more easily accessible and may be a reason for the high compliance rate. This rate is higher than the 62.8%, 37.2% and 60.2% reported elsewhere in Nigeria (Abdulraheem *et al,* 2011; Rahji *et al,* 2013; Anah *et al,* 2006). The predominant reasons given for non-compliance in the studies cited above include; side effects of immunization, ill health of the child, long waiting time, inadequate vaccine supply, number of visits, parents' objection and attitude of health workers. (Abdulraheem *et al*, 2011; Anah *et al* 2006; Babalola *et al*, 2011). The implication of these findings is that immunization compliance is greatly affected by accessibility and proximity to an immunization facility.

Studies have shown that primary education is the basic threshold required to benefit from health information, and it provides marginalized groups – particularly women – the self-confidence desired to act on health information (CDC, 2002). Therefore, continuous implementation and sustainability of the MDG project in this context is crucial to improving breast feeding practices of Nigerian women (Agho *et al,* 2011).

All the respondents in this study had knowledge of ORT, although only 60.5% admitted using it for their children. The knowledge rate is higher than reported elsewhere in Nigeria and West Africa (Essomba *et al*, 2015; Uwaezuoke *et al*, 2003; Adimora *et al,* 2011) but the rate of usage is comparable. Factors that were associated with the use of ORT include age of mothers, educational level, occupation, total household income and number in the household. Younger mothers were more likely to use ORT as were mothers with higher educational level, higher income and less household members. Despite the high knowledge and usage reported, few mothers (22.1%) employ ORT as the first line of action in the treatment of diarrhea. Majority (74.8%) reported giving drugs first. This was much higher than figures reported by previous studies (Essomba *et al*, 2015), Osonwa *et al,* 2016 and Adimora *et al*, 2011). Previous studies also reported that although mothers accepted and use ORT and Salt sugar solution, they could not accurately describe how it is prepared (Uwaezuoke *et al,* 2003). The use of ORT as a first line of treatment is low. This might be because of the inconsistent message gotten from primary health facilities. This is compounded by the fact that in severe diarrhoea, when the child is

admitted in the hospital, antibiotics are usually given. So the mothers may feel that antibiotics are more effective than ORS. This study has shown that mothers who received information from hospitals/clinics were mostly those who gave drugs as first-line treatment against diarrhoea.

The hospital/clinic was the major source of information on CSS (76.9%). Access to a health facility provides an opportunity to obtain and respond to health promotion messages, and ANC visit present an important opportunity for implementation of appropriate infant feeding intervention strategies to promote optimal breastfeeding behaviours (AOTC, 2016). Findings from this study, suggest that relevant messages about CSS may not have been communicated effectively to mothers by antenatal staff. Although, knowledge of CSS was high among respondents, application and usage was low in most cases. This confirms that the information dissemination wasn't persuasive enough to cause a change in behaviour of the respondents. It is also possible that other socio-economic factors affecting the respondent were too overwhelming. Family, friends and others contributed 13.8% of knowledge, while print media, radio and television contributed less than 10% respectively. This knowledge gap is significant because the information received by women in child welfare clinics is not being reinforced by friends/relatives who may not visit clinics at all and who have limited access to relevant information through the print and electronic media. The close family structure in Nigeria and indeed West Africa, gives the family members, especially older females key roles to play in the upbringing of children (Grasley *et al,* 2008). Where these family members are poorly informed, they often give contradictory information from the clinics, thereby jeopardizing the application of CSS.

Growth monitoring (GM) is a very important factor in assessing the general well being of a child. As one of the child survival strategies, its knowledge was very high (100%) in the study population. However, actual compliance was 61.1%. This figure, though not encouraging is higher than that reported in a previous study in Nigeria (31.8%) (Elejere *et al,* 2014). They reported some of the reasons given in their study for non-compliance to include; inadequate training of health workers, busy clinics, and growth monitoring being time consuming. Also worthy of note is the fact that early school enrollment hinders GM for children above 2years, most of whom are already in school so it is advised that regular GM should be incorporated as part of school health policies, to capture children under the age of five

CONCLUSION

This study has revealed that suboptimal breast feeding practices in Nigeria were associated with lower maternal age and education. Application of immunization is optimized by proximity and easy accessibility to health centers. Use of ORT was associated with younger age of mothers and higher level of education and household income. Drugs were still being used by the majority of mothers as a first line treatment for diarrhea, despite widespread knowledge of ORT. Growth monitoring practice in health centers is inadequate. The hospital/clinic is the major source of information on the various CSS and there is a high level of knowledge, but low rate of application of these CSS. Health care workers must be more persuasive in ensuring that women are not only informed, but convinced on the importance of practicing CSS. There is also a need to properly educate the masses through electronic and print media on the importance of the CSS, in order to reinforce the information given by health care workers and influence its acceptance by women of Child bearing age. Special attention should be focused on staff attitude, which often dissuades mothers from visiting health centers.

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