

THE EFFECT OF MILK FORMULA ADVERTISEMENT ON BREAST FEEDING AND OTHER INFANT FEEDING PRACTICE IN LAGOS, NIGERIA.

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ABSTRACT

This study investigated the level of impact milk formula advertisements had on mothers' choice of infant feeding in Lagos State, Nigeria. A total of 225 mothers with children 0-2years were randomly selected from five hospitals in Lagos Island local government area of Lagos State. Validated questionnaires were used to obtain information from the mothers on their age, occupation, infant feeding pattern and type of infant formula advertisement seen. Data collected were analyzed using frequency distribution, percentages and analysis of variance (ANOVA). The result of the study showed that 92% of the mothers were within the reproductive years (20-40years). Fifteen percent of the mothers were housewives and 84.9% had some form of occupation. The result also revealed that 70% of the mothers breast fed only, 1.8% formula fed their babies and 27% practiced mixed feeding. The percentage of the mothers who saw or heard advertisement often from television, magazines, posters, radio and bill board were 31.6%, 24.9%, 18.2%, 3.6% and 3.1%, respectively, 82.7% of the mothers had seen or heard of some form of infant formula advertisement. The most commonly advertised infant formula was NAN (51.1%). The most common type of advertisement seen was television advert (31%); 18.7% of the mothers were influenced by infant formula advert while 64% were not. The result showed that there was a significant effect on the infant feeding practices before and after infant formula advertisement was seen at ($f=3.387$; 0.003) and ($f=4.025$; 0.001), respectively. The study concluded that there was a high percentage of mothers who breast fed their infants however analyses of the data before and after advert between the groups and within the groups of women showed that infant formula advertisement had a significant effect on mothers' choice of infant feeding.

Key words: Milk formula advertisement, infant feeding practices, breast feeding.

INTRODUCTION

The two main ways a mother may decide to feed her baby are breastfeeding and formula feeding. The major decision on whether a baby is breast or bottle fed should be made in counsel with the doctor before baby's birth (Shryock & Swartout, 1970). It is recognized that breast milk is the best food for the baby and authorities have indicated the advantages and disadvantages of both types of infant feeding (ACC/SCN, 2000; Lucas *et al.*, 1992; Pollack, 1994; Green *et al.*, 1995; Shryock and Swartout, 1970). However, the final decision on the feeding preference depends on the mother and her individual circumstances (Homeier *et al.*, 2005; Righard, 1998). Bottle feeding is a substitute while breast feeding is an unequalled and incomparable way of providing ideal food for the health, growth and development of infants (WHO, 2008). Despite this awareness of

the benefit of breast feeding, globally less than 40% of infants under 6 months of age are exclusively breastfed (WHO, 2008). There is a further decline on the percentage of women currently that elect to breast feed. This decline is caused by factors such as commercial promotion of infant formula through distribution of hospital discharge packs, coupons for free or discounted formula, television and magazine advertisements (Aniansson *et al.*, 1994).

Advertisement is the most common way in which manufacturing companies market their products (Food Advisory Community, 1991). Infant formula manufacturers use various methods which include, slogans, phrases with health claims, offering free samples, gifts, providing educative materials and incentives to health professionals and health care institutions (Arun, 2000). Hospitals receive infant formula for their nurseries at no charge, a practice that originated in the 1930s and has been criticized

by health care professionals as it is a form of advertising (Judith and Ann, 2005; WHO, 1992). Young mothers in many hospitals are provided with complimentary packages that include coupons for free or discounted formula (Donnelly *et al.*, 2000; Ighogboja *et al.*, 1996). These packages contain items such as growth charts, baby hats and refrigerator magnets advertising a particular company that manufactures infant formula. These vulnerable parents receive subtle psychological message that the hospital endorses the purchase and use of these products as necessary items for infants' growth and development (Ighogboja *et al.*, 1996; Taylor, 1998). Advertisements give the impression that breast feeding is difficult and babies require additional nutrients with breast milk. The mothers respond by choosing milk formula which increases their sales (Judith and Ann, 2005). Some of the companies add fatty acid component found in human breast milk and advertise it as such to increase patronage (Stanley *et al.*, 2007). Despite international codes, legislation and regulations (WHO, 2008) on marketing of breast-milk substitutes to protect and promote breast feeding, there is still aggressive marketing and promotion of infant formula across the globe (WHO, 2008, 1981). The objectives of this study are to assess the effect of infant formula advertising on the feeding practices of mothers in Lagos state, and to determine if there are other factors that influence mothers' choice of infant feeding

MATERIALS AND METHOD

Study Area/Population

This work was conducted in Lagos-Island Local Government area. The city of Lagos is in south - western Nigeria. It is bordered to the south by the Atlantic ocean. On the west, north and east by Benin Republic, Ogun state and Ondo state respectively (Abel, 2007). The indigenous ethnic groups are the Aworis, Eguns, Ijebus and the Epe (Adekunle, 2007). The main occupations of the people include farming, hunting and fishing. Lagos city is made up of twenty local government areas with a population of 7,937,932 in the 2006 census. It is presently the most populous and the second fastest growing city in Africa (NPC, 2007). Two hundred and twenty five mothers of child bearing age with children between 0-2years of age were selected for the study. These

mothers were recruited from five out of the 17 hospitals in Lagos-Island. The study was a cross sectional survey with the use of structured questionnaires. The five hospitals used were randomly selected from seventeen hospitals from the study area.

Data Analysis:

The data collected were analyzed with the Statistical Package for Social Science (SPSS). Frequencies, percentages and Analysis of Variance (ANOVA) were calculated using the same SPSS statistical program.

RESULTS

Table 1 shows the age, marital status, ethnic group and religious sect of the subjects. The result showed that majority of the mothers (88.7%) was within the child bearing age of 21-40years. However 8.0% of the subjects were less than 20years. Most of the respondents were married (88.9%), the single mothers were 5.3%, 4.9% were divorced/separated and 0.95 were widows. Fifty seven percent of the subjects were Yorubas and 59.1% were Christians and 39.1% were Moslems.

Table 1: Distribution of the respondents with respect to age, marital status, ethnic group and religion.

Ages (years)	Frequency	Percentages
Less than 20	18	8.0
21-30	113	50.0
31-40	87	38.7
41 and above	7	3.1
Total	225	100
Marital Status		
Married	200	88.9
Single	12	5.3
Divorced/Separated	11	4.9
Widow	2	0.98
Total	225	100
Ethnic Group		
Igbo	60	26.7
Hausa	30	13.3
Yoruba	128	56.9
Others	7	3.1
Total	225	100
Religion		
Christianity	133	59.1
Islam	88	39.1
Traditional	4	1.8
Total	225	100

Table 2: Socio-economic characteristics of the subjects

Variables	Frequency	Percentage
Educational level		
No formal education	15	6.7
Primary school certificate	24	10.7
O'Level certificate	94	41.8
NCE/HND/BSc	89	39.6
Others	3	1.3
Total	225	100
Occupation		
Trading	114	50.7
Farming	7	3.1
Housewife	34	15.1
Civil servants	60	26.7
Others	10	4.4
Total	225	100
Monthly income		
Less than 10,000	71	31.6
10,000 -30,000	83	36.9
31,000-69,000	41	18.2
Above 70,000	30	13.3
Total	225	100

Table 3: Percentage distribution of the mothers who saw infant formula advertisement, the type of infant formula advertised and the source of the advertisement.

	Frequency	Percentage
Infant formula advertisement seen by mothers		
Mothers who saw formula advertisement	186	82.7
Mothers who did not see formula advertisement	39	17.3
Total	225	100
Type of Infant formula seen advertised		
NAN	115	51.1
SMA gold	58	25.8
Frisolac	9	4.0
Others (cerelac, SMA white)	4	1.8
No response	39	17.3
Total	225	100
Type of advertisement seen regularly		
Television	71	31.6
Radio	8	3.6
Bill board	7	3.1
Posters	41	18.2
Magazines	56	24.9
Others	3	1.3
No response	39	17.3
Total	225	100

Table 2 shows that majority of the subjects (41.8%) had O'Level certificate and 6.7% had no formal education while 39.6% of the subjects had NCE/HND/BSc. Majority of the mothers (50.7%) were traders, 26.7% were civil servants, 15.1% were full time housewives. Most of the mothers (68.5%) were low income earners with monthly income of ₦10000.00 – ₦30000.00. Only 13.3 % earned ₦70,000 and above.

Table 3 shows the percentage of mothers who saw infant formula advertisement, type seen and the source. Eighty-two percent of the subjects had seen infant advertisement, NAN was the most common form of infant formula advertised (51.1%), television was the

commonest form of advertisement, radio and billboard were the least seen (3.6% and 3.1% respectively).

Table 4 shows the aspect of the advertisement that attracted the mothers, percentage of the mothers who were influenced by advertisement, other factors that influenced mothers in their choice of infant feeding. The result showed that the message of the advertisement (41%) influenced the mothers most. The percentage of mothers who were influenced by advertisement was 18.7%, while 64% were not influenced. Other factors that influenced choice of feeding were friends (31%), mothers in-law (16.4%) had an influence while husbands had the least influence (5.8%).

Table 4: Aspect of formula advertisement that attracted the subjects most, percentage of mothers influenced by advertisement and other factors that influenced choice of feeding.

	Frequency	Percentage
Aspect of the advert that attracted the mothers		
Music	41	18.2
Pictures	49	21.8
Message	94	41.8
Others	2	0.9
No response	39	17.3
Total	225	100
Mothers influenced by advert		
Those influenced	42	18.7
Those not influenced	144	64
No response	39	17.3
Total	225	100
Other factors that influenced choice of feeding		
Friends	70	31.1
Mother – inlaw	37	16.4
Husbands	13	5.8
Others	24	10.7
No response	39	17.3
Those influenced by formula advert	42	18.7
Total	225	100

Table 5: Time of commencement of breast feeding and formula feeding.

Onset of breast feeding	Frequency	Percentage
At birth	68	30.2
6-12hrs after birth	34	15.1
24hrs after birth	47	20.9
More than 24hrs after birth	10	4.4
No response	66	29.3
Total	225	100
Onset of bottle feeding		
Immediately after birth	36	16.0
6-12hrs after birth	3	1.3
24hrs after birth	2	0.9
More than 24hrs after birth	2	0.9
3months	17	7.6
Others	6	2.7
No response	159	70.7
Total	225	100

Table 5 shows the time of commencement of breast or bottle feeding by the mothers. The result showed that 30.2% of the mothers started breast feeding immediately after the birth of their babies compared to the 16% that bottle fed their babies immediately after birth. Fifteen percent, 20.9%, 4.4% of the infants were started on breast feeding at 6-12hours, 24hours and more than 24hours after delivery, respectively. In contrast 1.3%, 0.9% of infants that were started on bottle feed 6-12hrs and 24hrs after delivery respectively.

In Table 6 analysis of variance was used to analyze the effect of advertisement on infant feeding practices before and after seeing the advertisement between the groups and within the groups. The result showed that infant formula advertisement had a significant effect on the feeding practices of the mothers before seeing the advertisement at ($f = 3.387$; $p = 0.003$). There was also a significant difference on the effect of advertisement on the feeding practice after the advert was seen at ($f = 4.025$; $p = 0.001$).

Table 6: The use of ANOVA to determine the effect of advertising on mothers' infant feeding practices before advertisement.

	Sum of Squares	Df	Mean Square	F	Probability
Between groups	13.649	6	2.275	3.387	0.003
Within Groups	61.559	218	0.672		
Total	75.208	224			

Footnote: (F=3.387; 0.003 P<0.05)

Table 7: The use of ANOVA to determine the effect of advertising on mothers' infant feeding practices after advertisement

	Sum of Squares	Df	Mean Square	F	Probability
Between Groups	17.869	6	2.978	4.025	0.001
Within Groups	161.313	218	0.740		
Total	179.182	224			

Footnote: (F=4.025; 0.001 P<0.05)

DISCUSSION

The result of the study showed that advertising had a significant ($p < 0.05$) effect on mothers' choice of infant feeding before advertisement and after advertisement ($p = 0.001$) between the groups and within the groups. However, 66.2% of the mothers started breast feeding within the first 24hrs of birth while 18.2% fed their babies infant formula within the same time period. The indication is that infant formula advertisement affected the practice of exclusive breastfeeding. The consequence of this was that these babies that were formula fed from birth could be exposed to illness such as diarrhoea and vomiting. It could also lead to the introduction of complimentary food early which could also expose the babies to food allergy, diarrhoea and vomiting. There is a possibility that these formula fed infants could be left with care givers, relatives and friends thus reducing bonding between baby and mother (ACC/SCN, 2000). The result also showed that despite the high percentage of breast fed babies, there was a 5.3% decline in breast feeding rate, 0.95% increase in the rate of formula feeding and 4.5% increase in the rate of mixed feeding. This is in line with the WHO (2008) report that showed that globally less than 40% of infants under 6months of age are exclusively breast fed.

Homeier *et al.*, (2005) showed that one reason why some mothers do not breastfeed was because of the aggressive infant formula advertisement and marketing. Infant formula advertisement has effect on infant feeding practices in several ways. The study showed that 16% of the respondents started formula feeding at birth. Some of the consequences of the use of breast milk substitute in the developing countries is the possibility of bacterial infection (UNICEF, 1994) due to poor personal hygiene, poor sanitary condition and lack of adequate supply of clean water (UNICEF, 1995). Infant formula is

expensive and frequently over diluted to save money (UNICEF, 1994). This is in line with the findings of this study that mothers used less than the recommended quantity of breast milk substitute to stretch the use. This may be due to low educational attainment of the subjects (6.7%) who had no formal and (10.7%) had primary school certificate. It could also be attributed to the poor per capita income of the subjects, 31.6% earned less than ten thousand naira per month. The implication was that feeding bottles and teat may not have been properly sterilized and could become sources of microbial contamination (UNICEF, 1994). This would lead to high morbidity and mortality rate of infants (Onyechi and Okafor, 2008). Infants and children under 5 years of age are vulnerable to malnutrition, diarrhoea and vomiting. In population area like the developing countries of which Nigeria is one, the mortality rate from diarrhea and vomiting has remained high (UNICEF, 1994, 1995, Scott-Emuakpor and Okafor, 1986). There is also an association between the development of childhood obesity and consumption of breast milk substitute and the subsequent development of non-communicable diseases (Gillian *et al.*, 2001; Arenz *et al.*, 2004).

Advertisement of breast milk substitute was mostly through television (31.6%). Arun, (2000) showed that Nestle advertises its products in television regularly. Advertisement gives the impression that it is not easy to breast feed or that babies need additional food with breast milk. These mothers turn to formula which increases sales for the companies (Judith and Ann, 2005). The study also revealed that there were other reasons for giving babies breast milk substitute. This includes poor health condition of the mothers (0.9%). Homeier *et al.*, (2005) identified this as one of the reasons for introducing formula feed. Other reasons given were cracked nipples (14%), fear of unsuccessful breast feeding (3.6%), preference by baby and

husband. This could be attributed to insufficient prenatal education on infant feeding practices (WHO, 1989). Other misinformation includes small breasts size, lack of role models, return to work and social concern (Wardlaw *et al.*, 2004).

The international code on marketing of Breast milk Substitutes adopted by the World Health Assembly in 1981 (WHO, 1981) and subsequent relevant World Health Assembly resolution, collectively known as “The Code”, provide guidelines for the marketing of breast milk substitute, bottles and teats. This is to ensure infant feeding decisions are free from the influence of marketing pressure. Despite these facts there is high increase in the use of breast milk substitute due to the high level of formula feed advertisement. In Nigeria one third of infants are bottle fed in the first four months (ACC/SCN, 2000). Studies have shown that infants in developing countries who consume infant formula are at the risk of non-specific gastroenteritis and sudden infant death syndrome (SIDS), (Stanley, 2007). There is less bonding and attachment (World Alliance for breastfeeding Action, 2007) and high neonatal mortality (Veneman, 2007). The aim of infant formula advertisement by companies is to encourage mothers to buy their product and make as much money as possible. These companies invest exorbitant amount of money to convince parents that their products are just as good as breast milk (Stanley *et al.*, 2007). It is important therefore to reach women during the prenatal period, soon after delivery and within the first month postpartum, these are critical to increasing the duration of exclusive breastfeeding (ACC/SCN, 2000).

CONCLUSION

The result of this work showed that there was a high percentage of mothers who breast fed their infants. However, formula advertisement had a significant effect on mothers’ feeding practice. Advertisement of infant formula has been shown to be extensive and persuasive compared to the dissemination of information on the advantages of mothers’ breast milk. However, there were other factors such as low literacy rate, demographic changes such as urbanization, increase in hospitalization for childbirth, employment outside the homes may have also contributed to the mothers giving their babies formula feed.

RECOMMENDATION

It is therefore important that health workers should ensure that women of child bearing age should be adequately informed at prenatal stage on the benefits of breastfeeding. Nutrition education at antenatal and early

registration should be encouraged to enable mothers make informed decision about infant feeding.

REFERENCES

- Abel, O. (2007). A brief history of Lagos State. Website of city of Atlanta, Georgia-sister city.
- Adekunle, S. (2007). Edo nation-the origin of Eko. www.edo-nation.net.
- ACC/SCN, (2000) 4th Report on the World nutrition situation . Geneva ACC/SCN in collaboration with IFPRI 2000.
- Aniansson, G., Alm, H. and Anderson, B. (1994) A prospective cohort study on breastfeeding and otitis media in Swedish infants. *Pediatrics Disease Journal* 13: 183-188.
- Arenz, S., Ruckerl, R., Koletzko, B., von Kries, R. (2004) Breast feeding and childhood obesity: a systematic review. *International Journal of obesity* 28: 1247-1256
- Arun, G. (2000) report on how companies undermine breastfeeding through promotion of their products to boost profits and violate the infant milk substitutes. Feeding and Infant foods Act 1992 (IMS Act).
- Donnelly, A., Snowden, H. M., Renfrew, M.J., and Woolridge, M. W. (2000) Commercial hospital discharge packs for breastfeeding women. *Cochrane database system Review*, 2000, (2) CD002075.
- Food Advisory Committee (1991) Report on it’s review of food labeling and advertising, ministry of agriculture, fisheries and food, HMSO, London.
- Gillian M.W., Rifas-Shiman, S.L., Camargo, C.A., Rockett, H.R.H., Field, A.L., Colditz, G.A. Risk of overweight among adolescents who were breast fed as infants *JAMA* 285: 2461-2467.
- Green, L.C., Lucas, A., Livingstone, M.B.E., Harland, P.A., Baker, B.A. (1995) Relationship between diet and subsequent cognitive performance during adolescence. *Biochemistry and Social Transaction* 23: 376S.
- Homeier, M., Barbara,P., and Neil, K., (2005). Breastfeeding verses formula feeding. Washington, D.C. ILSI Press.
- Ighogboja, S., Odumodu, C.U. and Olarewaju, R.S. (1996) Breast feeding pattern in Jos Nigeria before baby – friendly hospital initiative. *Journal of Tropical pediatrics* 42 (3): 178-179.

- Judith, L., and Ann, S. (2005). *Counselling the nursing mother: A lactation consultants' guide*. 4th Edition, Jones and Barlett Publishing. London
- Lucas, A., Morley, R., Cole, T.J., Lesson-Payne, C. (1992) Breast milk and subsequent intelligence quotient in children born preterm. *Lancet* 339: 261-264.
- Onyechi, U.A. and Okafor, C.I. (2008). Exclusive breastfeeding practices of nursing mothers in Nsukka urban, Enugu state. *Journal of Home Economics Research*. 9: 192-199
- Pollack, J.I. (1994) Long-term associations with infant feeding in a clinically advantaged population of babies. *Developmental Medicine and Child Neurology*.36:429-440.
- Righard, L. (1998) Are breast feeding problems related to incorrect breast feeding technique and the use of pacifiers and bottles. *Birth* 25 (1): 40-44
- Scott-Emuakpor, M.M. and Okafor, U.A. (1986) Comparative study of morbidity and mortality of breastfed and bottlefed Nigerian infants. *The East African Medical Journal* 63: 452-457.
- Shryock, H., and Swartout, H.O. (1970) *Your health and you*, Vol 1. Pacific press Publishing Association. Great Britain
- Stanley, I.P., Mei, C., Gowri, R., Priscilla, C., Nombulelo, M., Deirdre, D.L., Thomas, T., and Joseph, L., (2007). Breastfeeding and maternal and infant health outcomes in developed countries. Tufts-New England Medical Center Evidence - Based Center. Tufts-NewEngland.
- Taylor A. (1998) Violations of the international code of marketing of breast of breast milk substitutes: Prevalence of four countries. *British Medical Journal* 316: 1117- 1122.
- UNICEF (1994) Programme, activities for improving weaning practices. Information for action. Issue papers USA. American Public Health Association.
- UNICEF (1995) Joint WHO/UNICEF meeting: On infant and young child feeding. Geneva. WHO.
- Veneman, A.M., (2007) Opening speech of the standing committee on Nutrition, (SCN) 34th Annual session symposium. Switzerland, Geneva.
- Wardlaw, G.M., Hampl, J.S., Disilvestro, R.A. (2004) *Perspective in nutrition*, 6th edition. The McGraw-Hill companies Inc.
- WHO (2008) *Promoting proper feeding for infant and young children*. Geneva WHO.
- WHO (1989) *Protecting and supporting breast feeding: A special role of maternity*. Geneva, Switzerland.
- WHO, (1981) *The International Code of Marketing of breast milk substitutes*. Geneva:WHO (1992) *The global criteria for the WHO/UNICEF baby friendly hospital initiative*. In *Baby Friendly Hospital Initiative part 11: Hospital level implementation*. Geneva: WHO/UNICEF.
- World Alliance for breast feeding (2007) *The remarkable first hour of life*. World breast feeding week. WHO.Geneva.