

Health and Nutrition Messages in the Baby Food Advertisements of Women's Magazines

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ABSTRACT

Content analysis of food advertisements was undertaken to investigate the nature of the messages related to health, nutrition or consumer-promotion in 2001 women's magazines. Advertisements on baby foods were collected from three women's magazines and the final samples obtained were 42 different copies of advertisements. All the messages in each sample were counted and calculated for their frequency (%). Messages were categorized into four areas (health, nutrition, non-nutrition, consumer promotion), and each area was classified into more detailed categories. Results showed that all the messages in 42 samples and average messages per advertisement were 1288 and 30.7, respectively. The most common type of promotional messages was health related (e.g., appeal to enhanced immune function and disease prevention and brain development), followed by consumer related, nutrition and non-nutrition messages in order. Messages about high quality and all natural ingredients were more emphasized in the consumer related category. Messages on fats (DHA, lecithin and arachidonic acid), proteins (nucleotides, taurine) and mineral (calcium, iron) were most frequently found in nutrition category. Amongst the three kinds of baby foods, formula ads had the most numerous messages related to health and nutrition. There were more consumer related messages in the ads of weaning foods, and more promotional messages about no addition of antiseptic, artificial additives, and food colors in the ads for older infant foods. Messages violating regulation (e.g., exaggerated or inaccurate or non-scientific messages) were frequently found in the advertisements of three kinds of baby foods. In conclusion, tighter supervision of food advertisements and nutrition education is required to protect the consumers from misleading advertisements. (*J Community Nutrition* 5(3) : 178~185, 2003)

KEY WORDS : content analysis · health & nutrition messages · baby food advertisement · women's magazine.

Introduction

Functionalities of advertisements are 1) to provide consumers with accurate information about products to help them to select necessary products of high quality and 2) to elicit consumer's purchase intent on the products with advertisements thereby improving the business of food companies (Barr 1989). Due to inherent properties of advertisement, food advertisements which appeared in women's magazines would have a huge impact on consumer's purchase intent and communication to consumers. Results

of a research showed that communication on nutrition information can be best delivered through ads in magazines than through TV or books (Racimer, Harvey 1995). Food ads reflect consumer's current areas of interest in foods and their preferred foods, and create new trends, therefore its impact on consumer's food selection is tremendous (Clancy et al. 1983). Accurate ads can be a good resource for consumer education on nutrition, however inaccurate or exaggerated ads can mislead consumers and contribute to consumers selecting inadequate foods (Clancy et al. 1983). Therefore, food ads should contain accurate information and ad sponsors should be held accountable for ads' contents.

In Korea, baby foods are considered as special nutritional foods and ads on baby foods are to be reviewed prior to their release. Current rate of feeding breast milk is among the lowest in the world (KNIH 1998 ; UNICEF 1999), partly due to exaggerated ads on baby foods including baby

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formulas (Kim et al. 2000). In the US, ads on alternatives to breast milk (baby formulas, etc) are rare in general women's magazines. They infrequently appear in specialized magazines for parents with babies. This is due to government's efforts to increase the rate of breast-feeding since the 1983 WHO resolution on International agreement on sales of alternative foods to breast milk. Many countries legislated the WHO resolution, and regulated and reviewed all the ads on alternatives to breast milk. In Korea, laws on production and sales of baby foods were legislated in 1985. In 1991, three manufacturers of baby formulas agreed to stop ads on baby formulas through mass communication channels. However, this agreement has not been upheld, rather ads on baby formulas and infant foods are becoming highly competitive (Kim et al. 2000). As a result, ads on baby formulas and infant foods frequently appear in general women's magazines as well as in magazines for mothers with babies. Therefore, 'Citizen's meeting to study consumer issues' several times campaigned no purchase against the baby formula companies with exaggerated ads or excessive sales promotions. Thanks to these efforts by citizen's organizations, the Korean government inserted phrases inhibiting ads on baby formulas in the legislation on process of dairy products, and revised rules on food hygiene in July 2001, which banned ads on infant foods with same or similar names as baby formula.

This study was conducted to analyze contents of ads on baby formulas and baby foods which appeared in three major magazines (Women's Joongang, Housewives' Life and Best Baby), to assess nutrition information and its nature and to learn consumer's preference and their interest areas reflected in the ads. Several researches on the analyses of contents of food ads were reported (Barr 1989 ; Choi et al. 1997 ; Hickman et al. 1993 ; Hill and Padimer 1996 ; Kim 1996 ; Pratt 1995), but research reports on ad contents on baby formulas and infant foods has been rare. Therefore, the results from this research are hopefully to be used as a reference for nutrition education for consumers.

Methods

1. Sample

Amongst 2001 Women's magazines, Women's Joongang, Housewives' Life and Best Baby were arbitrarily selected

based on their high distribution rate. Total sample numbers of different food ads in various magazines were 42.

2. Content analysis

Methods of analyses on ad contents were based on previous researches (Barr 1989 ; Hickman et al. 1993 ; Hill and Radimer 1996 ; Pratt and Pratt 1995). Ads were categorized into four areas (health, nutrition, non-nutrition, consumer promotion). Each area was subdivided into several groups. Frequency of each group was categorized into several areas of message. Frequency of messages in ads related to each area was measured, which was determined by three professionals who have degree of M.S. or Ph.D. in Food & Nutrition. Each message was first determined by one professional and later confirmed by the other two professionals after discussion.

3. Statistics

Frequency of each message area in each ad calculated from 42 samples of advertisements. Therefore, depending on message contents in each ad, total N in each areas can be different (Tables 1-6). Statistics used in the analysis of information was based on frequency and percent (%).

Results and Discussion

Detailed contents related to health, nutrition, non-nutrition, and consumer promotion in 42 advertisements are as follows :

1. Health related messages

Each advertisement was examined for its frequency of 5 areas within the health related messages (Table 1). The results showed that the total health related messages were 455, among which the most frequent messages were about health and prevention of disease (29.7%) followed by nutritional supplements (26.6%) and brain development (19.5%). Within health and prevention of disease, 14 different kinds of messages were found, and total frequency of messages were 135. Among the 135, thirty six immunity related messages were found (26.8%) followed by general health and disease prevention (26 messages, 19.2%). In the messages related to brain development, expression of 'brain development' was most frequent (88.8%) and other expressions like 'nerve development', and 'smart' were also found.

Table 1. Health related messages N(%)

Class	Detailed contents	Total N(%)
Health/ disease prevention	Immunity 36(26.8), healthy 26(19.2), prevent diarrhea or constipation 26(19.2), healthy bowel 13(9.6), inhibit the harmful bacterial action 10(7.4), prevent nutritional anemia 6(4.4), good for eyesight 4(3.0) improve physical constitution 4(3.0), disease prevention 2(1.5), good for lactose intolerance 2(1.5), allergy prevention 2(1.5), protect from the environmental hormone or infectious disease 2(1.5), prevent tooth decay 1(0.7), anti-bacterial function 1(0.7)	135(29.7)
Nutrition supplement/ balance	Nutrition, nutritional supplement 74(61.2), nutritional balance 47(38.8)	121(26.6)
Brain development	Brain development 79(88.8), intelligent, smart 4(4.5), nerve development 6(6.7)	89(19.5)
Physical development/ growth	Growth, physical growth 40(74.1), bone, muscle development 14(25.9)	54(11.9)
Digestion/ absorption	Digest, absorb well 56(100.0)	56(12.3)
Total		455(100.0)

Table 2. Nutrition-related messages N(%)

Nutrients	Detailed contents	Total N(%)
Carbohydrates	Sugar 8(22.8), galacto-oligo saccharide 6(17.1), gangliosides 5(14.3), soy oligosaccharides 3(8.5), lactose 3(8.5), dietary fiber 2(5.6), galactosyl lactose 1(2.9), dextrin 1(2.9), raffinose 1(2.9), malto-dextrin 1(2.9), cyclally oligosaccharides 1(2.9), sucrose 1(2.9), α -grain powder 1(2.9), fructo-oligosaccharides 1(2.9)	35(12.4)
Proteins	Nucleotides 16(25.4), taurine 16(25.4), protein 15(23.8), milk whey protein 6(9.5), α -lactalbumin 4(6.3), L-arginine 2(3.2), breast milk protein 1(1.6), isolated soy protein 1(1.6), L-cystine 1(1.6), colostrum protein 1(1.6)	63(22.4)
Lipids	DHA 47(49.0), lecithin 8(8.3), arachidonic acid 7(7.3), sphingomyelin 6(6.3), phosphatidylserine 6(6.3), γ -linolenic acid 6(6.3), α linolenic acid 4(4.2), alcoxylglycerol 2(2.1), palm oil 2(2.1), coconut, soybean, corn oil 2(2.1), linoleic acid 1(1.0), milk fat 1(1.0), unsaturated fatty acid 1(1.0), fat 1(1.0), fatty acid 1(1.0), essential fatty acid 1(1.0)	96(34.0)
Vitamins	Vitamin 12(27.9), phosphatidyl choline 8(18.6), choline 8(18.6), β -carotene 5(11.6), vitamin A 2(4.7), vitamin C 2(4.7), vitamin K 2(4.7), folic acid 1(2.3), vitamin B ₁ 1(2.3), vitamin B ₂ 1(2.3), vitamin D 1(2.3)	43(15.2)
Minerals	Calcium 25(55.6), iron 9(20.0), mineral 8(17.8), iodine 1(2.2), potassium 1(2.2), zink 1(2.2)	45(16.0)
Total		282(100.0)

2. Nutrition messages

Amongst messages related to nutrition (Table 2), messages related to fats were most frequent (34.5%) followed by proteins (22.4%), minerals (16.0%), and vitamins (15.2%). As nutritional food additives, 16 different fats, 15 different proteins, and 11 types of vitamins were used. For fats, DHA was most frequently used (49.0%) followed by lecithin (8.3%) and arachidonic acid (7.3%). For proteins, nucleotides and taurine, 25.4% each were most frequently used followed by proteins (23.8%) and whey protein (9.5%). For carbohydrates, sugar was most frequently used (22.8%) followed by galactooligosaccharide (17.1%) and gangliosides (14.3%). For vitamins, vitamins were the most frequent (27.9%) followed by phosphatidyl choline and choline, 18.6% each and for minerals, calcium (55.6%) and iron (20.0%) were added frequently. DHA is one of the food additives, whose usages had rapidly grown since 1994 in Korea. DHA, a highly unsaturated omega-3 fatty acid, is a

component of nerve cells, however its role on improving IQ when taken as a food additive has not been proved. However, today there are many misleading (exaggerated) advertisements on DHA suggesting IQ improvement while taking baby formulas or infant foods containing DHA. These days, food companies tend to introduce new products based on supposedly latest research findings, but many of these findings are not supported by professional communities (Kim 1996). Therefore, more opportunities of nutrition education should become available to consumers so that they can figure out misleading information in the ads.

3. Non-nutrition messages

Ingredients other than nutrients, phrases like a special ingredient is added, not added, or removed are frequent (Table 3). Amongst added components, there were four immune components. Lactoferrin (50.0%) and immunoglobulin (21.4%) were found most often. Other ingredients

added to foods for infants and toddlers were 27 types. Bifidus was most frequent additive (23.9%) followed by lactic acid bacteria (21.0%), and colostrum (18.2%). Phrases of functional ingredient such as anti-disease ingredient, ingredient to enhance metabolism, ingredient to improve brain function and brain development, ingredient to activate body function and a component of breast milk, are vague and can mislead consumers. There are other messages involving specific ingredients like CPP, CGF, IGF, and TGF-beta, which consumers cannot understand. No preservative was most frequent (24.2%) in the no additives area followed by no artificial ingredient (18.3%), no colorant (15.1%), and no fertilizer (15.1%), no antibiotics (9.1%), and no hormone

(9.1%). For removed ingredients, frequency of expression like 'removal of allergy causing ingredient' was found 7.

4. Consumer related messages

Consumer promotional messages were grouped into 9 areas (Table 4). Message related to quality of the product was most frequent (34.6%) followed by organic ingredients and freshness (26.9%). Among phrases emphasizing quality, '100%' was most frequent and followed by 'only in our product', 'proven by clinical study', and 'can trust'. Amongst phrases on no pollution or freshness, 'organic' was most frequent (47) followed by 'natural, nature' (17), and 'fresh' (13). For expression on taste (texture), 'mild and smooth taste' was most frequent followed by 'taste

Table 3. Non-nutritional messages

			N(%)
		Detailed contents	Total N(%)
Addition	immune components	Lactoferrin 14 (50.0), immunoglobulin 6 (21.4), lysozyme 5 (17.9), immune component 3 (10.7)	28 (21.2)
	Other components	Bifidus 25 (23.9), lactic acid bacteria 22 (21.0), colostrum 19 (18.2), enzyme 6 (5.7), phosphatidyl-ethanolamine 4 (3.8), breast milk constituent 3 (2.8), functional component 2 (1.9), brain developing constituent 2 (1.9), CPP 2 (1.9), C.G.F 2 (1.9), infection protecting factor 1 (1.0), metabolism activating factor 1 (1.0), banana powder 1 (1.0), improving factor for bowel function 1 (1.0), cow's bone · soybean curd 1 (1.0), body activating factor 1 (1.0), seaflower seed 1 (1.0), yeast 1 (1.0), IGF 1 (1.0), L-carnithine 1 (1.0), yogurt · fruit 1 (1.0), inositol 1 (1.0), abalone, black soybean 1 (1.0), TGF- β 1 (1.0), concentrated milk whey powder 1 (1.0), activating, promoting factor 1 (1.0), 4 way brain activating factor 1 (1.0)	104 (78.8)
Total			132 (100.0)
No addition	No addition	Antiseptic 8 (24.2), artificial additives 6 (18.3), food colors 5 (15.1), agricultural chemicals 5 (15.1), antibiotics 3 (9.1), hormone 3 (9.1), sweetener 2 (6.1), artificial flavor 1 (3.0)	33 (100.0)
	Removing	Allergy inducing food 7 (100.0)	7 (100.0)

Table 4. Consumer related messages

		Detailed messages (frequency)	Total N(%)	Against regulation
Taste (texture)	Soft 15, delicious 10, flavor 9, mild taste 1, feeling 1, color 1		37 (9.8)	0 (0.0)
Chemical free, fresh ingredients	Organic 47, natural* 17, fresh 13, clean 9, life-like 9, clear 3, pure 2, no harm 2		102 (26.9)	17 (20.7)
High quality	100% 33 only* 15, proved by clinical experiment verified* 15, authentic 15, special technology * 10, quality inspection 8, careful selection 8, quality 6, special* 6, high grade 4 best* 2, absolute* 2 special license 2, high price costliness 2, quality management 2, minute 1		131 (34.6)	50 (61.0)
Convenient	Convenient 6		6 (1.6)	0 (0.0)
Traditional	Original* 12, traditional 7, orthodox 1		20 (2.1)	12 (14.6)
New, different	Different 13, new 8		21 (8.7)	0 (0.0)
Diverse	Diverse 16 most numerous* 1		17 (4.5)	1 (1.2)
Scientific	Scientific 8 standardize 2		10 (2.6)	0 (0.0)
Other	Safe 8, citing from references 4, change 4, world wide enterprise 2, persistence 2, citing from an authority* 2, choice next to breastmilk 1, similar to breastmilk · breastmilk-like 9, breastmilk is best 1, covetous 1, serve steadily 1		35 (9.2)	2 (2.4)
Total			379 (100.0)	82 (100.0)

* : Messages against regulation

good', and 'good flavor'. Amongst consumer promotional messages, phrases which violated regulation on food labeling (based on review board on advertisement on health aid foods and special nutritional foods) were frequently found (21.6%, 82 out of 379 messages) (Table 5). As shown in Table 4, the most frequent labeling violation was 'natural or nature' (17 times) followed by 'only present in our product', 'proven by clinical study or proven' (15 time each), 'special process', 'special', 'highest quality', and 'absolute value'. Consumers should be careful about these messages that can mislead them in selecting proper products. Stricter surveillance on advertisement with violation of labeling requirements is needed. Kim's study (1996) on food advertisements appeared on TV revealed many exaggerated, misleading, and erroneous ads in Korea.

5. Characteristics of messages according to the kinds of baby foods

Amongst 42 samples of advertisements, number of ads on baby formula, weaning foods, and infant foods were 13, 12, and 17, respectively. Products targeted toward up to 6 month old babies were grouped as baby formula, products for 6–12 month old babies as weaning foods, and products for older babies as infant foods. Currently ads for baby formulas are not allowed under the regulation on dairy food products and processes (refer to revised practice rule of food hygiene law). However, 13 ads on baby formulas were found. Total number with messages focused on certain areas in the ads was 1228, among which highest numbers were found in ads for baby formulas (512 cases, 38.9%) followed by weaning foods (32.8%) and infant foods (28.3%) (Table 5). Among the four areas, health improvement was most frequent (35.3%) followed by product promotion (29.4%). Focus on nutrition was 21.9% while focus on non-nutrition was 13.4% suggesting ads are concentrated on nutritional ingredients.

Areas of focus in ads for baby foods were further analyzed. For baby formulas, health improvement was most frequent (41.3%) followed by nutrition (28.3%) and consumer promotion (18.0%). In consumer promotional ads, phrases violating labeling regulation were more frequent in the ads for baby formulas ads than infant foods. Amongst 422 focused phrases in ads for weaning foods, messages for consumer promotion were most frequent (44.1%) and 40 cases of violating labeling regulation were found out of total 82 cases. Frequency on health focus was 28.0%. Messages related to health were most frequent in infant food ads (35.6%), followed by consumer promotion (28.2%) which showed variation of focused areas in ads depending on the kinds of baby foods.

More detailed analysis on health related messages in baby foods, was conducted (Table 6). Messages related to health were focused on health and disease prevention. Amongst the total 135 messages, most appeared in ads for infant foods (38.5%). Next, messages related to nutritional supplements and nutritional balance were analyzed (Table 6). The messages were most found in baby formula ads (45.4%). Messages related to brain development were mostly found in baby formula ads as well (59.5%). Further research is required to evaluate the accuracy of baby formula ads with 'help to develop brain' and consumer's trust in such messages. According to a January 2003 survey of weaning status and trust on ads of weaning foods which was conducted with mothers of less than two year old infants in Chungju city, about 60% of mothers purchased baby foods and 66.1% of them were influenced by ads when making purchases. In addition, most of mothers considered all the contents of 14 ads messages were overall believable (Kim et al. 2003). In Korea the breast feeding rate is at the lowest rate. Therefore, more strict surveillance on food advertisement is required so that exaggerated ads

Table 5. Message characteristics according to the kinds of baby foods

	Total N(42)	Formula(13*)	Weaningfood(12)	Infant food(17)	Total N(%)
Health claims		207(41.3)	118(28.0)	130(35.6)	455(35.3)
Nutrition claims		142(28.3)	51(12.0)	89(24.4)	282(21.9)
Non-nutrition claims		62(12.4)	67(15.9)	43(11.8)	172(13.4)
Consumer-related	Total**	90(18.0)	186(44.1)	103(28.2)	379(29.4)
	Against regulation	24(26.7)	40(21.5)	18(17.5)	82(21.6)
Total		501(38.9)	422(32.8)	365(28.3)	1288(100.0)
Average messages		38.5	35.2	21.5	30.7

* : Number of advertisements, ** : Total includes the messages against regulation

Table 6. Detailed messages in baby foods

Area		Classification	Formula(13*)	Weaning food(12)	Infant food(17)	Total N(%)
Health related		health, disease prevention	46(34.1)	37(27.4)	52(38.5)	135(29.6)
		nutritional balance, supplement	55(45.4)	40(33.1)	26(21.5)	121(26.5)
		brain development	53(59.5)	12(13.5)	24(27.0)	89(19.5)
		physical growth	24(44.5)	6(11.0)	24(44.5)	54(12.0)
		digest, absorb well	29(51.8)	23(41.1)	4(7.1)	56(12.4)
		sub total	207(45.5)	118(26.7)	130(28.8)	455(100.0)
Nutrition-related		carbohydrates	22(62.8)	5(14.3)	8(22.9)	35(12.4)
		proteins	45(71.4)	10(15.9)	8(12.7)	63(22.4)
		fats	43(44.8)	20(20.8)	33(34.4)	96(34.0)
		vitamins	18(41.9)	10(23.2)	15(34.9)	43(15.2)
		minerals	14(31.1)	6(13.3)	25(55.6)	45(16.0)
		sub total	142(50.4)	51(18.1)	89(31.5)	282(100.0)
Non-nutrition-related	Addition	immune constituents	15(53.5)	12(42.9)	1(3.6)	28(21.2)
		other	36(34.6)	41(39.4)	27(26.0)	104(78.8)
		sub total	51(38.6)	53(40.2)	28(21.2)	132(100.0)
	No addition	no addition	8(24.2)	10(30.3)	15(45.5)	33(100.0)
		removed	3(42.9)	4(57.1)	0(0.0)	7(100.0)
		sub total	62(36.0)	67(39.0)	43(25.0)	172(100.0)
Consumer-related		taste (texture)	1(2.7)	13(35.1)	23(62.3)	37(9.8)
		ingredient(chemical free, fresh)	8(7.8)	59(57.8)	35(34.4)	102(26.9)
		high quality	39(29.8)	59(45.0)	33(25.2)	131(34.6)
		convenient	0(0.0)	4(66.7)	2(33.3)	6(1.6)
		tradition, original	10(50.0)	10(50.0)	0(0.0)	20(5.3)
		new, different	9(42.8)	10(47.7)	2(9.5)	21(5.5)
		diverse	1(5.9)	12(70.6)	4(23.5)	17(4.5)
		scientific	4(40.0)	5(50.0)	1(10.0)	10(2.6)
		other	18(51.4)	14(40.0)	3(8.6)	35(9.2)
		sub total	90(23.7)	186(49.1)	103(27.2)	379(100.0)

* : Numbers of advertisement

without sufficient support would not mislead consumers. In the areas of messages focused on nutritional components, frequency of adding 4 major nutrients except minerals was higher in baby formulas(carbohydrates 62.8%, proteins 71.4%, fats 44.8%, and vitamins 41.9%) than in other baby foods(Table 6). Minerals were most frequently added to infant foods(55.6%). Nutritional information on added nutrients was mostly found in baby formula ads. For non-nutritional ingredients, immuno-components were added most often to baby formulas(53.5%). Other ingredients such as bifidus, lactic acid bacteria, and other biologically active ingredients were most found in weaning food ads (39.4%). In infant food ads, phrases like 'no addition' indicating no preservatives, no artificial ingredient, and organically grown were most frequent(45.5%). Messages on removal of allergy causing ingredients were found in baby

formula ads(3 cases) and weaning food ads(4 cases). Messages related to consumer promotion were most frequently found in weaning food ads(186 out of 379 cases, 29.1%). Messages related to quality of product and no pollution or fresh ingredient, were also most frequently found in weaning food ads(45.0% and 57.8%, respectively). Messages stressing good taste were found mostly in infant foods (62.3%).

Different focus in messages was found in advertisement of different baby foods. Messages violating labeling regulation were found in ads for all baby foods. Therefore consumer education on nutrition is needed for consumers not to be victimized by exaggerated ads when purchasing products. At the same time, review of ads prior to their release and constant surveillance on food advertisements should be practiced.

Summary and Conclusion

Food ads reflect consumer's current concern and food preferences, and create new trends, therefore its impact on consumer's food selection is tremendous. Accurate ads can be a good resource for consumer education on nutrition, however inaccurate or exaggerated ads can mislead consumers and contribute to consumers selecting improper foods. Therefore, food ads should contain accurate information and ad sponsors should be held accountable for ad's contents. In Korea, baby foods are classified as special nutritional foods and ads on baby foods are to be reviewed prior to release. Current rate of breastfeeding is among the lowest in the world (KNIH 1998 ; UNICEF 1999), partly due to exaggerated ads on baby foods including baby formulas.

This study was conducted to analyze the contents of messages in ads for baby foods and to evaluate nutrition information and its focus. In addition, exaggerated messages with violation of labeling regulation were evaluated. Three women's magazines published in 2001 (Women's Joongang, Housewives' Life and Best Baby) were selected for the study. The total 42 samples of different copies of advertisements were collected.

Results are as follows :

1) Total number of messages in 42 sample ads was 1,228 indicating an average of 30.7 messages per ad. The most frequently used message was related to health (35.3%) followed by consumer promotion (29.4%), nutrition (21.9%), and non-nutrition (13.4%).

2) Amongst health related messages, messages on health and disease prevention was most frequent (29.7%). Phrases like 'immune', 'health and disease prevention', and 'brain development' were most often found.

3) Amongst nutrition related messages, messages on fats were most frequent followed by proteins, minerals, and vitamins. For fats, DHA, lecithin, arachidonic acid were frequent in order. For proteins, nucleotides and taurine, for carbohydrates, sugars, for minerals, calcium and iron, and for vitamins, vitamin phosphatidyl choline and choline in order were found.

4) Amongst non-nutritional ingredients, for immunocomponents, lactoferrin and immunoglobulin and for other ingredients, bifidus and lactic acid bacteria, and colostrum

in order were found frequently. For no additive messages, preservatives, artificial ingredients, fertilizers, colorants were found most often in order. For removed ingredient claims, 'allergy causing ingredient' was used frequently.

5) Amongst messages related to consumer promotion, 'product quality' was frequently used followed by 'quality ingredients', and 'good taste'. Eighty two out of 359 consumer promotion messages (21.6%) violated labeling regulation ; most frequent messages were 'natural, nature'.

6) In ads for baby foods, number of messages per ad were 38.5 for baby formulas, 35.2 for weaning foods, and 21.5 for infant foods. In baby formula ads, messages were focused on health. Information on nutrition was also more frequent than in other infant food ads. In ads for weaning foods, messages on consumer promotion were most frequent as well as the messages with violation of food labeling. In ads for infant foods, messages on health were frequent and minerals were most often used as nutritional additives.

In conclusion, a different focus in messages was found in advertisements for different baby foods. Messages violating labeling regulation were found in ads for all baby foods. Although advertising on baby formulas is banned in Korea, certain focused messages, information on nutritional added components, and the messages violating labeling regulation were found most frequent in baby formula ads. In order to promote breastfeeding in Korea, ads on baby formulas should be entirely banned. Review of ads prior to their release and constant surveillance on food advertisements should be practiced. And opportunities for nutrition education should be extended to consumers not to be victimized by exaggerated ads when purchasing products.

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