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A Report of Nutritional Survey on Wonseong County*

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=國文抄錄=

原城郡民에 對한 營養調査 報告*

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江原道 原城郡 綜合營養 示範事業의 營養評價의 一環으로 해당 營養示範事業施行前의 基礎資料 수집을 爲한 豫備調査로서 施行한 것이다.

調査施行期間은 1976年 7月 中旬에 8日間에 걸쳐 2名의 醫師를 包含한 16名으로 構成된 調査陣으로서 4個里에서 40個 世帶(各里에서 10個 世帶)를 無作爲任意選定하여 한 世帶에 對하여 連 3日間 調査하고 調査期間中 食品攝取狀態調査와 아울러 身體計測 臨床調査 및 血液採取를 하여 營養攝取狀態, 身體發育狀態, 臨床症狀 및 血色素量을 測定하여 評價하였다. 特히 學齡前期兒童의 營養狀態에 重點을 두었다.

調査結果를 要約하면 다음과 같다.

1. 一般的으로 熱量攝取量이 不足하다.
2. 攝取食品의 大部分이 植物性食品이고 良質의 蛋白質이 不足되어 있다.
3. 비타민 A와 B_2 그리고 칼슘 攝取量도 不足하다.
4. 對象住民의 全體的인 臨床檢査로 뚜렷한 營養失調나 缺乏症狀은 稀有하나 兒童에서는 비타민 B_2 不足性 症狀이 많다.
5. 兒童의 體位는 大體로 全國 平均値에 未及하다.
6. 可妊婦의 75%와 兒童의 23.7%에서 血色素値가 貧血에 屬하고 있다.
7. 特別한 離乳食이 全無한 實情이고 妊娠婦나 授乳婦를 爲한 補充食도 따로 없다.

FORWARD

In recent, the nutritional problems of children in growing stage are presented as a main issue of concern in home and abroad. Futhermore, the projects of nutritional administration for the weaning, preschool children and all baby bearing women (pregnants and nursing mother, especially) are attached important to the health of nation. Such concerns are related to nutritional state in early stage of children which are effected continuously to adult's health.

In such a viewpoint, the comprehensive nutritional project progressing by joint operation of the Meals for Millions Foundation and the Wonseong Country is very precious.

This report is a preliminary survey results before feeding of experimental diet planned on the principal nutrition project to the Wonseong Country's inhabitant.

This results from first year contain the data of food and other related life condition of Wonseong Country's inhabitant which will be help successfully the principal project to be started from next year (1978).

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* 本 調査는 原城郡과 Meals for Millions Foundation의 財政的支援에 依함

PART I. THE STATUS OF FOOD INTAKE SURVEY

I. Objectives

This survey was carried out to obtain some informations necessary for the successful operation of the principal project of nutritional assessment for the country to be started from 2nd year and for the development of a Low-cost High Nutrition Food.

II. Method of the Survey

1. Organization system

Manager	1
Assistant manager	1
Assistant	2
Surveyer	10
M.D.	2
Total	16

2. Survey area and period

The survey areas were selected 4 places (Ri) by the random sampling method from Wonseong Country, Gang-Won Province as follows.

1) Ganheon 1 Ri and Botong Ri in Jijung Myon

2) Shinlim 2 Ri and Youngarm 2 Ri in Shinlim Myon

This survey was conducted for 3 consecutive days during July 8 to 14, 1976.

3. Selection of household and children subjected

The total of 40 households living the preschool children (1~4 years old) and baby bearing women were selected by the random (10 households from each Ri). Food intakes of all family and children ageing from 1 to 4 years old (total 38 hildren) in each household selected wereme asured by weighing method using food ablance.

Table 1 and 2 were show the list of number of family and children selected to subjects.

4. Procedures

Each surveyer was respensible for 2 households to measure the food amounts used for the each family by use of food balance and each one recorded on the questionnaires the informations obtained from a housewife by the interview. Food intake were estimated separately about all family and the children in same household subjected.

5. Treatment of survey data

Food intakes and each nutrient of all family were calculated per person per day by the total number of meal time and subject which were recorded in questionnaires Furthermore, each nutrient intake per person per day was calculated to each nutrient intake per adult per day by the conversion rate on adult which were induced to the exchange value on adult with sex, age, work condition, pregnant and loctation.

The nutrient intake per child per day was calculated separatly by age, and analytical value of each nutrient in the foodintake was referenced the Korean Food Table (2.3)

Table 1. Age and Sex distribution of subjects

Ages \ Sex	Male	Female	Total
0~0.5	4	3	7
0.5~1.0	6	2	8
1~3	22	12	34
4~6	11	22	33
7~9	18	19	37
10~12	8	10	18
13~15	3	9	12
16~19	2	2	4
20~49	45	50	95
50~65	8	10	18
66	5	6	11
Total	132	145	277

Pregnant: 3 Nursing mother: 25

Table 2. Ages and sex distribution of subjected children

Ages \ Sex	Boy	Girl	Total
1	6	2	8
2	8	5	13
3	5	7	12
4	3	2	5
Total	22	16	38

Ⅲ. Major Findings

A. Adult

1. The status of food intake

The status of food intake per person per day are as Table 3. Average total food intake each person per day was 1009 g. Among this total food intake, the rates of intake from cereals and potatoes were 44 %(445 g) and 25%(248 g) respectively, and they occupied 69% in total intake and it from regumes was much low, only 1.6%(16 g).

The rate of animal food intake was only 2.0%(20 g) in total intake, therefore the status of food intake was the pattern of the almost vegetable food intake.

In whole household subjected, there were no special or supplemental food for pregnants and nursing mother, so they took only the same food as other family.

2. The status of each nutrient intake

The status of each nutrient intake per person and per adult per day are as Table 3 and 4.

1) Calory

Average calory intake per person per ay was 1892 kcal, and it of an adult per day (2287 kcal) was lower about 15% than than 2700 Kcal of Korean Recommended Dietary Allowances (RDA). Among this total intake, the rates of intake from careals and potatoes were 79.2% (1811 Kcal) and 9.5% (216 Kcal), respectively, and they occupied 88.7% in total calory intake.

The calory total intake of pregnant and nursing mother (2118 Kcal) were 8~15% lower than those of RDA.

2) Protein

Average protein intake per person per day was 60.1 g, and it of an adult per day (73.7 g) was

Table 3. Average nutrients intake (per person per day) (Adult)

Foods groups \ Nutrients	Weight	Calory (Kcal)	Protein (g)	Fat (g)	CHO (g)	Minerals			Vitamins				
						Ca (mg)	P (mg)	Fe (mg)	A (I.U)	B_1 (mg)	m_2 (mg)	C (mg)	Niacin (mg)
Vegetables	(918)												
Cereal an dGrain products	445	1,498	37.2	5.1	326.4	140.9	928.6	7.1	2.3	0.9	0.4	0	14.3
Legumes and its products	16	38	2.5	0.1	5.1	14.2	39.6	0.7	8.6	0.1	0.0	0.7	0.9
Potatoes	248	179	6.0	1.2	35.8	12.4	104.3	1.4	0	0.4	0.1	36.0	1.2
Vegetables 1) fresh	163	51	3.0	0.7	11.9	73.5	70.8	4.5	1906.7	0.1	0.2	35.2	0.9
2) manufacturing	60	14	1.2	0.4	1.0	24.6	3.9	0.2	320.5	0.0	0.0	7.0	1.3
Fruits	9	3	0.1	0.0	0.5	1.4	0.7	0.0	11.7	0.0	0.0	0.7	0.0
Seaweeds	3	1	0.1	0.0	0.1	15.2	4.0	0.2	44.2	0	0.0	0.0	0.1
Seasonings and others	37	54	4.7	1.5	5.4	43.2	33.7	3.0	149.7	0.1	0.1	4.0	0.4
Sub total		1,838	54.8	9.7	386.2	325.4	1185.6	17.1	2443.7	1.6	0.8	83.6	19.1
Animals	(20)												
Meat	2	2	0.4	0.2	0	0.1	5.8	0	0.3	0	0.0	0	1.0
Egges	1	1	0.1	0.1		0.6	2.2	0.0	5.6	0	0.0	0	0
Fish and shellfish 1) fresh	10	9	1.8	0.4	0.0	15.6	21.1	0.3	0.3	0	0.0	0	0.4
2) salted or dried	5	16	2.7	0.5	0.4	26.4	58.3	0.3	0.7	0	0.0	0	0.5
Milk and Milk products	2	1	0.1	0.1	0.1	2.8	2.6	0	0.3	0	0.0	0	0
Sub total		29	5.1	1.2	0.5	45.5	90.0	0.6	7.2	0	0	0	1.9
Oil and fats	2	19	0	2.2									
Others	6	6	0.2	0.1	1.3	0.1	0.2	0.0		0	0	0	0
Total	1,009	1,892	60.13	13.2	388.0	371	1275.8	17.7	2450.9	1.6	0.8	83.6	21.0

Table 4. Average nutrients intake (per adult per day) (Adult)

Nutrients / Food groups	Calory (Kcal)	Protein (g)	Fat (g)	Minerals		Vitamins				
				Ca (mg)	Fe (mg)	A (I.U)	B_1 (mg)	B_2 (mg)	C (mg)	Niocin (mg)
Vegetables										
Careals and Grain products	1,811	45.6	6.2	113.1	5.6	2.2	1.2	0.5	0	18.2
Legumes and its products	46	3.1	1.0	11.4	0.5	8.4	0.1	0.0	0.9	1.1
Potatoes	216	7.3	1.5	10.0	1.1	0	0.5	0.1	41.7	1.6
Vegetables 1) fresh	62	3.7	0.8	59.0	3.5	1868.2	0.2	0.3	40.8	1.2
2) manufacturing	17	1.5	0.3	19.7	0.2	314.0	0	0.1	8.1	1.6
Fruits	3	0.1	0	1.1	0.0	11.4	0.0	0.0	0.8	0.0
Sea weeds	1	0.1	0	12.2	0.1	43.3	0.0	0.0	0.0	0.1
Seasonngis and others	65	5.8	1.9	34.7	2.4	146.7	0.1	0.1	4.7	0.5
(Sub total)	(221)	(67.2)	(11.7)	(261.2)	(13.4)	(2394.2)	(2.1)	(1.1)	(97.0)	(24.3
Animals										
Meat	3	0.5	0.1	0.1	0.0	0.3	0.0	0.0	0	1.2
Eggs	2	0.1	0.1	0.4	0.0	5.4	0.0	0.0	0	0.0
Fish and shellfish										
1) fresh	11	2.2	0.5	12.5	0.2	0.3	0.0	0.0	0	0.5
2) salted or dried	19	3.3	0.6	21.2	0.2	0.7	0.0	0.0	0	0.6
Milk and Milk products	1	0.1	0.1	2.3	0.0	0.3	0.0	0.0	0.0	0.0
(Sub total)	(36.0)	(6.2)	(1.4)	(36.5)	(0.4)	(7.0)	(0)	(0)	(0)	(2.3)
Oil and Fats	23	0	2.6							
Others	7	0.3	0.1	0.1	0.0		0.0	0.0	0.0	0.0
Total	2,287	73.7	15.8	297.8	13.8	2401.2	2.1	1.1	97.0	26.6
R.D.A	2,700	80.0		500	10	6000	1.4	1.6	60	18

lower than 80 g of RDA. Among this total intake, therates of intake from cereals and potatioes were 62%(45.6 g) and 9.9%(7.3 g), and from regumes was 4.2%(3.1 g). Otherwise, the rates of intake from animal food in total intake was much lower, only 8.4%(6.2 g).

The protein intake of pregnant and nursing mother were much lower 24~26% than those of RDA.

3) Fat

Average fat intake per person per day was 13.2 g, and it of an adult per day (15.8 g) was much low because it was only 5.3% of the recommended calory allowance and 6.4% of calory total intake. Among this total intake, the intake from cereals, regumes and potatoes were 6.2 g, 1.0g and 1.5 g, respectively, so they occupied about 55% in total fat intake. Otherwise, the rates of intake from animal food and fat or oil were only about 8.9%(1.4 g) and 16.5% (2.6 g).

4) Calcium

Average calcium intake per adult per day (297.8 mg) was much lower than the 600 mg of RDA, and it was supplied with the 261.2 mg of vegetable and 36.5 mg of animal food. Therefore, calcium intake was mainly supplied with vegetable food (88.7%).

5) Iron

Average iron intake per adult per day (13.8 mg) was some higher than the 10 mg of RDA, and it was mainly supplied with vegetable food (13.4 mg). Therefore, it occupied about 97% in total intake.

6) Vitamin A

Average vitamin A intake per adult per day as β-carotene form (2401 I. U.) was much lower than the 6,000 I.U. of RDA and it was mainly supplied

with the fresh vegetable (2394 I.U.). Therefore, it was about 99.7% in total intake.

7) Vitamin B_1

Average vitamin B_1 intake per adult per day (2.1 mg) was higher than the 1.4 mg of RDA and it was supplied fully from the vegetable food.

8) Vitamin B_2

Average vitamin B_2 intake per adult per day (1.1 mg) was lower than the 1.6 mg of RDA and it was supplied fully from the vegetable food, especially, that of cereals took about 45% (0.5 mg) in total intake.

9) Vitamin C

Average vitamin C intake per adult per day (97. mg) was much higher than the 60 mg of RDA and it was supplied with the 41.7 mg of potatoes and 48.9mg of vegetables, and they took about 43. 0% and 50.4% in total intake, respectively.

10) Niacin

Average niacin intake per adult per day (26.6 mg) was much higher than the 18 mg of RDA and it was mainly supplied with the cereals (18.2 mg), and it took about 68.4% intotal intake.

B. Children

1. The status of food intake

The status of food intake per child per day in each age are as Table 5.

Total food intake per child per day of the aged 1, 2, 3 and 4 were 226 g, 428 g, 549 g and 724 g, respectively, and average total food intake in whole subjects was 462 g. Among this average total intake, the rates of intake. from cereals and potatoes were 41% (191 g) and 22% (100 g), respectively and they took 63% in total intake and it from regumes was much low, only 1.7% (8 g).

The rate of animal food intake was very low, only

Table 5. Average food intake, (g/day) (children)

Food group \ Ages	1	2	3	4	Mean
Vegetables	(196)	(412)	(516)	(680)	(435)
1. Cereals and Grain Products	(110)	(175)	(226)	(292)	(191)
1) Rice	69	81	116	157	102
2) Barley	17	46	78	62	53
3) What flour	15	36	30	66	35
4) Corn	—	12	1	7	1
5) Sorghum	—	—	1	—	—
2. Legumes and its products	5	8	7	12	8
3. Potatoes	47	136	78	144	100
4. Vegetables 1) fresh	28	56	86	81	63
2) manufacturing	—	12	9	23	10
5. Fruits	7	8	93	95	46
6. Sea Weeds	1	—	1	7	1
7. Seasonings and others	7	17	16	26	16
Animals	(25)	(4)	(24)	(17)	(16)
8. Meat	—	—	4	1	1
9. Egges	—	—	5	—	2
10. Fish and Shell					
1) fresh	—	3	6	11	4
2) salted or dried	1	1	2	5	2
11. Milk and Milk products	24	—	7	—	7
12. Oil and fats	4	1	2	3	2
13. Others	1	11	7	24	9
Total amounts	226	428	549	724	462

Table 6. Average nutrients intake, (children)

Ages \ Nutrient / No cf sub-ject		Calory (Kcal)	Protein (g)	Fat (g)	Carbohydrate (g)	Minerals			Vitamins				
						Ca (mg)	P (mg)	Fe (mg)	A (I.U)	B_1 (mg)	B_2 (mg)	C (mg)	Niacin (mg)
1	8	478	12.4	7.7	87.1	87.7	281.1	3.2	209.7	0.3	0.2	13.0	3.1
2	13	803	24.2	6.7	162.3	141.6	514.3	7.3	681.2	0.7	0.3	40.7	7.4
3	12	1,046	32.3	8.7	209.6	222.0	714.0	9.5	803.7	0.8	0.7	42.2	11.4
4	5	1,969	45.6	13.7	265.4	331.1	885.4	12.4	1,349.2	1.0	0.5	56.8	13.8

3.5%(16 g) in total intake but it was a little higher than that of adult. It is, however, supplied with 7 g from the milk which was due to much intake by goat's milk in only 2 children subjected during the survey periods. So that, if one considered on this sense, the milk intake of most children might be scarce, and, therefore, the intake of animal food might be much lower.

A part of children of aged 1 was not weaning completly, but taking some mother's milk. But it did not add for food intake because it could not be confirmed, and excluded it in this survey.

2. The status of each nutrient intake

The status of each nutrient inake per child per day in each age are as Table 6.

1) Calory

Average calory intake per child per day (886 kcal) was much lower than the 1,100 kcal of RDA of child enraged 1~3. Among this total intake from cereals and potatoes were 74.4% (650kcal) and 8.1 % (72 kcal), respectively, and they occupied 82.5% in total intake

2) Protein

Average protein intake per child per day (27.1 g) was lower than the 35 g of RDA. Among this total intake, the rates of intake from cereals and potatoes were 60.5%(16.4 g) and 8.9% (2.4 g) and reegumes was 4.4%(1.2 g). Otherwise, the rates of intake from animal food in total intake was 10.7%(2.9 g).

3) Fat

Average fat intake per child per day (8.5 g) was supplied with the 2.6 g from cereals, 0.4 g regumes and 0.5 g of potatoes, respectively, and they took about 41% in total intake. Otherwise, the rates of fat intake from animal food and fat or oil were 1.0 g and 2.1 g respectively.

4) Calcium

Average calcium intake per child per day (180.5 mg) was much lower than 500 mg of RDA and it was supplied with the 147.8 mg of vegetable and 30.8 mg of animal food. Therefore, calcium intake was mainly supplied with the vegetable foods (82%).

5) Iron

Average iron intake per child per day (7.8 mg) was much lower than 15 mg of RDA and it was mainly supplied from vegetable food(7.5 mg).

Therefore, it took about 96% in total intake.

6) Vitamin A

Average vitamin A intake per child per day as β-carotene form (681.1 I.U.) was much lower than the 4,500 I.U of RDA and it was mainly supplied with the 667.8 I.U. of fresh vegetable. Therefore, it took about 98% in total intake.

7) Vitamin B_1

Average V-B_1 intake per child per day (0.7 mg) was some higher than the 0.6 mg of RDA.

8) Vitamin B_2

Average vitamin B_2 intake per child per day (0.5 mg) was lower than the 0.7 mg of RDA and it was supplied fully with the vegetable food.

9) Vitamin C

Average vitamin C intake per child per day (37.5 mg) was similar to the 40 mg of RDA and it was supplied with the 14.9 mg of poatoes and 15.7 mg of vegetables, and they took 40% and 42% in total intake, respectively.

10) Niacin

Average niacin total intake per child per day (8.6 mg) was similar to the 8 mg of RDA.

PART Ⅱ. MEDICAL CHECK-UP

Ⅰ. Objectives

This medical check-up was carried out to obtain some informations of the health status on entire target population before the principal nutritional survey,as well as to obtain the baseline information which can serve as a nutritional survey for evaluating the effects of the proposed nutrition project in Wonseong Country at a later date.

Ⅱ. Methods

For the medical check-up, clinical symptom was examined and the physical status was measured.

1. The examination of clinical symptom

The entire target populationwas examined any symptom related with nutritional deficiency by a physician, and whole children subjected received a detailed medical xamination by a pediatrist, specially focused on the bilateral pedal edema. If the bilateral pedal edema was found, the urine-protein for the children subjected was examined.

2. The measurement of physical status

Body weight, body height, upper arm circumference and skin fold thickness of the children and women subjected were measured by co-operation with the project manger. assistant manager and assistants.

Ⅲ. Major Finding

A. The population subjected except the children

1. The examination of clinical symptom

There was no identified clinical symptom related with nutritional deficiency on the entire target population according to the medical examination.

2. The measurement of physical status

Body weightt, body height, upper arm circumference and skin fold thickness of the women subjected are as Table 8.

Average body weight and height of eachs ubject were 50.41±5.62 kg and 152.90±4.61 cm, respectively, and they were similar to each of Korean Standard of 1967 report[4]. Average upper arm circumference and skin fold thickness were 24.90±2.10 cm and 13.3±3.0 mm, respectively, and then skin fold thickness was lower than 21.1='6.3 mm which was reported by Choi et al., 1968[3] for the middle aged women (aged 35) of the middle incoming class.

Table 7. Clinical signs of children

Ages / Number / Clinical signs	1	2	3	4	Total
	8	13	12	5	38
Eyes-Bitot's spot	—	—	—	—	—
Nasolabial seborrhea	1	1	—	—	2
Angulor Lesions or Skar	3	3	2	1	9
Cheilosis	1	3	3	2	9
Gum swolen red papillae	1	—	—	—	1
Tongue-Glossitis	—	—	—	—	—
Thyroid enlarged	—	—	—	—	—
Skin-Hyperkeratosis	—	1	1	—	2
Bilateral pedal oedema	—	—	—	—	—
Urine-protein	—	—	—	—	—

B. Children

1. The examination of clinical symptom

The results of examination of clinical symptom on children subjected in each age are as Table 7.

There was no identified the bilateral pedal edema in whole children subjected and the incidence of nasolabial seborrhea one each among the subjects of 8 of age 1 and 13 of age 2 and 9 on angular lesions, 9 on cheiolosis, one on gum swolen red papillae, and two on skin-hyperkeratosis out of 38 whole subjects were found.

2. The measurement of physicul status

The results of measurement of physical status on children subjected in each age are as Table 8.

Average body weight and height of the children subjected were similar levels to the Korean Standard[4] of 1967 report. But those were much lower than the values of the report of Korean Pediatric Association 1976[5].

The upper arm circumference and skin fold thickness in each age of children subjected were range, 13.45±0.96 cm~15.28±0.83 cm and 4.±1.1.8 mm ~5.7±1.5 mm, respectively.

PART Ⅲ. BLOOD EXAMINATION

Ⅰ. Objectives

The determination of hemoglobin was carried out

Table 8. Physical status of children and mother (M±SD)

Age	Sex		Body weight (kg)	Body height (cm)	Upper arm circumference (cm)	Arm Skinfold thickness (mm)
1	M	Survey data (standard)*	8.65±0.73 10.89	74.75±1.87 79.8	14.59±0.59	5.6±1.0
	F	Survey data (standard)	7.90±1.60 9.85	74.15±5.15 78.1	13.45±0.96	5.1±1.5
2	M	Survey data (standard)	11.65±1.47 12.20	85.37±2.14 87.0	14.99±1.03	5.3±1.8
	F	Survey data (standard)	10.44±1.68 11.77	83.36±6.15 85.9	14.82±0.46	5.7±1.5
3	M	Survey data (standard)	12.72±1.57 13.58	92.00±4.97 93.0	15.28±0.83	4.4±1.8
	F	Survey data (standard)	11.58±1.05 13.14	85.66±4.48 91.4	14.95±0.68	5.3±1.0
4	M	Survey data (standard)	15.57±1.71 14.85	99.54±3.80 97.9	15.05±3.22	5.0±1.0
	F	Survey data (standard)	11.70±0.0 14.32	89.65±3.66 97.1	14.85±1.26	4.6±1.9
Mother		Survey data	50.41±5.62	152.90±4.61	24.90±2.10	13.3±3.0

* The Korean Pediatric Associations 1976[5]

Table 9. Values of hemoglobin

Ages	Number of Subject	Mean (mg)	No of Subject by Hb levels (mg/100 ml)				Proportion of anemia	
			>10.0	10.0~10.9	11.0~11.9	12.0<	Subject No.	%
1	8	12.2	—	1	3	4	1	12.5
2	13	11.8	—	3	8	2	3	23.1
3	12	11.5	1	3	7	1	4	33.3
4	5	12.2	—	1	3	1	1	20.0
Total (mean)	38	11.8	1	8	21	8	9	23.7
Pregnant	3	12.7	—	—	1	2	—	—
Baby bearing women	37	11.2	4	12	14	7	30	81.1
Total (mean)	40	11.3	4	12	15	9	30	75.0

to obtain the ihe informations about anemia in the subject inhabitants which have been taken the conventional food.

Ⅱ. Methods

The bloood sample was taken from the finger tip of a baby bearing women and children by puncturing with a rancet, and the hemoglobin values were determined by cyanmethemoglobin method[6].

Ⅲ. Major Findings

The results are summarizedas Table 9.

A. Baby bearing woman

The hemoglobin value of 40 baby bearing women were ranged 9.31 to 13.82 g%. The 30 out of 40 subjects, 75%, were belong to anemia which the values lower than 12 g% in non pregnant and 11 g% in pregnant, of hemoglobin, referenced by WHO

(1968)[6] This fact seems to be caused on the intake of the poor protein and the low utilization rate of ingested iron.

B. Children

The average values of the hemoglobin in each age (1, 2, 3 and 4 years old) of children were 12.2g%, 11.8g%, 11.5g% and 12.2g%, respectively. This data was indicated that 9 out of 38 subjects (23.7%) were belong to anemia, the value lower than 11 g% of hemoglobin, which was referenced on WHO report (1968)[6].

This fact seems to be also caused on the low intake of the better quality protein and a little iron in the food. This is a simillar result with our previous report [8] and others [9,10]

PART Ⅳ. THE NURSING STATE SURVEY FOR INFANT

Ⅰ. Objectives

This survey was carried out to obtain on information on the nutritional concern degree of nursing mother for infant and to establish the direction of nutritional enlightenment for nursing mother.

Ⅱ. Methods

The nursing state survey was carried out through the interview with the nursing mother of 25 subject. The questions are as follows.

What do you supplying for the infant?

1) Mother's milk

2) An artificial nutrient

3) Mother's milk and others

If your answer is No. 2, what do you supplying, is it cow's milk?

If No.3, what do you feed besides mother's milk?

Ⅲ. Major findings

The 16 infants (64%) of total 25 subjects were feeding mother's milk only, 1(4%) was fully an artificial feeding, mainly powder milk and some rice gruel, and 8(32%) were a combined with mother's milk and some other foods, rice gruel(5), boiled rice juice(1), powder milk(1), and others(1).

CONCLUSION

1. It generally was insufficiency of calory intake.
2. The status of food intake was the pattern of the almost vegetable food and insufficiency of the protein' intake of good quality.
3. It was insufficiency of vitamin A, B_2 and calcium intake.
4. There was no remarkable clinical symptom related with nutritional deficiency on the entire target population according to a medical examination, but was some clinical symptom related with vitamin B_2 deficiency on the children
5. The physical status of children subjected were lower than that of the Korean Standard.
6. The 75% of baby bearing women and 23.7% of children subjected were belong to anemia.
7. There was practically no weaning diet for the infant, neither was supplementing diet for the pregnant or nursing mother.

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