

BASELINE SURVEY ON NUTRITIONAL AND HEALTH STATUS OF UNDERFIVE CHILDREN AT POOR COMMUNITIES IN DKI JAKARTA, TANGERANG, AND BOGOR YEAR 2004

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Abstract

The high prevalence of anemia and vitamin A deficiency among underfive children is related to their food intake and health status. The situation appeared worst after multiple crisis hit Indonesia in 1997/1998. To obtain factors affecting the nutritional status of children aged 1-5 years, a baseline study was conducted in DKI Jakarta, Bogor, and Tangerang in collaboration with UN-WFP. The sample size was 1337 underfive children consisting of 666 boys and 666 girls. The study showed that malnutrition among underfive children was still high which indicated the high prevalence of underweight and stunting, especially in Bogor District and Tangerang District. The micronutrient intake of vitamin A, iron, and zinc among underfive children were certainly below the Indonesian RDA. The level of poverty and the education of woman as well as husbands were two conditions that were obvious from all areas, mainly Tangerang District.

Keywords: nutritional status, underfive children, underweight, stunting, micronutrient intake

1. Introduction

Poor nutritional status is still a major problem in developing countries. WHO Report 2004 mentioned that in developing countries, Protein Energy Malnutrition (PEM) affected every fourth child worldwide: 26.7% were underweight and 32.5% were stunted. Malnutrition has important adverse effect on health by increasing susceptibility to infectious disease. It also affects school attendance and performance among school age children, growth retardation, increase risk of morbidity, and affect cognitive development for children under-five years of age. While among women, before and during pregnancy, malnutrition contributes to morbidity and mortality in women, and contribute to low birth weight (LBW) which in turn increase the risk of malnutrition and mortality in the infants. The ultimate consequence of malnutrition is death. An important indicator of nutrition status is the prevalence of PEM caused by inadequate consumption of calories or protein which is reflected in stunting (shorter than normal) and wasting (thinner than normal).

Indonesia as one of the developing countries is still facing the nutritional problems. The prevalence of PEM (second and third degree malnutrition) in Indonesia is higher than a number of comparator countries in Asia such as Philippine, Thailand, Papua New Guinea, Sri Lanka, and India. The four most important nutritional

deficiency problems in Indonesia are Protein Energy Malnutrition (PEM), Iron Deficiency Anemia (IDA), Vitamin A Deficiency (VAD), and Iodine Deficiency Disorders (IDD). Nutrition and Health Surveillance (NHS) in rural and urban slum areas conducted by Helen Keller International (December 1999 up to September 2003) ¹ showed that the prevalence of underweight among children 12-23 months of age was 38% in rural and 43% in urban areas, and the prevalence of wasted children 12-23 months of age was 16% in rural and 19% in urban areas. There were 38% children under five year were stunted, and 10.3% of them showed sign of wasting.

Anemia mostly due to iron deficiency was the most common nutritional deficiency worldwide in the 1970s and remains so. Data from SKRT (Indonesia Household Survey) 2001 ² showed that the prevalence of anemia among underfive children was around 48.1%, 50.9% among pregnant women, and 45.1% among lactating women. Helen Keller International data showed that the prevalence of anemia among children 12-23 months of age was 63% in rural and 76% for urban slum ³.

Xerophthalmia due to VAD is the most common cause of childhood blindness. WHO stated that in 2004 the prevalence of vitamin A deficiencies was between 100 and 140 millions. Nearly 600,000 women die from childbirth-related causes each year. The prevalence of

vitamin A deficiency was 0.33% for the whole Indonesia.

Multiple crises hit Indonesia in 1997/1998 has caused a significant decreased in the health and nutritional status, especially among children underfive. The situation has been overcome partly, but the nutritional problems still remains. To provide baseline data of indicators for measuring nutritional status (anthropometry) of underfive children, KAP (knowledge, attitude, and practice) of underfive children's mothers/care takers (including food habits), and to provide data on the determinant factors of nutritional status and health of children 1-5 years, we conduct the baseline study on nutritional and health of children underfive.

2. Methods

The study was a cross-sectional study design. The study was conducted in the 5 areas, located in Jabotabek. The sample were chosen from the 67 posyandu (The Integrated Service Post) located in DKI Jakarta, Tangerang District, Tangerang City, Bogor District, and Bogor City. This study was conducted within the collaboration between UN-WFP with Center for Family Welfare, University of Indonesia. The total sample size of children of underfive year of age was 1332 (666 boys and 666 girls).

The objectives of the studies were to obtain factors affecting the nutritional status of children 1-5 years. Therefore, the criteria of posyandu selection should include:

1. Each district/municipality was represented by a number of posyandu.
2. Come from poor socio-economic background.
3. Posyandu has sufficient number of children 1-5 years of age (has at least 10 boys and 10 girls).

Data collection was conducted in August 2004 within two weeks. Data collected by trained field coordinators and enumerators from Faculty of Public Health and Academy Nutrition alumni. Interview was used to collect personal identity, and socio-economic of respondents. Food frequency questionnaire used to

collect the food consumption pattern of underfive children. Data of actual food intake was taken from 10% of total sample aimed to estimate the micronutrient intake such as Fe, vitamin A, and Zinc. Estimation of these micronutrients were calculated and analyzed by using Nutrisoft Program. Data entry, processing, and analysis were performed using EPI-INFO Program version 6 and SPSS for Windows version 10. The detailed technique of data collection, instruments, respondents and sample size/area can be seen in Table 1.

3. Results and Discussion

By comparing the five areas, Tangerang District has the lowest socio-economic status which measured by various variables. The socio-economic status reflected by the knowledge, attitude and practice (KAP) in health and nutrition in general. Education of the underfives' mothers has been considered as an important factor which affect their children health and nutritional status. Education has been assumed as an entry point towards a better understanding and acceptance on new knowledge, and towards a better opportunity to make their own decision, including on health and nutrition practice. In addition, poverty is also considered as a contributory factor to health and nutritional status for several reason. It limits the access to nutritious food, health services, as well as adequate information. Respondent were asked about their and their husbands education, working status, and categorized accordingly.

To measure respondents' poverty level, they were also asked about their expenditure for food and total expenditure. Poverty level was measured using BPS/UNDP criteria/standard, 2004⁴. The criteria was based on the ratio of expenditure for food over total expenditure. The cut off point of the ratio was not the same for each area, for example Bogor City has the cut off point was 56.2% and in Tangerang City was 51.9%. A household is considered poor if the ratio was higher than the cut off point. Based on the criteria above, a household can be categorized into a poor or not poor household, for example if the ratio was higher than

Table 1. Data Collection Method and Type of Instrument

Technique of Data Collection	Instruments	Respondents	Sample Size
HHs survey	Questionnaire	Mothers/caretaker	1332
Anthropometric measurement (weight and height)	Form for anthropometry Weighing Scale Microtoise	Boys and girls	1332
Observation at posyandu	Check list form	Cadres	67 posyandu

56.2% in Bogor City and higher than 51.9% in Tangerang City, the household was categorized as poor. The proportion of households from the three target of study which fell into poor household was the largest in Tangerang District. In general, the education of women was low. For instance, there were around half of respondents in Tangerang District and Tangerang City had no schooling or did not finished elementary school, while in the other areas the proportion was around 20%. The education of their husband was also low, even though it was better than the women. In Tangerang, about one third of the husband had no schooling or did not finished elementary school.

Most women in 5 areas did not work, especially in Tangerang over 80% of the women did not work. Among those who worked, mostly (around 40%) having small "warung" (small shop) at their home. Most of their husband stated as having a job, however most of the job was in informal sector, an area of work with big uncertainty and unstable income, for example as an "ojek man" (motorcycle taxi), as a parking man on the street, or as any kind of temporary labor

Illness can affect the nutritional status of children or women, either because the intake was less, or the needs for more nutrient was not fulfilled. When they were ill, the action taken to treat it will affect whether they will get well soon or continue to have the disease, which eventually will affect their nutritional status. For those reasons the women were asked whether in the last 2 weeks before the survey they or their underfive have experienced any illness. They were also asked what they did when they or their children were ill. The results showed that the most illness mentioned were fever, cold, cough and diarrhea. Women mostly ever experienced cold and cough, while the underfives mostly experienced cold, cough, fever and diarrhea.

The practice of health seeking behavior asked to the women by multiple response. It was interesting to notice that midwife was the health professional who were mostly chosen to give services by the women. It suggested that midwife was either the only available health professional in the village, or midwife was considered to have the ability to practice general health services, or both. The second common practice when the women or the children understood because most of the illness were not needing special treatment, besides over the counter drugs were available even in a small vendor.

Diarrhea is one of the most common and frequent disease suffered by underfives. The most important complication that should be avoided is dehydration, and the second is malnutrition. Therefore, the government has been promoting the use of Oralite or LGG (*Larutan Gula Garam*) to the mothers, through Community

Health Center (Puskesmas) or posyandu. Among those children who suffered from diarrhea in the last 2 weeks, we asked the mothers what they did for their children. In this survey, around 20% of the children were given *oralite* or *LGG*. Most of the mothers brought their children to health provider, especially in Tangerang City and DKI Jakarta. Other action taken by mothers were giving their children diarrheal drugs. Again, the availability of over the counter drugs in a small vendor might influenced by mother's practice.

The nutritional status of underfive children is determined by three indicators, i.e. Weight for Height (WHZ), Height for Age (HAZ), and Weight for Age (WAZ).

Wasting (low Weight for Height) among underfive children is a good indicator of acute deprivation in nourishment and food security⁵. This indicator is more sensitive to see the changes in nutritional status of the children in a relatively short time. Wasting is defined as a Z-score for weight-for-height which is less than 2 SD from the median of the reference population (NCHS). A proportion of wasting more than 10% needs immediate attention.

Figure 2 shows that the total prevalence of wasting in all surveyed areas were lower than the data from the Household Health Survey, 2001 (15.8%). However, it was obvious that Tangerang District, Tangerang City and Bogor District had prevalence higher than 10%. There were two variables associated significantly with wasting status of the children i.e. mother's education in Tangerang District and father's working status in Bogor District.

Stunting (low Height for Age) among underfive children is considered an indicator of chronic inadequacy of intake in a population which eventually is causing a significant growth retardation⁵. Stunting defined as a Z-score for height-for-age which is less than 2 SD of the median of the reference population (NCHS). A prevalence over 30% was considered high and over 40% was very high. Figure 2 describes that the prevalence of stunting was high, ranging from 29% to 44%. The problem was mostly prominent in Bogor District and Tangerang District. The high prevalence of stunting indicated that the nutritional problem in the 5 areas was more chronic rather than acute condition. The problem of children's nutrition was still going on as shown by the existence of wasting. The mean of the prevalence of stunting from the study (35.6%) was not so different from HKI data, 2002 for West Java (35.4%) and NSS-HKI, 2001 for DKI Jakarta (28.8%)⁴. Further analysis found that stunting in DKI Jakarta was associated with educational level and working status of the father, while in Bogor City it was associated with schooling status of the father and mother's education. In

Tangerang District, mother’s education was related to the children’s stuntedness.

Underweight indicates too low weight for a specific age. It defined as a Z-score for weight-for-age (WAZ) lower than 2 standard deviation (SD) of the median of reference population (NCHS). Underweight can be a result of wasting (acute) or stunting (chronic) or both⁶. Therefore, WAZ alone representing acute and chronic nutritional status.

Figure 3 indicates the prevalence of mild-moderate underweight was about 3 times of severe underweight. In general Bogor District and Tangerang Districts had higher proportion of children with mild-moderate underweight. But the prevalence from all areas exceeding the proportion from the National Human Development Index⁴. Determinant factors affecting the nutritional status of underfives such as educational level and working status of the father in DKI Jakarta, working status of mother in Tangerang City, and age of mother in Bogor City.

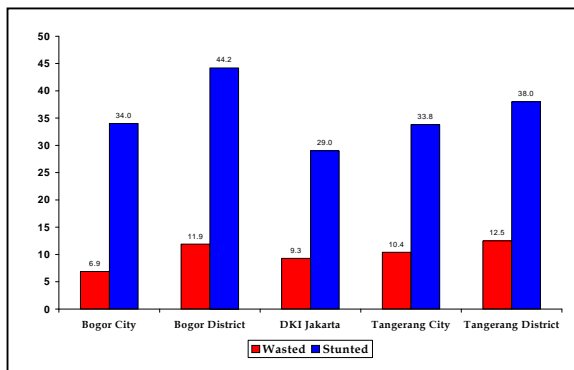


Figure 2. The Prevalence of Wasting and Stunting

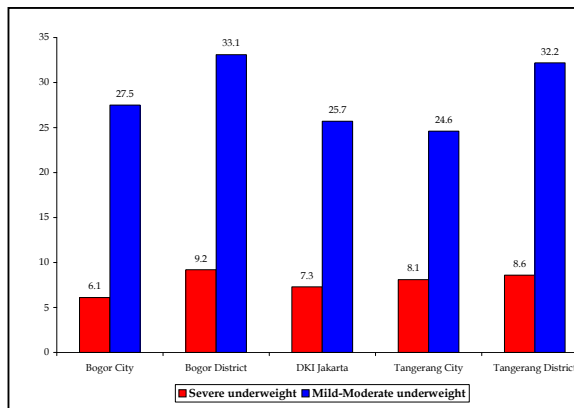


Figure 3. The Prevalence of Underweight among Children 12-60 Months of Ages

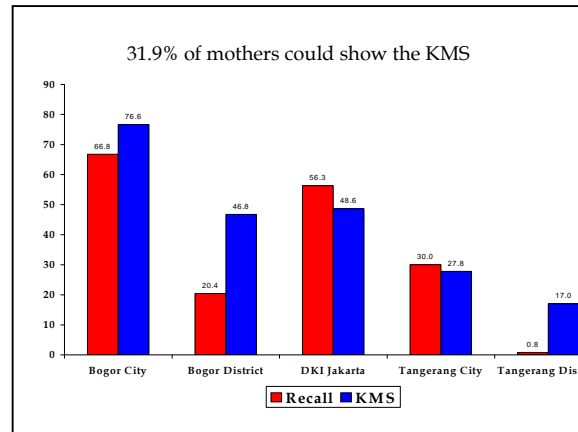


Figure 4. The Immunization Status of Children Under five

Government immunization program has dictated that all underfive children should be immunized against 6 main preventable diseases before they reach 12 months of age. Those are Tuberculosis, Diphtheria, Tetanus and Pertusis (DPT, 3 times), Polio (3 times), and Measles (MOH, 2000). In addition, Hepatitis B is now considered as compulsory for children. We asked the mothers regarding their children’s immunization. We also tried to confirm it through the KMS (growth chart) which is supposed to be kept by mothers.

Underfive children who have received complete immunization was categorized as “complete”, and those who have not categorized as “incomplete”. The categories were also differentiated between those reported by mothers and through KMS assessment. The Universal Child Immunization (UCI) target for complete immunization is 80%. The results showed a wide variation of immunization status among the 5 areas, with the average of around 35% (recall) or 49% (KMS assessment). Bogor City was certainly the area with the highest proportion of completeness, followed by DKI Jakarta, while Tangerang District was the lowest (Figure 4). The results also showed that mothers’ recall was not so different from the assessment of KMS result. The proportion in general was much less than what should be expected, and also much less than the result from IDHS 2002/2003, which was 52%.

Posyandu is an integrated health post at sub-village level conducted every month by community health volunteer called cadre. The activities include weighing children underfive year of age, food supplementation, health education, immunization, family planning, and antenatal care. Weighing and food supplementation, and simple health/nutrition education are usually provided by the cadres, while the rest are of activities are provided by health provider, usually midwife. Children

underfive year of age are recommended to come to posyandu every month for weighing. The women were asked whether in the last 3 months if they weighed their child every month. If they did, it was considered that they weighed their child routinely, otherwise not-routinely. Three months, not more, was used to avoid recall bias. Mothers were also asked about their reason to go to posyandu spontaneously with multiple answer. The questions were asked to mothers of underfive children.

Almost all women stated they have ever weighed their child to posyandu in the last year. However, on average from the 5 areas only 50.4% of them stated weigh their children routinely. The proportion of routine visit was the highest in Bogor City (61.0%) and the lowest in Tangerang District (40.3%). They mentioned the reason to visit posyandu was to weigh their children (85.2%), to know their child health (31.9%), to get their child immunized (18.8%) and to get food supplementation (10.3%).

As explained above, posyandu activities covers weighing, education, immunization, family planning, ANC, and food supplementation. Some posyandu had complete activities, some had less activities. Getting food supplementation has been one of the main reason to visit posyandu from the part of the mothers. Posyandu cadres were asked what component of activities they provided, and whether it was routine or not.

Weighing was the only activity conducted by all posyandu in the 5 areas. Other activities were conducted more irregularly. There were always food supplementation component implemented in posyandu in DKI Jakarta and Tangerang City. In Tangerang District, almost all (92.3%) posyandu provided food supplementation, while in Bogor City only 61.5% and Bogor District 23.1%. Immunization was conducted in all posyandu only in Bogor City, Bogor District, and Tangerang City. Health/nutrition education was not commonly conducted. It was quite common only in DKI Jakarta (73.3%).

Nowadays, there are a lot less Posyandus than before, for many reasons. The economic and political crises years ago which has caused significant increased in malnutrition among children, has proven that posyandu's existence was very crucial to reach the children. The government has been trying to revitalize the posyandu through many efforts. To assess the activities of posyandu, cadres were asked about what problems they were encountering to maintain their activities. Cadres mentioned some problems felt in posyandu such as low community participation level (low attendance), lack of support to provide food supplementation (which was one of the main reason for

the mothers to visit Posyandu), lack of cadres' interest, lack of equipment, and almost no midwife coming to posyandu. The magnitude of these problems were variety according to them. In Tangerang City, the main problem was low participation (69.2%). But in Tangerang District, the biggest problems were lack of cadres and almost no supplementary feeding conducted in posyandu (61.5% respectively). Lack of community participation (40.0%) and midwife's problems (6.7%) found out in DKI Jakarta. The similar description showed by cadres in Bogor City in which lack of community participation (38.5%) also was the biggest problem.

For poor community participation, the reason for the mothers for not visiting posyandu regularly were lazy, did not have time, lack of knowledge on the importance of weighing and health, the child became sick after immunization, and the child has completed the immunization so they did not need to visit posyandu anymore. This answer was in accordance to mothers' answer regarding the reason for not visiting Posyandu, i.e. mother was busy or did not have time. Supplementary feeding problem means that there were irregularity provision of supplementary food because posyandu did not always have money or support to buy the food. This problem was mostly faced by posyandu in Tangerang District and Bogor District. For cadres' problem was both in term of the quantity of cadres who can be actively involved and their quality. Cadres' quality mainly affect their ability to record and report children's weight in KMS (growth chart), which was the main posyandu's activity. Again the problem was mostly found in Tangerang District (61.5%).

Regarding equipment that were available in Posyandu, *dacin* (hanging weighing instrument) was owned by all Posyandus in Bogor District, Bogor City and Tangerang City. Other type of weighing instrument that was available was bathroom scale. Almost all Posyandus owned length board measurement (provided by UN-WFP). Most of posyandu had sufficient number of KMS.

Low participation in posyandu might be caused by the perception of the women that posyandu did not meet their expectation. Then, women were asked about their perception towards posyandu's services. In addition, women were also asked what will be their suggestion regarding posyandu. This question was asked to re-confirm women's perception about posyandu indirectly. About three fourth of mothers of underfive children, pregnant women and lactating women stated that posyandu's services met their expectation. Women suggested that Posyandu should improve their facilities such as stand weighing, and IEC materials on nutrition and health.

One main message to the mothers regarding weighing and other posyandu's activities is to monitor their child health and growth as such that necessary follow up action can be taken as soon as possible. Most women stated that they weighed their children to know their child's weight (77%), and to know if their child was healthy (22.3%). Most of women knew that if child's weight remained the same or decreased, it meant that the child was sick (71.8%), and if the weight increased it meant healthy (88%).

Figure 5 shows the practice on colostrum was even lower than their knowledge. On average, 78% of lactating women and 67% of underfive stated that they gave colostrum to their babies. The figure was higher in DKI Jakarta and Bogor City than the other areas. This was caused by their perception that colostrum was a dirty and spoiled milk, which was mostly stated among mothers in Tangerang District

Vitamin A is provided to children 6-60 months through posyandu every February and August. Iron tablet is also provided through posyandu (by midwife) during ANC services in posyandu. Therefore, it is expected that the

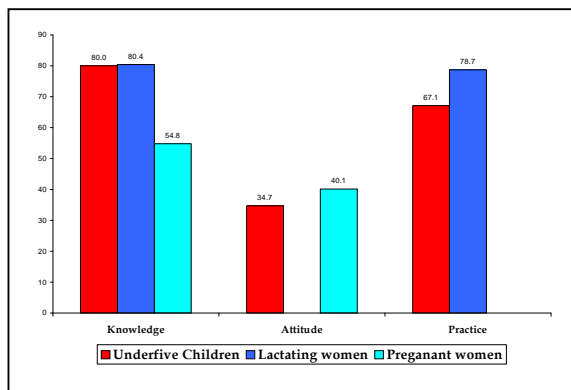


Figure 5. Mothers' KAP on Colostrum

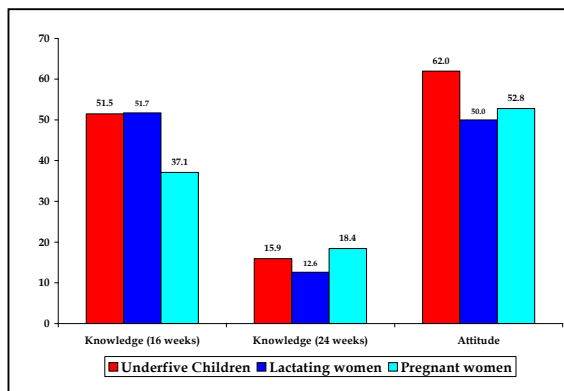


Figure 6. Knowledge and Attitude on Exclusive Breastfeeding

women should know about these two issues. Women were asked about vitamin A and iron, the source of vitamin A and iron rich food, and their benefit. Around 80% of the women had ever heard about vitamin A. There was no different between the three groups of women. Women mentioned vegetable and red/orange fruit as rich food in vitamin A. They mentioned that the benefit of vitamin A was to avoid eye disease, and most of them agree that eating these food can prevent blindness. A lot less women had ever heard about iron as compared to having heard about vitamin A. Among those who had ever heard about iron, they mentioned that food which was rich in iron were green leafy vegetable. Very little proportion (10%) of them answered animal protein as the rich source of iron. Accordingly, only about one third of them did not know the benefit of iron.

The main causes of malnutrition in developing countries are in-adequate food intake and infection, one of it is diarrhea. Hygiene is one factor which contributed to the incidence of diarrhea. The survey found that less than half of the women stated they washed their hands with soap before eating. Much less proportion of women washed their hands after defecated. The proportion was higher in the city area (Bogor City, Tangerang City and DKI Jakarta) as compared with other district area.

Provision of colostrum to the baby will have two benefit, firstly it will stimulate the success of the continuation of breastfeeding and secondly it gives nutritious content. Women were asked about colostrum. To the women were also asked for their agreement on certain statement. Figure 5 shows not all of the women knew about colostrum. However, after they were explained about quite a sticky yellowish liquid that come out after delivery, they understood and even mentioned the local term of it (for example "getah bonteng"). Their knowledge about the benefit of colostrum was low, only about 25% of them knew the benefit. The benefit mostly mentioned were for the baby to be healthy and to increase baby's immunity. When women were asked on their agreement on certain statement, the results were quite interesting. For example, three fourth of them did not agree if colostrum was not given to the baby, on the other hand about 40% of women agreed that colostrum was not good for their baby. This showed that their knowledge about colostrum was still limited, which affect their uncertain perception.

Breastfeeding undoubtedly is the best milk for babies up to 6 months. However, the practice of exclusive breastfeeding was currently very low. IDHS 2002 showed that the proportion of exclusive breastfeeding at 4-5 months of age was only 13.9% and 7.8% at 6-7 months of age. In this study, the women were asked several questions on breastfeeding practices, for

example *until how old is your child should be breastfed exclusively?* The results showed that about half or less women stated that a child should be breastfed for 4 months (16 weeks). Figure 6 describes the figure was much lower (less than 20%) on their answer that a child should be breastfed exclusively for 6 months.

Most women agreed that a child should be introduced to food other than breastmilk starting from 3 months. Focus Group Discussion (FGD) revealed that the main reason for introducing the food was because the child was crying, which was thought that breastmilk alone was not enough because the baby was still hungry. Food that was commonly given to the babies were banana, porridge or formula.

Regarding the practice of exclusive breastfeeding, only about 16% mothers of underfive children stated they breastfed their child exclusively up to 4 months of age. The highest percentage was in Bogor city (34%) and the lowest in DKI Jakarta (4.7%). The figure for exclusive breastfeeding for 6 was even much lower (4%). Mothers from DKI Jakarta and Tangerang City have the highest proportion of giving formula to their baby (69% and 50.8%, respectively). In general, most of the babies were given honey within their first 3 days of their life, before they were breastfed. The honey was only rubbed on to the baby's lips for 3 days to make them quiet because they thought the milk was not flown until 3 days.

Mothers' knowledge on food will lead them to a better feeding practice for their child, and eventually will affect the child's nutritional and health status. In this survey, mothers were asked to mention various kind of healthy and nutritious food, the food commonly given to the children, and food consumption during pregnancy. In general, vegetables was the kind of food spontaneously mentioned by mothers (90%). More than 60% of women mentioned protein source food as good/healthy food. Rice was mentioned less frequently

as healthy food (< 50%). The most frequent food consumed by underfive children were rice, vegetables, tempe and salted fish. Fruit and meat consumed much less frequently. Some mothers stated they sometimes gave their child egg and milk.

Practice on food taboos/prohibition for underfive children might affect their nutritional status, especially in the setting where food availability is marginal or lacking. In this survey, food taboos was also asked to get information of whether any food supplementation was considered taboo/prohibited. Food taboos/prohibition were practiced quite commonly among, and it was similar across areas. Food that were prohibited for underfive children were ice, chocolate/candy, spicy food and junk food (chiki, taro, etc). The reason for not giving ice was to avoid cough; the reason for not giving chocolate/candy was to avoid carries; while the reason for not giving spicy food was to avoid stomachache or diarrhea.

Around 5% of mothers mentioned fish and noodles as food that should be avoided for children because it can cause worm infection (fish) or diarrhea (noodles). Noodles was also believed to inhibit child's growth because of the MSG (Monosodium Glutamate).

One of a direct factor influencing nutritional status is adequacy of food intake. Underfive children were among the most vulnerable group that can be affected by inadequate intake. In this survey, food consumption pattern was measured qualitatively by FFQ (Food Frequency Questionnaire) and the proportion/amount of food consumed was measured using 1x 24 hours food recall method. Data from 24 hours food recall was analyzed using NUTRISOFT (Nutrition Software).

As expected rice was consumed everyday. Instant noodles and read were only consumed about once a week. In general, the meal consisted of rice and "*lauk pauk*" (either animal or plant source protein). Mostly

Table 2. Mean of 24-Hours Food Recall

	Children 12-60 months of age					
	Bogor City n=26	Bogor District n=26	DKI Jakarta n=30	Tangerang City n=26	Tangerang District n=26	Total n=134
Energy (in kcal)	1066.7	1013.4	1461.7	1090.9	990.9	1134.8
Protein (in gr)	18.03	14.8	28.6	18.3	9.1	18.1
Vitamin A (in IU)	226.1	331.3	228.6	264.9	215.8	252.6
Fe (in gr)	4.6	4.6	10.1	10.8	6.8	7.5
Zn (in gr)	3.8	3.6	6.2	4.1	2.9	4.2

RDA for children 1-5 years: Energy (1250.0-1750.0), Protein (23.0-32.0), Vit. A (350.0-460.0), Fe (8.0-9.0), Zn (10.0)

* RDA from The Indonesian's RDA 1998.

source of protein were tempeh, and tofu. Animal protein, especially meat and chicken were consumed very rarely, while fish and egg were consumed more frequently. Vegetable and fruits were also not consumed everyday.

The average intake of energy, protein, vitamin A, Iron and Zinc, for all three groups of respondents were below Indonesia's RDA (1998). As we know, the 80% of Indonesia's RDA used as the cut off point of nutrient intake adequacy. Mean of energy intake of underfive children below RDA showed in Table 2. The similar description was also drawn with protein, vitamin A, Fe, and Zn in all surveyed areas. Comparing the figures among areas, the results revealed that the highest other nutrient intake was in DKI Jakarta and the lowest was in Tangerang District, except Fe intake which the lowest was in Bogor City and Bogor District.

4. Conclusion

Malnutrition among children underfive year of age was still high. Among underfive children, malnutrition was a previous and current problem, as presented by the high prevalence of underweight and especially of stunting. The areas that were mostly need attention were Bogor District and Tangerang District.

The intake of energy, protein, vit A, Iron and Zinc among the three groups in all 5 areas were certainly below of what it should be. Nutrients that were mostly deficient according to Indonesian's RDA were energy and micronutrient.

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