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1996 Updating of Nutritional Status of Filipino Children at the Provincial Level

1996 UPDATING OF NUTRITIONAL STATUS OF FILIPINO CHILDREN AT THE PROVINCIAL LEVEL

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ABSTRACT

As part of FNRI-DOST major commitment to monitor nutritional status of the Filipino citizenry, a survey was conducted in 1996 involving a total of 25,915 subjects composed of 10,385 pre-schoolers (0-5 years old) and 15,530 school children (6-10 years old). Unlike similar surveys done in the past which generated malnutrition estimates disaggregated at the national and regional levels, this update aims to provide data which are relevant and more useful at the provincial level. Following previous nutrition surveys, a two-stage stratified sampling design was employed using provinces and urbanization as basis for stratification. The barangay and the child/subject served as the primary and secondary sampling units, respectively. Anthropometric measurements such as weight, height and recumbent length were taken from the subjects sby trained local professionals using standard techniques. Actual data were compared with the 1985 FNRI-PPS reference standards for Filipino children.

Results of the study show that about 8 out of every 100 preschoolers or 8.4 % are at least moderately and severely underweight. Severe and moderate stunting is observed in 5.1 % while wasting afflicts 4.6 % of the pre-schoolers. Among the school children, a slightly lower percentage at 7.4 %, of severely and moderately underweight children is noted while stunting and wasting afflicts a higher proportion of 5.5 % and 6.6 %, respectively. Compared with the latest 1993survey, underweight and stunting prevalence levels in 1996 hardly registered a change. However, over a longer term, from 1989-90 to 1996, there is an evident favorable, although slow, change in the nutritional status of children. During this six year period, underweight and stunting declined significantly while wasting exhibits fluctuatig trend. Wasting after successively increasing in 1992 and 1993 from the 1989-90 base year, finally made a significant drop in 1996. Disaggregating the children by single age groups, the concentration of underweight and stunting remain among the 1 and 2 year-old children while wasting is most rampant among schoolers than preschoolers particularly affecting the 10 years old. Seemingly, the boys are more vulnerable to the three forms of undernutrition than the girls at this young age group.

Of the 77 provinces in the country and cities/areas of Metro Manila identified as needing utmost public health attention and priority nutrition care are Marinduque, Biliran, Aurora, Camiguin, Cagayan, Agusan del Sur, Mt. Province and Western Samar for having alarmingly high malnutrition rates among 0-5 year old children. The priority list considering the 6-10 years old are the provinces of Antique, Southern Leyte, Las Piñas/Parañaque, Sulu, Camarines Sur, Riza and Lanao del Sur. On the other hand, overnutrition is noted to be relatively more prevalent among the 6-10 years old particularly in Metro Manila than among the younger age group.

The data are critical and vital inputs in careful prioritization of multisectoral efforts for nutritional improvement of children and for over-all human development of localities and the country as a whole.

INTRODUCTION

At present, the country's nutrition situation shows continued existence of protein-energy malnutrition which is largely manifested among children. Because of this fact, efforts and determination to take action and reduce, if not eliminate, the problem are vigilantly pursued. Among the actions being taken in this regard is strengthening capability of local government units (LGU) and the communities for planning and monitoring nutrition programs. Basic to any planning activity is the availability and accessibility of sound and reliable data. The Food and Nutrition Research Institute (FNRI), Department of Science and Technology (DOST) is the active key player in the provision of such hard scientific data decision makers and program planners.

Since 1978 and practically every 5 years thereafter, FNRI conducts the national nutrition survey. The latest and fourth series of these national nutrition surveys was done in 1993. Recognizing that the five-year interval does not serve the purpose of frequent monitoring which is what local level planning needs, FNRI established a simple nutritional assessment system in-between the 5-year national nutrition surveys in order to provide a regular and frequent flow of information on nutrition situation. This simple survey is focused on the vulnerable 0-10 year old children utilizing standard anthropometric techniques, i.e. height and weight measurements. The first of this survey was done in 1989-90, followed-up in 1992 and the most recent one was conducted in 1996. The 1989-90 and 1992 surveys were on a regional scale. However, in response to current and urgent need of local government units and planners, this 1996 follow-up survey is now making available, for the first time, hard scientific nutrition data on children on a provincial scale.

It is recognized that other agencies do collect similar height and weight data and yet the use of these data is limited for their particular objectives and/or clientele. The 1996 FNRI survey is designed for wider and varied use at different geo-administrative levels in development planning and program formulation. It features among others, application of appropriate sample design for the required disaggregation of estimates (i.e. national, regional and provincial), use of scientific data collection techniques by experienced researchers and trained local professionals, use of standardized equipment and measuring instruments and applies computer technology for data analysis in order to obtain accurate and quality data.

PROJECT OBJECTIVES

A. Long Term: To established a system for a regular and continuing flow of updated information on nutritional status of Filipino children for timely application in important policy decisions, human development planning and urgent action programs at the sub-national levels.

B. Short Term:

1. To obtain data on the anthropometric measurements utilizing standard techniques from a representative sample of 0-10 year old Filipino children in various provinces; and
2. To monitor the proportion of nutritionally-at-risk children needing utmost public assistance and development.

SAMPLE DESIGN AND COVERAGE

A two-stage stratified sampling design was employed to draw the sample size of children, aged 0-10 years, and obtain representative estimates for each and every province of the country. Hence, all 77 provinces of all 15 regions in the Philippines including 5 major cities and 5 clusters of areas and other cities of Metro Manila were covered. Stratification was done by urban/rural sector of the province, while the primary and secondary sampling units were the barangay and the subject/child, respectively. A total of 864 barangays were drawn as samples. In each barangay, a fixed number of 30 children, 15 boys and 15 girls, were selected from the total enumeratin of 0-10 year old children obtained from the barangays. A total sample of 25,915 children was covered. Out of this total were 10,385 preschoolers (0-5 years) and 15,530 school children (6-10 years) Table 1. The distribution of the children by single age group is presented in Table 1. Based on the total population of children, around 1,700 children were covered for each age group of 1 to 5 years including the 6 years old, while more than 3,400 children were included in each age group form 7-10 years. Annex 1 presents the number of areas covered interms of barangays and provinces by region and corresponding number of subjects. The provinces of Cebu and Negros Occidental had the largest number of children drawn with 960 and 840 children samples, respectively. For small provinces, the sample was pegged at 120 children per province.

Table 1. Distribution of 0-10 year old sampled children by sex and single age: Philippines 1996

Age in Years	Total	Boys	Girls
Philippines	25915	12983	12932
0-5	10385	5205	5180
<1	1740	877	863
1	1733	869	864
2	1727	862	865
3	1730	867	863
4	1726	859	867
5	1729	871	858
6-10	15530	7778	7752
6	1732	869	863
7	3439	1720	1719
8	3467	1739	1728
9	3460	1731	1729
10	3432	1719	1713

FIELD SURVEY OPERATIONS

The field survey operations were done from February to July, 1996. There were four (4) major survey teams organized each composed of a team coordinator, five (5) team leaders/trainors and a science aide. Of the 28 survey team members, 16 were experienced FNRI technical staff. The others were composed of ten (10) newly hired team leaders/trainors who before being fielded underwent thorough and successful training on the conduct of survey and accomplishment of questionnaires (1). Also hired for field survey operations were four (4) science aides.

In the regions and provinces, the conduct of field data collection was done by local professionals who were recruited just prior to the field operations. Recruitment was confined to local professionals who have undergone successful five-day on-the-job training (1) conducted by the FNRI team leaders/trainors. Ten (10) local field data collectors were recruited as members of each FNRI survey team. Field data collection was conducted under close supervision of FNRI experienced staff. In addition, five (5) local survey aides were hired from the barangay who acted as guide in the location and identification of target subjects as well as served as helper in carrying survey equipment and paraphernalia.

METHODOLOGY

ANTHROPOMETRIC TECHNIQUE. Using the standard techniques described by Jelliffe (2), anthropometric measurements such as weight, height and recumbent length (for less than 2 years old) were recorded.

Weight is measured using a calibrated beam balance (platform type) scale of 160 k capacity. The weighing scale is calibrated with known weights and balanced at zero before each use. The subject is made to stand at the center of the platform with hands on his side, barefoot, in light street clothing and pockets emptied. Weight is recorded to the nearest 0.1 kilogram.

Standing height is measured using a “microtoise” attached to a smooth straight wall. The subject is made to stand without shoes with feet at an angle of 45 degrees, his back flat against the wall and eyes looking straight ahead (i.e. the top of the external auditory meatus should be level with the external angle of the eyes). The subject is requested to stand as erect as possible with heels on the ground. The headpiece of the “microtoise” is gently lowered crushing the hair and making contact with the top of the head. Height is recorded to the nearest 0.1 centimeter.

Recumbent length is taken for infants less than two years of age using an infantometer or wooden length board. The child is laid on the board which is itself a flat surface. The head is positioned firmly against the fixed headboard with the eyes looking vertically. The knees are extended by firm pressure and the feet are flexed at right angles to the lower legs. Length is determined to the nearest 0.1 centimeter.

Also gathered were selected information relevant to nutritional status of individual children.

DATA PROCESSING AND ANALYSIS. All collected data were brought at FNRI office for proper data organization and later for analysis against appropriate reference anthropometric standards. Analysis consists of comparison of actual height and weight data with the 1985 FNRI-PPS reference standard for Filipino children (3) utilizing the FNRI-RSFC software (4). The following classifications of the children’s nutritional status were followed based on FNRI-PPS weight and height tables.

Weight-for-Age/Weight-for-Height Classification		Height-for-Age Classification	
Severely underweight	$\leq -3SD$	Severely underheight	$\leq -3SD$
Moderately underweight	$> -3SD$ to $\leq P5$	Stunted	$> -3SD$ to $\leq P5$
Mildly underweight	$> P5$ to $\leq P25$	Mildly underheight	$> P5$ to $\leq P25$
Average/Normal	$P25$ to $\leq P95$	Average/Normal	$P25$ to $\leq P95$
Mildly overweight	$P95$ to $\leq 3SD$	Above average	$P95$
Moderately overweight	$3SD$		

The Statistical Package for Social Sciences (5) or SPSS was used in processing and generating results on anthropometric data.

GUIDE TO INTERPRETATION OF VARIOUS FORMS OF MALNUTRITION

The FNRI anthropometric survey report of 1993 provides the following explanatory notes on the various forms of malnutrition (6):

Underweight (prevalence)

- measure using weight-for-age as indicator
- the child's weight is less than that of normal children of the same age
- does not distinguish low weight arising from simple underheight or from active malnutrition, thus, it may give an exaggerated figure for active malnutrition in a community
- moderate and severe underweight-for-age is derived using a cut-off point of equal or less than the 5th percentile of standard weight-for-age distribution
- severe underweight-for-age is derived using a cut-off point of equal or less than -3SD of standard weight-for-age distribution

Stunting or Underheight (prevalence)

- measure using height-for-age as indicator
- the child's height is less than that of normal children of the same age
- height-for-age is a less sensitive indicator than weight-for-age because height does not decrease even in the presence of malnutrition; growth in stature simply slows down
- indicates either past growth failure where the child is no longer actively malnourished, or malnutrition is of long standing (chronic malnutrition)
- moderate and severe stunting is derived using a cut-off point of equal or less than the 5th percentile of standard height-for-age distribution
- severe stunting is derived using a cut-off point of equal or less than -3SD of standard height-for-age distribution

Wasting or Thinness (prevalence)

- measured using weight-for-height as indicator
- the child's weight is less than that of normal children of the same height
- more accurately indicates malnutrition or actual weight loss, malnutrition may be of recent standing (acute) or of long standing (chronic)
- moderate and severe wasting is derived using a cut-off point of equal or less than the 5th percentile of standard weight-for-height distribution
- severe wasting is derived using a cut-off point of equal or less than -3SD of standard weight-for-height distribution

Overweight (prevalence)

- measured using weight-for-age as indicator
- the child's weight is more than that of normal children of the same age
- mild and moderate overweight is derived using a cut-off point of greater than the 95th percentile of standard weight-for-age distribution
- moderate overweight is derived using a cut-off point of greater than + 3SD of standard weight-for-age distribution

HIGHLIGHTS OF FINDINGS

Prevalence of Malnutrition

Based on three major anthropometric indicators (Figure 1), the national estimates of malnutrition in 1996 among pre-school children, aged 0-5 years old, are as follows:

- About 8 out of 100 or 8.4 % are at least moderately underweight
- About 5 out of 100 or 5.1 % are stunted, i.e. malnourished in the past or suffering from chronic malnutrition.
- Slightly less than 5 out of 100 or 4.6 % are wasted or with acute malnutrition.
- These proportions suggest that among preschoolers, an estimated count of about 890,000 are underweight, 540,000 are stunted and 490,000 are wasted. (This is based in 1996 projected population).
- Of the various forms of malnutrition, the severely affected and at great risk of physical and mental retardation comprise a proportion of 0.5 %, 0.2 % and 0.4 % respectively, for underweight, stunting and wasting.

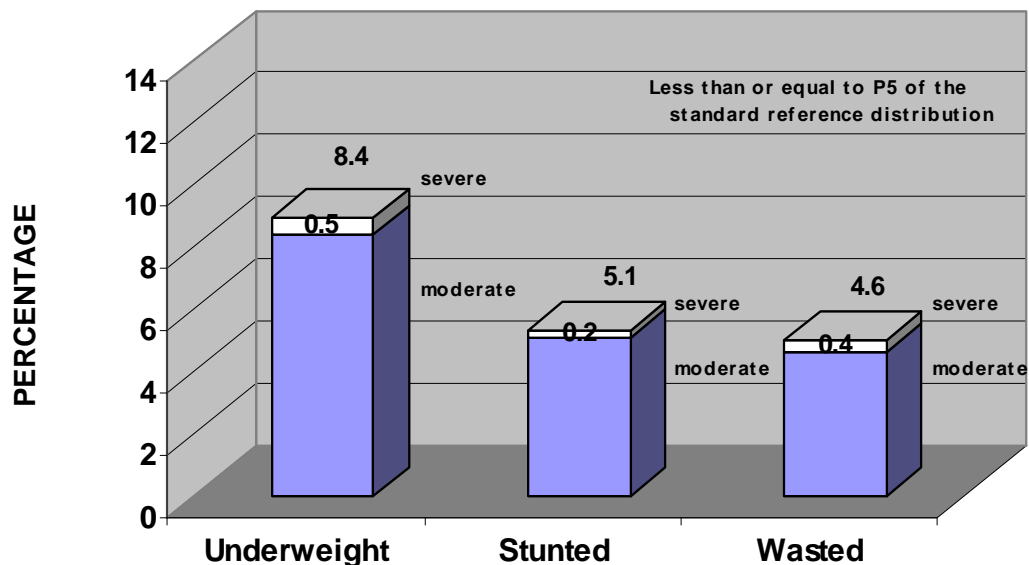


Figure 2. Prevalence of malnutrition among 6-10 year old children: Philippines, 1996

➤ Among the 6-10 year old children, the prevalences of malnutrition in 1996 (Figure 2) are as follows:

- About 7 out of 100 or 7.4% are at least moderately underweight
- More than 5 out of 100 or 5.5% were malnourished in the past or are chronically malnourished or stunted
- More than 6 pit of 100 or 6.6% are acutely malnourished or wasted
- These proportions suggest that among young schoolers, there are an estimated number of some 620,000 who are underweight, 460,000 stunted and 550,000 wasted (based on 1996 projected population)
- Disaggregating the severely malnourished that needs urgent public health assistance, the estimated prevalence rates are 0.3% (underweight), 0.4% (stunted) and 0.5% (wasted)

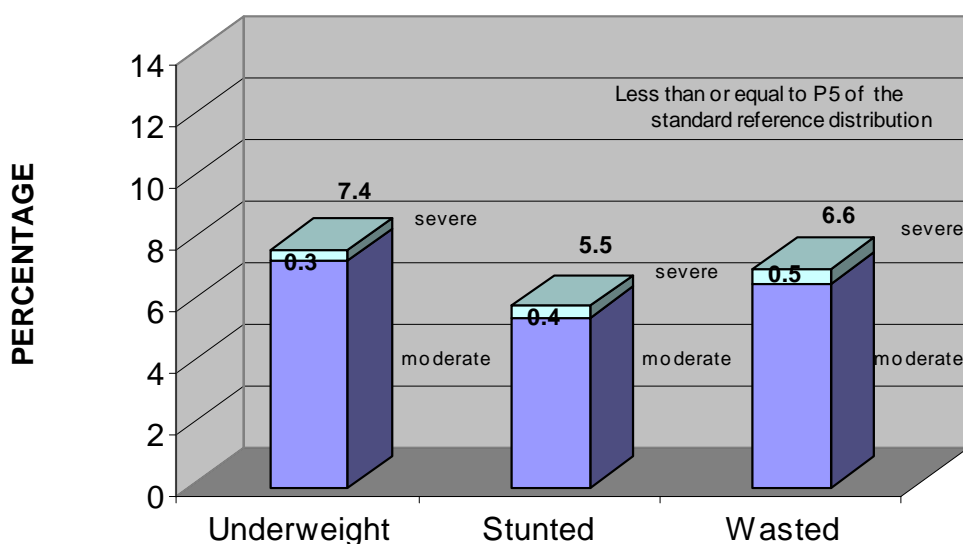


Figure 2. Prevalence of malnutrition among 6-10 year old children: Philippines, 1996

Comparison with Past Survey

➤ In general, there is an evident progressive improvement in the nutritional condition of both 0-5 and 6-10 year old children over the years, however, such improvement is rather low.

↗ Compared with the latest national nutrition survey of 1993 (6), a general declining trend in the various forms of malnutrition for both these age groups of children is noted with the exception of underweight prevalence among preschoolers which increases very slightly by 0.2 % (Table 2).

Table 2. Trends in the prevalence of underweight, stunted and wasted 0-5 and 6-10 year old children: Philippines, 1989-90 to 1996

Nutritional Status	1989-90	1992	1993	1996	1996 vs 1989-90	1996 vs 1993
	% Prevalence				Difference	
0-5 years old						
Underweight	9.8	10.0	8.2	8.4	-1.4**	0.2 ^{ns}
Stunted	6.5	6.4	5.4	5.1	-1.4**	-0.3 ^{ns}
Wasted	4.6	5.6	5.9	4.6	0.0	-1.3**
6-10 years old						
Underweight	8.5	9.4	7.6	7.4	-1.1**	-0.2 ^{ns}
Stunted	6.5	6.5	5.7	5.5	-1.0**	-0.2 ^{ns}
Wasted	6.9	7.4	7.8	6.6	-0.3 ^{ns}	-1.2*

** = significant at $\alpha = 0.01$

* = significant at $\alpha = 0.05$

ns = not significant

↗ The registered changes for underweight (+ 0.2 % for pre-schoolers and -0.2 % for schoolers) and stunting (- 0.3 % for pre-schoolers and -0.2 % for schoolers) from 1993 to 1996 (Table 3) are rather small and found insignificant.

↗ Wasting registered a significant favorable change having disclosed a reduction of 1.3 % for the preschoolers and 1.2 % for the schoolers within the same three year reference period, (Table 3).

↗ Considering a longer time gap, from 1989-90 (7) to 1996, the decrease in the prevalences of underweight and stunting of both age groups of children are registered as statistically significant, (Table 3 and Figures 3 and 4). It is apparent that the Filipino children have been making some gains in physical stature and are now heavier and taller than they were before.

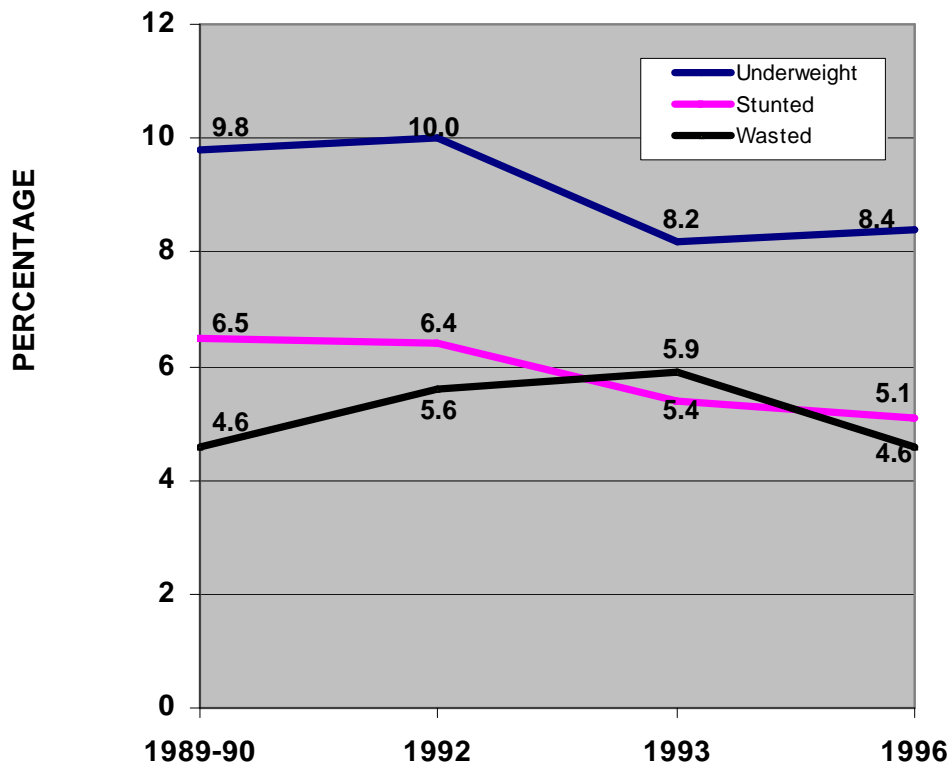


Figure 3. Trends in the prevalence of malnutrition among 0-5 year old Children: Philippines, 1989-90 to 1996

↗ In the same six year period, wasting prevalence is noted to have successively increased in 1992 (8) and 1993 so that even as it finally dropped remarkably by 1996, it appeared to have not changed at all since the 1989-90 base year. However, the 1996 prevalence level for the 0-5 years is shown to have recovered at least, at its former 1989-90 prevalence level of 4.6 %, Table 3. On the other hand, the 6-10 years old did a little better with a slight 0.3 % reduction in 1996 compared with its wasting prevalence level in 1989-90.

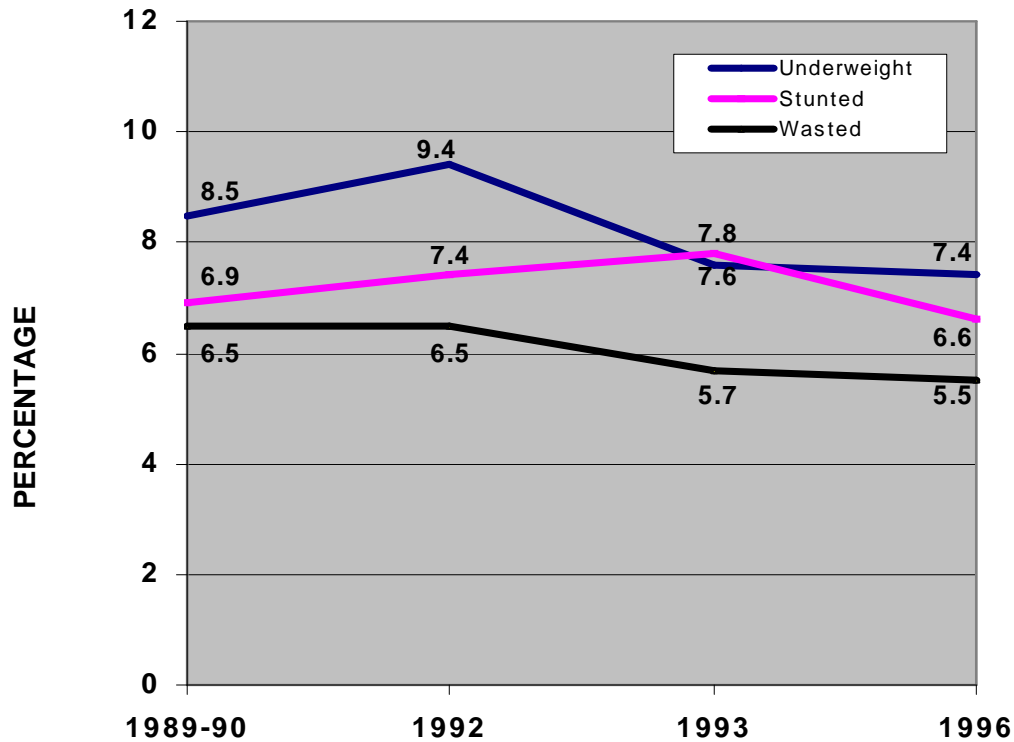


Figure 4. Trends in the prevalence of malnutrition among 6-10 year old children: Philippines, 1989-90 to 1996

Specific Age and Sex Group Affected

- ↗ Underweight and stunting remain to heavily afflict the 1 and 2 years old among the preschoolers and are most rampant among the 10 year old children.
- ↗ Thus, underweight prevalence is highest at 13.8 % for the 1 year old and second highest at 8.7 % for both the 2 years old and 10 years old and 10 years old in 1996, Figure 5.
- ↗ The same prevalence pattern is almost true for stunting where the highest prevalence of 7.2 % is recorded for the 10 year old children followed by the prevalence level of 2 years old at 6.6 %.

- ⇒ Wasting is apparently more rampant among the schoolers than the preschoolers particularly for the 6 and 8 year old children which both recorded a prevalence rate of 7.0 %, the highest. The 7 and 10 years old follow closely with wasting proportion of 6.7 % and 6.5 %.
- ⇒ Considering the three indicators, the boys at this early age of below 10 years are generally found as the more nutritionally vulnerable than girls. However, they catch up in height upon reaching school age having disclosed the lesser proportion of stunting than girls, Table 3.

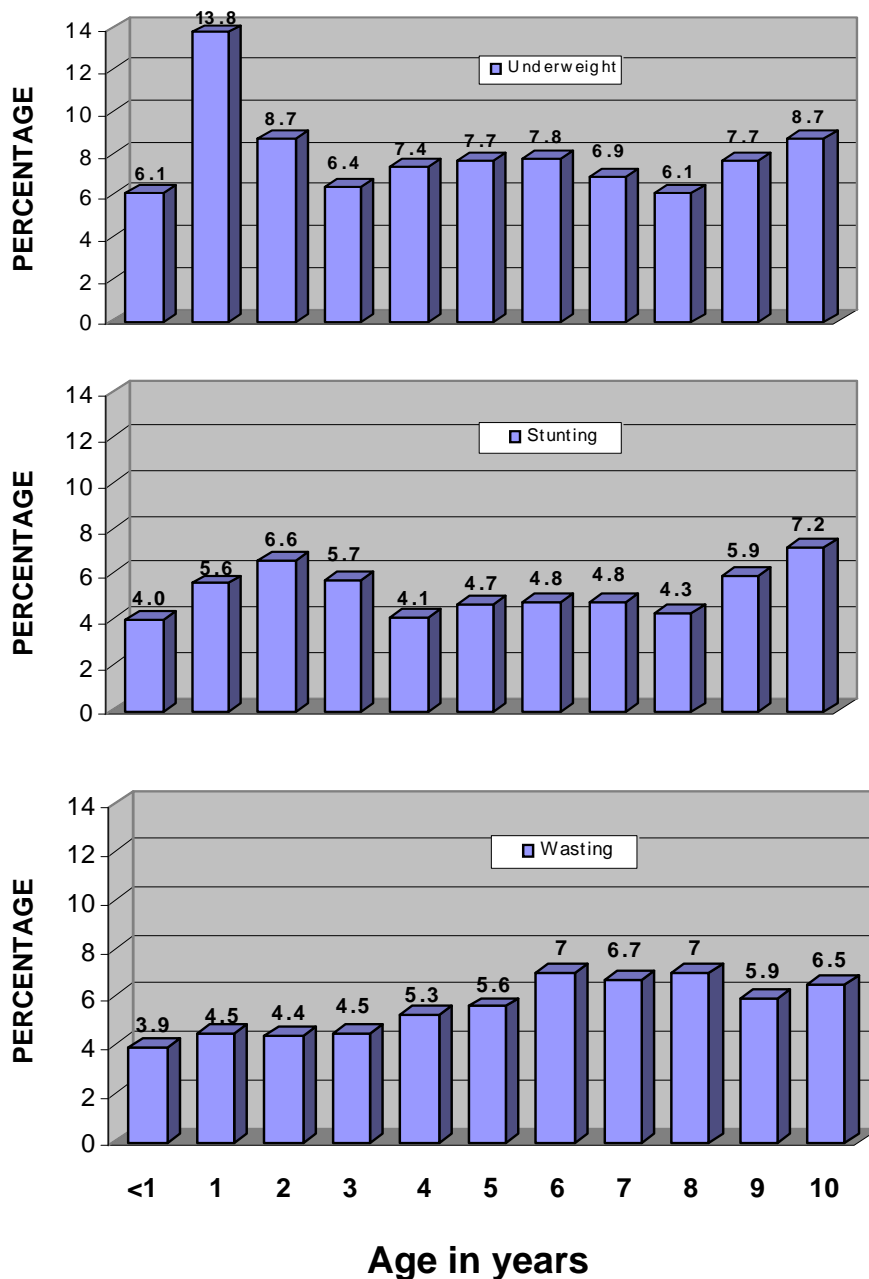


Figure 5. Prevalence of malnutrition among 0-10 year old children: Philippines, 1996

Table 3. Trends in the prevalence of underweight, stunted and wasted 0-5 and 6-10 year old children by sex: Philippines, 1989-90 to 1996

Nutritional Status	1989-90		1992		1993		1996	
	% Prevalence							
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
0-5 years old								
Underweight	9.7	9.7	10.5	9.5	7.7	8.7	8.5	8.3
Stunted	7.7	5.3	4.7	4.7	6.7	4.2	6.0	4.1
Wasted	4.9	4.3	5.0	5.0	6.5	5.2	5.0	4.4
6-10 years old								
Underweight	8.9	8.2	10.2	8.7	8.4	6.7	8.3	6.5
Stunted	6.1	6.9	6.0	7.0	5.3	6.2	5.3	5.7
Wasted	7.5	6.1	8.6	6.2	9.8	5.6	7.7	5.4

Provinces Most Nutritionally At-Risk

As revealed in the 1996 nutrition survey, the extent and magnitude of malnutrition among children on the basis of the different anthropometric indicators, for the various provinces as well as for cities and cluster of municipalities/other cities of the National Capital Region are as follows:

PRE-SCHOOL (0-5 YEARS OLD) CHILDREN

Ten provinces with the highest percentage of underweight preschoolers, (Table 4 and Figure 6).

PROVINCE	REGION	PREVALENCE RATE
Marinduque	Southern Tagalog	26.2%
Bilibiran	Eastern Visayas	21.7
Aurora	Southern Tagalog	19.6
Cagayan	Cagayan Valley	18.4
Northern Samar	Eastern Visayas	18.1
Camiguin	Northern Mindanao	18.1
Agusan del Sur	Caraga	16.5
Antique	Western Visayas	15.9
Mountain Province	CAR	15.5
Western Samar	Eastern Visayas	15.1

↗ Ten provinces with the highest percentage of stunted preschoolers, Table 4.

PROVINCE	REGION	PREVALENCE RATE
Basilan	Western Mindanao	13.6%
Lanao del Sur	ARMM	13.4
Surigao del Norte	Caraga	12.7
Aurora	Southern TAgalo	12.5
Mountain Province	CAR	11.7
Agusan del Sur	Caraga	11.5
Bilibiran	Eastern Visayas	11.4
Kalinga	CAR	11.1
Sorsogon	Bicol	10.2
Camarines Sur	Bicol	10.1

↗ Eleven provinces with the highest percentage of wasted preschoolers, Table 4.

PROVINCE	REGION	PREVALENCE RATE
Marinduque	Southern Tagalog	18.7%
Ilocos Sur	Ilocos	13.3
Las Piñas, Parañaque	NCR	11.5
Eastern Samar	Eastern Visayas	10.3
Western Samar	Eastern Visayas	10.3
Surigao del Norte	Caraga	9.5
Palawan	Southern Tagalog	9.1
Cagayan	Cagayan Valley	8.9
Marikina, Pateros, Tagig	NCR	8.4
Bataan	Central Luzon	8.3
Camiguin	Northern Mindanao	8.3

**Table 4. Proportion of 0-5 year old children by various form of malnutrition:
Philippines, 1996**

Area	Underweight	Stunted	Wasted
Philippines	8.4	5.1	4.6
NCR	5.6	2.8	4.8
Manila	4.6	2.3	3.7
Quezon City	5.0	1.3	3.8
Pasay City	2.8	1.4	2.7
Kalookan City	7.5	5.8	3.3
Makati City	1.4	1.4	1.4
San Juan, Mandaluyong City	1.4	1.4	1.4
Malabon, Navotas, Valenzuela	5.8	5.8	5.8
Marikina, Pateros, Tagig	6.3	3.1	8.4
Pasig City, Muntinlupa	7.3	2.1	6.2
Las Piñas, Parañaque	12.5	3.1	11.5
I. Ilocos	9.1	5.5	5.4
Ilocos Norte	3.6	2.8	1.6
Ilocos Sur	11.1	6.9	13.3
La Union	8.7	3.6	2.8
Pangasinan	9.8	6.2	5.1
CAR	6.4	3.7	3.1
Abra	6.3	0.0	4.2
Benguet	7.1	1.5	4.3
Kalinga	4.2	11.1	0.0
Apayao	5.0	0.8	3.8
Ifugao	0.0	3.7	0.0
Mountain Province	15.5	11.7	3.8
II. Cagayan Valley	12.6	4.8	6.0
Batanes	0.0	0.0	1.4
Cagayan	18.4	5.3	8.9
Isabela	12.3	6.3	5.3
Nueva Vizcaya	1.0	0.0	2.0
Quirino	8.2	0.0	3.1
III. Central Luzon	5.9	2.8	5.6
Bataan	10.4	2.1	8.3
Bulacan	3.3	0.4	3.5
Nueva Ecija	8.8	5.0	7.0
Pampanga	6.5	4.5	7.0
Tarlac	5.0	2.2	3.2
Zambales	2.2	0.7	4.8

(Cont'd.)

(Cont'n.) Table 4

Area	Underweight	Stunted	Wasted
IV. Southern Tagalog	6.5	3.3	3.9
Aurora	19.6	12.5	4.2
Batangas	3.3	1.7	0.9
Cavite	6.0	4.2	1.1
Laguna	5.6	1.9	3.2
Marinduque	26.2	4.9	18.7
Occidental Mindoro	8.3	2.8	2.8
Oriental Mindoro	4.6	1.2	3.3
Palawan	9.9	2.1	9.1
Quezon	5.9	6.4	4.7
Rizal	6.1	1.7	5.7
Romblon	6.0	4.2	1.8
V. Bicol	10.3	7.7	3.8
Albay	8.8	6.4	1.8
Camarines Norte	7.4	3.7	3.7
Camarines Sur	10.7	10.1	6.4
Catanduanes	11.0	2.9	2.3
Masbate	9.2	6.2	3.3
Sorsogon	15.0	10.2	1.1
VI. Western Visayas	9.8	4.2	5.9
Aklan	2.7	2.8	2.8
Antique	15.9	2.4	7.5
Capiz	12.0	7.5	3.6
Iloilo	7.8	3.0	4.7
Guimaras	12.1	4.0	4.0
Negros Occidental	10.7	4.8	7.4
VII. Central Visayas	8.8	7.4	3.6
Bohol	10.7	6.6	1.4
Cebu	8.4	7.2	3.7
Negros Oriental	7.9	8.6	5.5
Siquijor	9.9	6.6	3.8
VIII. Eastern Visayas	12.1	7.7	6.0
Eastern Samar	9.2	8.8	10.3
Leyte	9.8	8.3	4.3
Bilibiran	21.7	11.4	7.2
Northern Samar	18.1	3.8	6.4
Southern Leyte	8.9	8.1	0.0
Western Samar	15.1	7.3	10.3
IX. Western Mindanao	10.0	6.2	3.4
Basilan	11.0	13.6	0.0
Zamboanga del Norte	8.1	3.7	2.8
Zamboanga del Sur	10.7	6.3	4.1

(Cont'd.)

(Cont'n.) Table 4

Area	Underweight	Stunted	Wasted
X. Northern Mindanao	6.4	6.6	3.1
Bukidnon	6.3	8.3	4.3
Camiguin	18.1	8.3	8.3
Misamis Occidental	3.5	4.6	0.9
Misamis Oriental	6.8	5.4	2.3
XI. Southern Mindanao	3.3	5.1	4.4
Davao del Norte	6.2	4.1	3.9
Davao del Sur	6.7	4.2	5.5
Davao Oriental	11.7	7.7	1.7
Sarangani	12.5	6.8	5.7
South Cotabato	13.9	7.0	4.7
XII. Central Mindanao	10.3	5.6	6.1
Lanao del Norte	11.7	8.4	5.4
North Cotabato	9.0	5.1	6.6
Sultan Kudarat	11.2	2.7	6.2
Caraga	10.2	7.3	5.1
Agusan del Norte	6.1	5.2	6.1
Agusan del Sur	16.5	11.5	3.5
Surigao del Norte	14.0	12.7	9.5
Surigao del Sur	4.2	0.0	2.1
ARMM	7.5	8.6	4.8
Lanao del Sur	6.6	13.4	6.5
Maguindanao	8.3	7.3	3.3
Sulu	8.8	2.8	5.1
Tawi-tawi	5.0	6.8	3.2

SCHOOL (6-10 YEARS OLD) CHILDREN

↗ Eleven provinces with the highest percentage of underweight school children, Table 5 and Figure 7.

PROVINCE	REGION	PREVALENCE RATE
Antique	Western Visayas	15.1%
Southern Leyte	Eastern Visayas	13.8
Camarines Sur	Bicol	13.6
Sulu	ARMM	12.3
Aklan	Western Visayas	12.2
Las Piñas, Parañaque	NCR	11.8
Oriental Mindoro	Southern Tagalog	11.4
Pasig City, Muntinlupa	NCR	11.1
Rizal	Southern Tagalog	11.0
Eastern Samar	Eastern Visayas	10.5
Lanao del Sur	ARMM	10.5

↗ Eleven provinces with the highest percentage of stunted school children, Table 5.

PROVINCE	REGION	PREVALENCE RATE
Mountain Province	CAR	15.2%
Southern Leyte	Eastern Visayas	14.4
Agusan del Sur	Caraga	12.3
Surigao del Norte	Caraga	11.3
Leyte	Eastern Visayas	11.0
Maguindanao	ARMM	10.5
South Cotabato	Southern Mindanao	10.3
Camarines Sur	Bicol	10.2
Sulu	ARMM	10.2
Davao Oriental	Southern Mindanao	10.0
Lanao del Sur	ARMM	10.0

➤ Ten provinces with the highest percentage of wasted school children, Table 5.

PROVINCE	REGION	PREVALENCE RATE
Marikina, Pateros, Tagig	NCR	16.0%
Manila	NCR	13.9
Las Piñas, Parañaque	NCR	13.2
Bataan	Central Luzon	12.1
Makati City	NCR	12.0
Sultan Kudarat	Central Mindanao	11.9
Rizal	Southern Tagalog	11.6
Basilan	Western Mindanao	11.4
Zambales	Central Luzon	11.2
Siquijor	Central Visayas	11.2

Table 5. Proportion of 6-10 year old children by various forms of malnutrition: Philippines, 1996

Area	Underweight	Stunted	Wasted
Philippines	7.4	5.5	6.6
NCR	7.0	2.9	11.4
Manila	3.7	0.6	13.9
Quezon City	8.1	3.1	10.0
Pasay City	4.7	3.7	1.96
Kalookan City	7.2	2.8	10.6
Makati City	5.6	0.0	12.0
San Juan, Mandaluyong City	5.6	2.8	8.3
Malabon, Navotas, Valenzuela	6.2	2.8	10.6
Marikina, Pateros, Tagig	7.6	6.3	16.0
Pasig City, Muntinlupa	11.1	2.8	11.1
Las Piñas, Parañaque	11.8	7.6	13.2
I. Ilocos	4.9	2.4	6.4
Ilocos Norte	5.0	3.2	5.3
Ilocos Sur	5.1	4.2	9.2
La Union	3.7	1.1	8.5
Pangasinan	5.2	2.1	5.8

(Cont'n.) Table 5

Area	Underweight	Stunted	Wasted
CAR	2.0	3.6	3.4
Abra	3.4	2.1	7.0
Benguet	1.9	1.0	3.8
Kalinga	2.3	0.5	2.8
Apayao	5.6	7.8	5.8
Ifugao	0.3	5.6	0.3
Mountain Province	0.0	15.2	0.0
II. Cagayan Valley	6.7	3.0	7.7
Batanes	2.8	0.0	5.6
Cagayan	4.9	2.5	7.4
Isabela	7.1	3.6	7.4
Nueva Vizcaya	9.8	3.4	10.5
Quirino	8.4	0.7	5.6
III. Central Luzon	6.7	4.3	7.6
Bataan	9.3	6.0	12.1
Bulacan	5.3	5.8	7.5
Nueva Ecija	5.3	3.3	6.8
Pampanga	7.3	4.4	5.9
Tarlac	8.9	1.9	7.7
Zambales	7.4	5.1	11.2
IV. Southern Tagalog	6.7	4.3	7.2
Aurora	2.8	2.8	8.0
Batangas	3.9	2.9	6.2
Cavite	4.0	1.5	6.2
Laguna	7.3	5.4	7.2
Marinduque	2.3	2.3	10.6
Occidental Mindoro	8.6	5.5	6.8
Oriental Mindoro	11.4	7.8	5.1
Palawan	6.9	4.6	6.6
Quezon	6.2	5.0	6.5
Rizal	11.0	4.1	11.6
Romblon	6.8	7.7	4.9
V. Bicol	9.2	7.9	6.4
Albay	6.8	5.6	6.1
Camarines Norte	8.7	5.6	8.6
Camarines Sur	13.6	10.2	7.4
Catanduanes	2.8	4.9	5.5
Masbate	8.6	8.9	4.2
Sorsogon	4.6	7.6	5.9
VI. Western Visayas	9.5	5.5	6.3
Aklan	12.2	6.1	6.5
Antique	15.1	7.1	11.1
Capiz	9.5	5.2	4.6
Iloilo	7.5	3.3	5.5
Guimaras	3.1	0.3	2.8
Negros Occidental	9.8	6.7	6.7

(Cont'd.)

(Cont'n.) Table 5

Area	Underweight	Stunted	Wasted
VII. Central Visayas	6.3	6.9	3.3
Bohol	5.6	9.0	3.2
Cebu	6.9	6.7	2.9
Negros Oriental	5.5	6.0	3.9
Siquijor	8.3	2.6	11.2
VIII. Eastern Visayas	10.0	9.3	6.2
Eastern Samar	10.5	9.0	8.5
Leyte	10.3	11.0	6.6
Bilibiran	9.7	5.6	8.2
Northern Samar	9.8	4.9	4.9
Southern Leyte	13.8	14.4	4.8
Western Samar	6.6	5.9	5.3
IX. Western Mindanao	8.7	7.5	6.8
Basilan	7.8	6.8	11.4
Zamboanga del Norte	5.8	4.4	9.9
Zamboanga del Sur	10.1	8.8	5.0
X. Northern Mindanao	5.0	5.1	2.1
Bukidnon	5.6	6.6	3.2
Camiguin	1.8	1.8	3.7
Misamis Occidental	2.4	3.7	1.9
Misamis Oriental	5.6	4.1	0.9
XI. Southern Mindanao	7.8	5.8	5.2
Davao del Norte	7.5	5.8	3.8
Davao del Sur	6.6	3.3	7.3
Davao Oriental	9.2	10.0	3.3
Sarangani	10.1	5.6	9.1
South Cotabato	10.3	10.3	2.4
XII. Central Mindanao	7.7	6.2	7.3
Lanao del Norte	7.0	5.3	4.1
North Cotabato	8.0	8.2	7.1
Sultan Kudarat	8.5	3.3	11.9
Caraga	7.2	8.9	4.4
Agusan del Norte	5.6	6.4	1.4
Agusan del Sur	9.0	12.3	2.1
Surigao del Norte	8.5	11.3	8.4
Surigao del Sur	5.8	5.6	6.1
ARMM	10.2	9.4	4.3
Lanao del Sur	10.5	10.0	4.2
Maguindanao	9.9	10.5	1.5
Sulu	12.3	10.2	9.5
Tawi-tawi	6.6	0.5	6.1

- ↪ From the above ranking of the extent and magnitude of the various forms of malnutrition, (i.e. underweight, stunting and wasting) it is noted with much concern and interest that some provinces/areas which are identified as most-at-risk to underweight problem are similarly listed in the top ten provinces heavily afflicted with either stunting or wasting. This is true for both the 0-5 year and 6-10 year old groups.
- ↪ Thus, considering the 0-5 year old preschool children, Figure 6, these provinces are *Marinduque, Biliran, Aurora, Camiguin, Cagayan, Agusan del Sur, Mt. Province and Western Samar*.
- ↪ Then, considering the 6-10 year old school children, Figure 7, these provinces/areas are *Southern Leyte, Las Piñas/Parañaque, Sulu, Camarines Sur, Rizal and Lanao del Sur*. While *Antique* recorded the highest underweight prevalence, it is not among the top ten provinces with stunting and wasting problems.
- ↪ Glaringly noted are the prevalence rates of these provinces/areas which are revealed as almost two times as much and even up to more than three times higher than the Philippines average, Figures 6 and 7. Certainly these provinces deserve utmost public assistance and nutrition care.
- ↪ On the other hand, should intervention program targets reduction of stunting among the 0-5 years old pre-schoolers, Basilan and Lanao del Sur are top priority areas while programs aimed at reduction of wasting should give urgent attention to Ilocos Sur and Las Piñas/Parañaque cluster, besides Marinduque.
- ↪ In the case of the 6 to 10 year old schoolers, the provinces that need further attention and vigilant monitoring are *Mt. Province, Agusan del Sur and Surigao del Norte*, (besides Southern Leyte, because of rampant stunting problem as well as the areas of *Marikina/Pateros/Tagig and City of Manila* which are heavily afflicted with wasting among the 6-10 year old children.

Regions Most Nutritionally At-Risk

- ↪ On the whole, Eastern *Visayas, Bicol and Autonomous Region of Muslim Mindanao* still remain as most vulnerable regions to child malnutrition. Also noted as greatly at-risk to stunting is Caraga and to wasting are Central Mindanao (among preschoolers) and the National Capital Region (among school children), Tables 5 and 6.

Prevalence of Overnutrition

- Another nutritional concern that deserves important attention is overnutrition, particularly moderate overnutrition among children. The condition is certainly a health risk that can lead to diabetes, cardio-vascular diseases and other diet related diseases.
- The prevalence of moderate overweight in 1996, using weight for age as an indicator, is 1.0% among 0-5 year old children. Among the 6-10 years old, the prevalence appears more than twice as much, at 2.4%, than that for preschoolers, Figure 8.

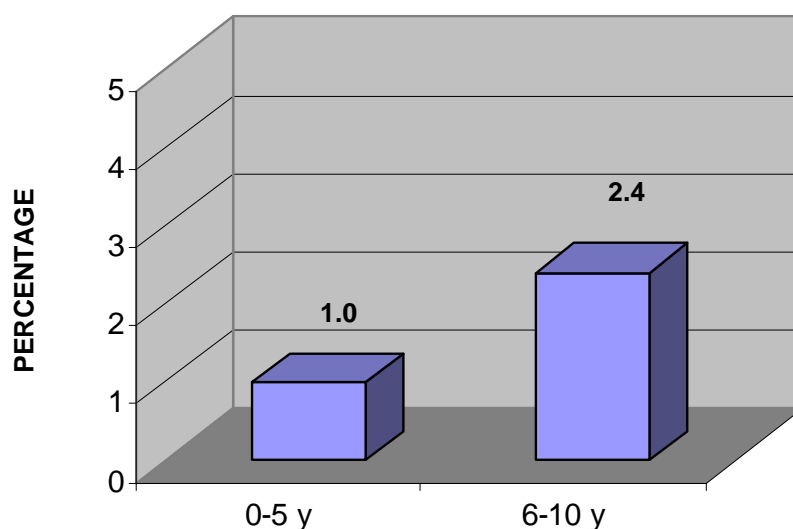


Figure 8. Prevalence of moderate overweight among 0-5 and 6-10 year old Children: Philippines, 1996

- The prevalence of moderate overweight is apparently more rampant in all school-age groups than the pre-school age group ranging from 1.4 % (6 years old) to 0.3 % (9 years old). Among preschoolers, the infants of less than 1 year is most affected with 1.56 % prevalence, Figure 9.

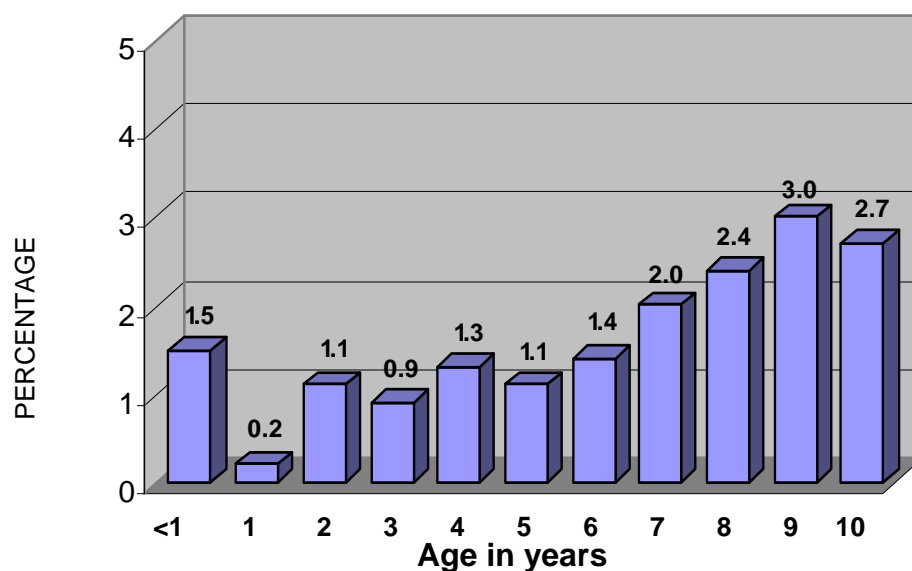


Figure 9. Prevalence of moderate overweight 0-10 year old children by single age group: Philippines, 1996

➤ The cities and municipalities of NCR specifically Manila, Kalookan City, Makati City and Pasig City/Muntinlupa City including the province of Cavite and Rizal top the list of areas in the country with high proportion of children who are moderately overweight. The ranking of areas are as follows, Annexes 2 and 3:

<i>Pre-school (0-5 year old) children</i>	<i>Prevalence rate (%)</i>
Manila	6.9
Kalookan City	4.2
Makati City	4.2
Marikina/Pateros/Taguig	4.2
Pasig city/Muntinlupa	4.2
Cavite	2.9
San Juan/Mandaluyong City	2.8
Batanes	2.8
Rizal	2.2
Agusan del Norte	2.2

<i>School (6-10 years old) children</i>	<i>Prevalence rate (%)</i>
Cavite	9.8
Makati City	9.3
Pasig City/Muntinlupa City	7.6
Manila	7.4
Quezon City	6.1
Rizal	6.0
Pasay	4.7
Benguet	4.6
Malabon/Navotas/Valenzuela	4.4
Iloilo	4.2

CONCLUSIONS

Trend in the nutrition situation of the country indicates improvement in the physical stature of children although such improvement is seen as rather slow. Over a six year period from 1989/90 to 1996, both the pre-school and school children apparently have become heavier resulting from a decline in the proportion of underweight and have grown taller as indicated by a reduction in the proportion of stunting. The 1996 current nutrition situation, however, shows that protein energy malnutrition still persists affecting, on the average, almost half a million each of the 0-5 year old and the 6-10 year old age groups. To single out underweight-for-age among the anthropometric indicators, it still afflicts an estimated count of about 890,000 which is actually a reduced number from the more than one million children affected in the past few years.

If priorities are to be set for nutrition intervention which targets children, the provinces/areas found with alarming proportion of underweight can be considered, particularly if either stunting or wasting is also present in similarly considered, particularly if either stunting or wasting is also present in similarly heavy concentration in the same provinces/areas. Meanwhile, moderate overnutrition is relatively low, on the average, but it is now calling attention in the cities/areas of Metro Manila and in a few provinces.

Of great importance presently, is the acceleration of the favorable trend in the nutrition situation of children in the country. There is still much to do to attain the desired reduction level in malnutrition within the target time period. Continuing the present standard interventions in solving malnutrition in the various provinces and localities are necessary and essentials to their effectiveness. Strengthening of efforts in nutrition advocacy can provide full support in implementing the interventions. In addition, the future surely looks bright for Filipino children and all as the government is determined to fight poverty which is the root cause of the problem, and to provide quality basic services to those in great need.

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**Annex 1. Number of provinces, sample barangays and subjects covered by region:
Philippines, 1996**

Region	Number of Areas Covered		Number of Samples		Total
	Provinces/ Areas	Barangays	0-5 yrs. old	6-10 yrs. old	
Philippines	87	864	10385	15530	25915
<i>NCR</i>	10	100	1201	1799	3000
Manila		18	216	324	540
Quezon City		20	240	360	600
Pasay City		6	73	107	180
Kalookan City		10	120	180	300
Makati City		6	72	108	180
San Juan, Mandaluyong City		6	72	108	180
Malabon, Navotas, Valenzuela		10	120	180	300
Marikina, Pateros, Tagig		8	96	144	240
Pasig City, Muntinlupa		8	96	144	240
Las Piñas, Parañaque		8	96	144	240
<i>I. Ilocos</i>	4	42	503	755	1258
Ilocos Norte		6	72	108	180
Ilocos Sur		6	72	107	179
La Union		6	72	108	180
Pangasinan		24	287	432	719
<i>CAR</i>	6	26	312	468	780
Abra		4	48	72	120
Benguet		6	72	108	180
Kalinga		4	48	72	120
Apayao		4	48	72	120
Ifugao		4	48	72	120
Mountain Province		4	48	72	120
<i>II. Cagayan Valley</i>	5	38	457	683	1140
Batanes		8	96	144	240
Cagayan		4	48	72	120
Isabela		18	216	324	540
Nueva Vizcaya		4	48	72	120
Quirino		4	49	71	120
<i>III. Central Luzon</i>	6	78	936	1404	2340
Bataan		6	72	108	180
Bulacan		18	216	324	540
Nueva Ecija		16	192	288	480
Pampanga		18	216	324	540
Tarlac		12	144	216	360
Zambales		8	96	144	240

(Cont'd.)

(Cont'n.) Annex 1

Region	Number of Areas Covered		Number of Samples		Total
	Provinces/ Areas	Barangays	0-5 yrs. old	6-10 yrs. old	
IV. Southern Tagalog	11	124	1486	2234	3720
Aurora		4	48	72	120
Batangas		20	240	360	600
Cavite		16	191	289	480
Laguna		18	215	325	540
Marinduque		4	48	72	120
Occidental Mindoro		6	72	108	180
Oriental Mindoro		10	120	180	300
Palawan		8	96	144	240
Quezon		20	240	360	600
Rizal		14	168	252	420
Romblon		4	48	72	120
V. Bicol	6	58	698	1041	1739
Albay		12	144	216	360
Camarines Norte		6	72	108	180
Camarines Sur		18	216	323	539
Catanduanes		4	50	70	120
Masbate		10	120	180	300
Sorsogon		8	96	144	240
VI. Western Visayas	6	72	871	1289	2160
Aklan		6	72	108	180
Antique		6	72	108	180
Capiz		8	96	144	240
Iloilo		20	246	354	600
Guimaras		4	49	71	120
Negros Occidental		28	336	504	840
VII. Central Visayas	4	60	724	1076	1800
Bohol		12	144	216	360
Cebu		32	384	576	960
Negros Oriental		12	145	215	360
Siquijor		4	51	69	120
VIII. Eastern Visayas	6	46	553	826	1379
Eastern Samar		6	73	107	180
Leyte		18	218	322	540
Bilibiran		4	48	72	120
Northern Samar		6	72	108	180
Southern Leyte		4	46	74	120
Western Samar		8	96	143	239

(Cont'd.)

Region	Number of Areas Covered		Number of Samples		Total
	Provinces/ Areas	Barangays	0-5 yrs. old	6-10 yrs. old	
IX. Western Mindanao	3	36	432	648	1080
Basilan		4	48	72	120
Zamboanga del Norte		10	120	180	300
Zamboanga del Sur		22	264	396	660
X. Northern Mindanao	4	36	434	646	1080
Bukidnon		14	168	252	420
Camiguin		6	72	108	180
Misamis Occidental		12	146	214	360
Misamis Oriental		4	48	72	120
XI. Southern Mindanao	5	58	695	1045	1740
Davao del Norte		16	192	288	480
Davao del Sur		20	239	361	600
Davao Oriental		6	72	108	180
Sarangani		12	48	72	120
South Cotabato		4	144	216	360
XII. Central Mindanao	3	32	384	576	960
Lanao del Norte		10	120	180	300
North Cotabato		14	168	252	420
Sultan Kudarat		8	96	144	240
Caraga	4	30	364	536	900
Agusan del Norte		8	97	143	240
Agusan del Sur		8	99	141	240
Surigao del Norte		6	72	108	180
Surigao del Sur		8	96	144	240
ARMM	4	28	335	504	839
Lanao del Sur		8	95	144	239
Maguindanao		10	120	180	300
Sulu		6	72	108	180
Tawi-tawi		4	48	72	120

**Annex 2. Percentage distribution of 0-5 year-old children by weight-for-age classification
By province: Philippines, 1996**

Province/Region	Underweight			Mildly Underwt	Average	Overweight		
	Severe	Moderate	Total			Mild	Moderate	Total
	≤3SD	>-3SD to ≤P5		>P5 to ≤P25	>P25 to ≤P95	>P95 to ≤+2SD	>+3SD	
Philippines	0.5	7.9	8.4	27.0	59.8	3.9	1.0	4.9
NCR	0.5	5.1	5.6	21.2	61.9	7.8	3.5	11.3
Manila	1.4	3.2	4.6	13.9	62.5	12.0	6.9	18.9
Quezon City	0.0	5.0	5.0	25.8	60.4	7.1	1.7	8.8
Pasay City	1.4	1.4	2.8	20.5	71.2	4.1	1.4	5.5
Kalookan City	0.8	6.7	7.5	21.7	55.0	11.7	4.2	15.9
Makati City	0.0	1.4	1.4	16.7	69.4	8.3	4.2	12.5
San Juan, Mandaluyong City	0.0	1.4	1.4	16.7	72.2	6.9	2.8	9.7
Malabon,Navotas,Valenzuela	0.0	5.8	5.8	25.8	60.0	6.7	1.7	8.4
Marikina, Pateros, Tagig	0.0	6.3	6.3	33.3	52.1	4.2	4.2	8.4
Pasig City, Muntinlupa	0.0	7.3	7.3	16.7	65.6	6.3	4.2	10.5
Las Piñas, Parañaque	1.0	11.5	12.5	19.8	63.5	3.1	1.0	4.1
I. Ilocos	0.2	8.8	9.1	22.7	64.5	3.0	0.7	3.7
Ilocos Norte	0.0	3.6	3.6	19.4	74.6	2.4	0.0	2.4
Ilocos Sur	0.0	11.1	11.1	30.8	56.8	0.6	0.6	1.2
La Union	0.0	8.7	8.7	22.2	65.5	3.6	0.0	3.6
Pangasinan	0.3	9.5	9.8	21.6	64.0	3.5	1.1	4.6
CAR	0.7	6.0	6.7	24.8	65.6	2.3	0.7	3.0
Abra	0.0	6.3	6.3	41.1	52.6	0.0	0.0	0.0
Benguet	1.5	5.6	7.1	21.3	66.1	4.1	1.5	5.6
Kalinga	0.0	4.2	4.2	39.6	55.8	0.4	0.0	0.4
Apayao	0.4	4.6	5.0	35.3	59.7	0.0	0.0	0.0
Ifugao	0.0	0.0	0.0	12.9	86.4	0.4	0.4	0.8
Mountain Province	0.0	14.5	14.5	8.3	73.7	3.5	0.0	3.5
II. Cagayan Valley	0.3	12.3	12.6	26.4	56.1	3.9	1.0	4.9
Batanes	0.0	0.0	0.0	23.6	65.3	8.3	2.8	11.1
Cagayan	0.0	18.4	18.4	25.6	52.9	1.0	2.1	3.1
Isabela	0.7	11.6	12.3	24.3	58.7	4.6	0.2	4.8
Nueva Vizcaya	0.0	1.0	1.0	33.5	54.0	10.5	1.0	11.5
Quirino	0.0	8.2	8.2	34.0	57.8	0.0	0.0	0.0
III. Central Luzon	0.4	5.5	5.9	25.0	62.8	5.7	0.5	6.2
Bataan	0.0	10.4	10.4	20.1	66.7	2.8	0.0	2.8
Bulacan	0.0	3.3	3.3	16.5	70.9	7.8	1.5	9.3
Nueva Ecija	1.3	7.5	8.8	30.0	56.3	5.0	0.0	5.0
Pampanga	0.3	6.2	6.5	25.9	63.0	4.1	0.5	4.6
Tarlac	0.4	4.6	5.0	30.6	56.4	7.6	0.4	8.0
Zambales	0.0	2.2	2.2	29.1	62.6	6.2	0.0	6.2

(Cont'd.)

(Cont'n.) Annex2

Province/Region	Underweight			Mildly Underwt	Average	Overweight		
	Severe	Moderate	Total			Mild	Moderate	Total
	≤3SD	>-3SD to ≤P5		>P5 to ≤P25	>P25 to ≤P95	>P95 to ≤+2SD	>+3SD	
IV. Southern Tagalog	0.1	6.4	6.5	23.4	64.8	3.9	1.4	5.3
Aurora	0.0	19.6	19.6	26.3	54.2	0.0	0.0	0.0
Batangas	0.0	3.3	3.3	19.6	70.8	4.6	1.7	6.3
Cavite	0.0	6.0	6.0	20.0	65.0	6.0	2.9	8.9
Laguna	0.0	5.6	5.6	21.8	65.9	4.9	1.9	6.8
Marinduque	3.4	22.8	26.2	22.8	47.4	3.4	0.0	3.4
Occidental Mindoro	0.0	8.3	8.3	32.5	55.5	2.8	0.9	3.7
Oriental Mindoro	0.0	4.6	4.6	27.5	62.5	5.0	0.4	5.4
Palawan	0.0	9.9	9.9	27.0	60.4	2.7	0.0	2.7
Quezon	0.0	5.9	5.9	26.4	65.3	1.7	0.8	2.5
Rizal	0.1	6.0	6.1	22.2	65.1	4.4	2.2	6.6
Romblon	0.0	6.0	6.0	23.6	69.5	0.9	0.0	0.9
V. Bicol	0.7	9.6	10.3	33.2	53.9	2.0	0.7	2.7
Albay	0.0	8.8	8.8	31.8	58.5	0.4	0.4	0.8
Camarines Norte	0.0	7.4	7.4	36.1	52.7	1.9	1.9	3.8
Camarines Sur	1.8	8.9	10.7	34.0	51.3	3.7	0.3	4.0
Catanduanes	1.1	9.9	11.0	24.0	58.1	5.7	1.1	6.8
Masbate	0.0	9.2	9.2	35.8	54.2	0.4	0.4	0.8
Sorsogon	0.0	15.0	15.0	31.2	52.1	0.6	1.1	1.7
VI. Western Visayas	0.8	9.0	9.8	31.7	54.8	2.9	0.7	3.6
Aklan	0.0	2.7	2.7	39.7	57.6	0.0	0.0	0.0
Antique	0.0	15.9	15.9	19.9	60.7	2.8	0.8	3.6
Capiz	0.0	12.0	12.0	42.9	43.6	1.5	0.0	1.5
Iloilo	0.8	7.0	7.8	35.5	52.5	2.9	1.3	4.2
Guimaras	0.0	12.1	12.1	33.8	52.2	1.0	1.0	2.0
Negros Occidental	1.4	9.3	10.7	26.9	57.9	3.8	0.6	4.4
VII. Central Visayas	0.3	8.5	8.8	27.6	58.9	4.7	0.0	4.7
Bohol	0.0	10.7	10.7	26.8	59.0	3.5	0.0	3.5
Cebu	0.5	7.9	8.4	27.6	59.5	4.5	0.0	4.5
Negros Oriental	0.0	7.9	7.9	28.3	56.9	6.9	0.0	6.9
Siquijor	0.0	9.9	9.9	26.3	63.8	0.0	0.0	0.0
VIII. Eastern Visayas	1.3	10.8	12.1	32.9	52.7	2.1	0.3	2.4
Eastern Samar	2.7	6.5	9.2	20.2	68.9	1.7	0.0	1.7
Biliran	0.0	21.7	21.7	32.1	45.1	1.1	0.0	1.1
Leyte	0.6	9.2	9.8	34.1	53.3	2.1	0.6	2.7
Northern Samar	3.6	14.5	18.1	33.0	45.1	3.8	0.0	3.8
Southern Leyte	0.0	8.9	8.9	39.1	51.0	0.9	0.0	0.9
Western Samar	1.6	13.5	15.1	34.3	49.1	1.6	0.0	1.6
IX. Western Mindanao	0.2	9.8	10.0	26.9	60.1	2.0	1.0	3.0
Basilan	0.0	11.0	11.0	28.4	59.1	1.5	0.0	1.5
Zamboanga del Norte	0.0	8.1	8.1	25.7	62.8	2.0	1.3	3.3
Zamboanga del Norte	0.3	10.4	10.7	27.1	59.2	2.0	1.0	3.0

(Cont'd.)

(Cont'n.) Annex2

Province/Region	Underweight			Mildly Underwt	Average	Overweight		
	Severe	Moderate	Total			Mild	Moderate	Total
	≤3SD	>-3SD to ≤P5		>P5 to ≤P25	>P25 to ≤P95	>P95 to ≤+2SD	>+3SD	
X. Northern Mindanao	0.6	5.8	6.4	30.4	60.4	2.4	0.5	2.9
Bukidnon	0.7	5.6	6.3	32.0	58.1	3.1	0.4	3.5
Camiguin	2.8	15.3	18.1	18.1	61.0	2.8	0.0	2.8
Misamis Occidental	0.0	3.5	3.5	29.6	61.2	3.8	1.9	5.7
Misamis Oriental	0.5	6.3	6.8	29.5	62.8	0.9	0.0	0.9
XI. Southern Mindanao	0.3	8.0	8.3	29.0	59.9	2.3	0.5	2.8
Davao del Norte	0.7	5.5	6.2	29.5	62.2	1.7	0.4	2.1
Davao del Sur	0.0	6.7	6.7	30.4	59.9	2.1	0.8	2.9
Davao Oriental	0.0	11.7	11.7	26.1	57.3	4.9	0.0	4.9
South Cotabato	0.0	12.5	12.5	19.1	68.4	0.0	0.0	0.0
Sarangani	0.5	13.4	13.9	29.7	53.2	2.8	0.5	3.3
XII. Central Mindanao	0.7	9.6	10.3	29.7	57.5	2.3	0.1	2.4
Lanao del Norte	1.3	10.4	11.7	26.3	56.7	4.9	0.4	5.3
North Cotabato	0.0	9.0	9.0	30.0	59.9	1.1	0.0	1.1
Sultan Kudarat	1.4	9.8	11.2	33.8	53.7	1.3	0.0	1.3
Caraga	1.5	8.7	10.2	28.0	58.6	1.8	1.6	3.4
Agusan del Norte	2.1	4.0	6.1	24.6	67.1	0.0	2.2	2.2
Agusan del Sur	1.5	15.0	16.5	26.9	54.2	1.5	1.0	2.5
Surigao del Norte	2.8	11.2	14.0	26.6	55.2	2.9	1.3	4.2
Surigao del Sur	0.0	4.2	4.2	33.7	57.2	3.0	1.9	4.9
ARMM	0.0	7.5	7.5	27.5	58.6	6.1	0.3	6.4
Lanao del Sur	0.0	6.6	6.6	32.2	55.5	5.2	0.5	5.7
Maguindanao	0.0	8.3	8.3	25.2	61.2	5.0	0.3	5.3
Sulu	0.0	8.8	8.8	27.8	50.5	12.9	0.0	12.9
Tawi-tawi	0.0	5.0	5.0	20.0	74.2	0.8	0.0	0.8

Annex 3. Percentage distribution of 6-10 year-old children by weight-for-age classification by province: Philippines, 1996

Province/Region	Underweight			Mildly Underwt	Average	Overweight		
	Severe	Moderate	Total			Mild	Moderate	Total
	≤3SD	>-3SD to ≤P5		>P5 to ≤P25	>P25 to ≤P95	>P95 to ≤+3SD	>+3SD	
Philippines	0.3	7.1	7.4	19.8	63.0	7.4	2.4	9.8
NCR	0.3	6.7	7.0	18.7	58.0	10.8	5.5	16.3
Manila	0.3	3.4	3.7	13.3	60.5	15.1	7.4	22.5
Quezon City	0.3	7.8	8.1	19.7	55.6	10.6	6.1	16.7
Pasay City	0.0	4.7	4.7	22.4	49.5	18.7	4.7	23.4
Kalookan City	0.0	7.2	7.2	20.6	62.2	7.2	2.8	10.0
Makati City	0.0	5.6	5.6	15.7	61.1	8.3	9.3	17.6
San Juan, Mandaluyong City	0.0	5.6	5.6	21.3	56.5	13.9	2.8	16.7
Malabon,Navotas,Valenzuela	0.6	5.6	6.2	24.4	58.9	6.1	4.4	10.5
Marikina, Pateros, Tagig	0.0	7.6	7.6	21.5	56.9	10.4	3.5	13.9
Pasig City, Muntinlupa	0.7	10.4	11.1	13.2	58.3	9.7	7.6	17.3
Las Piñas, Parañaque	0.7	11.1	11.8	21.5	56.3	7.6	2.8	10.4
I. Ilocos	0.0	4.9	4.9	19.0	67.6	7.6	0.9	8.5
Ilocos Norte	0.0	5.0	5.0	13.0	67.2	13.7	1.0	14.7
Ilocos Sur	0.0	5.1	5.1	19.0	66.7	6.5	2.8	9.3
La Union	0.0	3.7	3.7	21.9	71.2	3.2	0.0	3.2
Pangasinan	0.0	5.2	5.2	19.4	67.0	7.7	0.6	8.3
CAR	0.0	2.0	2.0	11.3	74.9	8.9	2.9	11.8
Abra	0.0	3.4	3.4	21.6	69.4	4.9	0.7	5.6
Benguet	0.0	1.9	1.9	9.5	74.8	9.3	4.6	13.9
Kalinga	0.0	2.3	2.3	7.9	83.3	6.5	0.0	6.5
Apayao	0.0	5.6	5.6	23.9	62.5	5.6	2.5	8.1
Ifugao	0.0	0.3	0.3	3.7	81.8	11.4	2.8	14.2
Mountain Province	0.0	0.0	0.0	11.1	71.5	14.6	2.8	17.4
II. Cagayan Valley	N	6.7	6.7	19.0	61.7	10.8	1.8	12.6
Batanes	0.0	2.8	2.8	5.6	75.9	13.0	2.8	15.8
Cagayan	0.0	4.9	4.9	16.4	64.6	12.7	1.3	14.0
Isabela	0.0	7.1	7.1	20.1	61.1	10.0	1.7	11.7
Nueva Vizcaya	0.0	9.8	9.8	23.1	51.9	11.1	4.1	15.2
Quirino	0.7	7.7	8.4	16.8	70.5	4.2	0.0	4.2
III. Central Luzon	0.2	6.5	6.7	17.1	65.4	8.1	2.6	10.7
Bataan	0.5	8.8	9.3	20.8	62.5	6.0	1.4	7.4
Bulacan	0.5	4.8	5.3	17.8	56.1	12.3	3.5	15.8
Nueva Ecija	0.0	5.3	5.3	21.2	67.3	4.9	1.4	6.3
Pampanga	0.0	7.3	7.3	14.6	65.7	8.8	3.6	12.4
Tarlac	0.3	8.6	8.9	12.2	69.4	8.1	1.5	9.6
Zambales	0.5	6.9	7.4	16.6	68.5	4.2	3.2	7.4

(Cont'd.)

(Cont'n.) Annex2

Province/Region	Underweight			Mildly Underwt	Average	Overweight		
	Severe	Moderate	Total			Mild	Moderate	Total
	≤3SD	>-3SD to ≤P5		>P5 to ≤P25	>P25 to ≤P95	>P95 to ≤+2SD	>+3SD	
IV. Southern Tagalog	0.3	6.4	6.7	17.6	63.3	8.6	3.8	12.4
Aurora	1.6	1.2	2.8	22.6	59.5	15.1	0.0	15.1
Batangas	0.2	3.7	3.9	13.8	69.9	9.7	2.6	12.3
Cavite	0.2	3.8	4.0	13.1	61.8	11.4	9.8	21.2
Laguna	0.0	7.3	7.3	17.1	59.8	12.2	3.7	15.9
Marinduque	0.0	2.3	2.3	20.4	63.9	12.9	0.5	13.4
Occidental Mindoro	1.2	7.4	8.6	22.9	64.2	3.7	0.6	4.3
Oriental Mindoro	0.3	11.1	11.4	19.2	62.8	5.3	1.4	6.7
Palawan	0.4	6.5	6.9	20.1	65.1	5.1	2.7	7.8
Quezon	0.7	5.5	6.2	19.8	64.4	7.0	2.4	9.4
Rizal	0.1	10.9	11.0	19.0	57.0	7.1	6.0	13.1
Romblon	0.0	6.8	6.8	20.4	72.2	0.6	0.0	0.6
V. Bicol	0.2	9.0	9.2	21.6	62.8	5.7	0.7	6.4
Albay	0.6	6.2	6.8	17.0	68.8	6.2	1.2	7.4
Camarines Norte	0.0	8.7	8.7	25.3	61.1	3.1	1.9	5.0
Camarines Sur	0.0	13.6	13.6	21.6	58.0	6.3	0.4	6.7
Catanduanes	0.0	2.8	2.8	20.2	71.8	4.4	0.8	5.2
Masbate	0.0	8.6	8.6	24.2	62.5	4.4	0.3	4.7
Sorsogon	0.4	4.2	4.6	24.3	64.3	6.8	0.0	6.9
VI. Western Visayas	0.5	9.0	9.5	22.7	60.3	4.8	2.7	7.5
Aklan	1.9	10.3	12.2	23.2	56.9	6.5	1.3	7.8
Antique	0.0	15.1	15.1	26.7	55.3	1.6	1.3	2.9
Capiz	0.0	9.5	9.5	17.2	66.5	5.4	1.4	6.8
Iloilo	1.0	6.5	7.5	26.4	57.4	4.5	4.2	8.7
Guimaras	0.3	2.8	3.1	11.4	76.2	8.5	0.7	9.2
Negros Occidental	0.2	9.6	9.8	21.3	61.5	4.9	2.5	7.4
VII. Central Visayas	0.1	6.2	6.3	21.0	65.4	5.0	2.2	7.2
Bohol	0.0	5.6	5.6	25.2	62.3	4.4	2.5	6.9
Cebu	0.2	6.7	6.9	18.8	65.9	5.8	2.6	8.4
Negros Oriental	0.2	5.3	5.5	22.9	67.7	3.2	0.7	3.9
Siquijor	0.0	8.3	8.3	22.9	57.2	8.3	3.4	11.7
VIII. Eastern Visayas	0.6	9.4	10.0	22.2	62.5	4.5	1.2	5.7
Eastern Samar	0.0	10.5	10.5	25.1	58.2	4.8	1.5	6.3
Leyte	0.0	9.7	9.7	16.7	65.9	5.7	2.1	7.8
Biliran	0.8	9.5	10.3	22.7	60.9	5.4	0.6	6.0
Northern Samar	0.0	9.8	9.8	18.1	65.8	3.2	3.2	6.4
Southern Leyte	0.0	13.8	13.8	23.3	61.7	1.1	0.0	1.1
Western Samar	1.0	5.6	6.6	22.4	64.5	5.0	1.4	6.4
IX. Western Mindanao	0.2	8.5	8.7	22.5	63.1	5.1	0.6	5.7
Basilan	0.0	7.8	7.8	25.0	62.1	5.1	0.0	5.1
Zamboanga del Norte	0.9	4.9	5.8	19.7	69.4	4.2	1.0	5.2
Zamboanga del Norte	0.0	10.1	10.1	23.3	60.6	5.5	0.5	6.0

(Cont'd.)

(Cont'n.) Annex2

Province/Region	Underweight			Mildly Underwt	Average	Overweight		
	Severe	Moderate	Total			Mild	Moderate	Total
	≤3SD	>-3SD to ≤P5		>P5 to ≤P25	>P25 to ≤P95	>P95 to ≤+2SD	>+3SD	
X. Northern Mindanao	0.4	4.6	5.0	21.7	63.8	7.6	2.0	9.6
Bukidnon	0.8	4.8	5.6	26.0	59.7	7.1	1.5	8.6
Camiguin	0.0	1.8	1.8	9.3	73.1	14.0	1.8	15.8
Misamis Occidental	0.0	2.4	2.4	26.5	63.6	6.2	1.3	7.5
Misamis Oriental	0.0	5.6	5.6	15.0	68.1	8.4	2.8	11.2
XI. Southern Mindanao	0.7	7.1	7.8	18.5	64.5	7.3	1.8	9.1
Davao del Norte	1.1	6.4	7.5	19.2	63.7	8.4	1.2	9.6
Davao del Sur	0.6	6.0	6.6	17.7	66.1	7.3	2.3	9.6
Davao Oriental	0.0	9.2	9.2	20.2	62.2	5.5	3.0	8.5
South Cotabato	0.0	10.1	10.1	16.9	63.7	7.3	2.0	9.3
Sarangani	0.9	9.4	10.3	18.4	64.1	6.2	0.9	7.1
XII. Central Mindanao	0.7	7.0	7.7	22.4	61.7	6.7	1.4	8.1
Lanao del Norte	1.7	5.3	7.0	18.6	62.2	9.1	3.0	12.1
North Cotabato	0.0	8.0	8.0	25.8	59.9	5.6	0.8	6.4
Sultan Kudarat	1.0	7.5	8.5	20.3	64.9	5.9	0.4	6.3
Caraga	0.3	6.9	7.2	24.0	62.9	5.3	0.7	6.0
Agusan del Norte	0.0	5.6	5.6	25.9	58.9	8.2	1.4	9.6
Agusan del Sur	1.1	7.9	9.0	17.6	67.7	5.7	0.0	5.7
Surigao del Norte	0.0	8.5	8.5	29.5	57.5	2.7	1.8	4.5
Surigao del Sur	0.0	5.8	5.8	24.0	66.1	4.1	0.0	4.1
ARMM	1.1	9.1	10.2	18.6	58.1	11.3	1.8	13.1
Lanao del Sur	1.4	9.1	10.5	20.8	58.5	8.5	1.7	10.2
Maguindanao	0.2	9.7	9.9	15.4	57.7	15.0	2.0	17.0
Sulu	3.4	8.9	12.3	23.1	55.6	7.4	1.5	8.9
Tawi-tawi	0.0	6.6	6.6	15.5	63.0	13.4	1.6	15.0