2nd NATIONAL NUTRITION SUMMIT: 8th NATIONAL NUTRITION SURVEY

"Juan Mission for a Well-Nourished Nation"



FOOD and NUTRITION RESEARCH INSTITUTE Department of Science and Technology



INTRODUCTION

The Food and Nutrition Research Institute of the Department of Science and Technology (FNRI-DOST) presents the initial results of the 8th National Nutrition Survey (NNS) as part of its mandate and commitment to define the Filipino citizenry's nutritional status (E.O. 128 Sec. 22). The survey was conducted from June 2013 to April 2014, covering all 17 regions of the country, 79 provinces, 45,047 households and 172,323 individuals.

The NNS has evolved to become the key source of data for the national government not just on nutrition-related information but on health matters as well. The objectives of the survey are to determine and evaluate the food intakes, nutrition and health status of Filipinos, and provide official statistics on food, nutrition and health situations of the country.

The 2013 NNS has the following components: Anthropometry, Biochemical, Clinical, Dietary intake of households and individuals, Demographic and Socio-Economic profiles of participants, Food Security, Government Program Participation, selected Health risk factors pertinent to nutrition, Infant and Young Child Feeding, Maternal and Child Health, and the Salt Survey.

METHODS

RESULTS

The 2013 NNS adopted the 2003 master sample of the Philippine Statistics Authority (formerly the National Statistics Office), which utilized the 2009 Labor Force Survey list of households. The NNS used the four replicates of the master sample to obtain national, regional, and provincial estimates for measurements of anthropometry, blood pressure and questionnaire-based information. For the biochemical and dietary components, one replicate was used to get national estimates.

The response rate for the different components was at least 90.1% for the questionnaire and 85.2% for physical measurement components, with a high of 97.4% for BP measurements among the 10-19 yr olds. The blood exams had response rates at 83.4% for FBS and 85.7% for hemoglobin.

This initial release provides results for the following: the Anthropometry of children and adults with prevalences of under- and over-nutrition, including the prevalence of underweight in children below 5 years of age, which is part of Millennium Development Goal (MDG) 1; the prevalences of Anemia, Hypertension and Diabetes, as well as of Smoking, the latter three of which are major risk factors for Non-communicable Diseases; and the extent of household participation in selected Government Programs, featuring the Philippine Government's Conditional Cash Transfer Program, also known as the 4Ps (*Programang Pantawid ng Pamilyang Pilipino*).



A.ANTHROPOMETRY

The main anthropometry results are as follows:

1) Children 0-60.0 months of age

Using weight for age as index, underweight prevalence has gone down to 19.9%, a slight reduction from 20.2% in 2011 (Updating Survey, 7th NNS). This reflects a relatively unchanged status for the past 10 years (from 20.7% in 2003, to 20.0% in 2005, and 20.6% in 2008), making it unlikely that the Philippines will achieve the MDG goal of a 50% reduction in underweight prevalence from the baseline of 27.3% in 1989.

Wasting/thinness increased to 7.9% from 7.3% in 2011 (p<0.05); this contributes to a consistent upward trend from 5.8% in 2005, and 6.9% in 2008.

On the bright side, stunting has gone down to 30.3% from 33.6% in 2011 (p<0.05), the first substantial drop in this indicator since 2003.

Males tended to be worse off during the younger age groups, with higher rates of underweight and stunting, but the females catch up by the 4th and 5th years of age. Wasting/ thinness rates tended to be about the same for each gender group, and highest among the younger infants (13.4%) with a declining trend as the children got older.

Similar to findings from the 6th and 7th NNS, children in the second year of life (12-23 months old) had the sharpest increases in underweight (4.9% age points higher than the 6-11 month olds') and stunting (15.3% age points higher than the 6-11 month olds) prevalences.

The best performing areas, with the lowest rates of underweight, stunting and wasting/thinness, are: the urban areas (17.3%, 25.7%, and 7.8% respectively), the richest quintiles (8.5%, 13.3%, and 5.5% respectively), and the following regions: for underweight – NCR (12.9%), CAR (16.5%) and Central Luzon (17.7%); for stunting – NCR (22.4%), Central Luzon (23.1%), and CALABARZON (25.3%); for wasting/thinness – CAR (5.9%), NCR (6.5%) and SOCCSKSARGEN (6.6%).

As expected, the highest prevalences of underweight, stunting and wasting are among those in the rural areas (22.6%, 35.0%, and 8.1% respectively), and in the poorest quintile (29.8%, 44.8% and 9.5% respectively). Among the regions, the top 3 with the highest undernutrition prevalences are: for underweight – MIMAROPA (27.5%), W. Visayas (25.9%) and Bicol (24.6%); for stunting – Bicol (39.8%), ARMM (39%) and Zamboanga Peninsula (38.7%); for wasting/ thinness – MIMAROPA (9.8%), Ilocos Region (9.8%), and W. Visayas (8.9%).

Overweight rates are highest among the 0-5 month olds (9.9%), those in the highest wealth quintile (10.7%) and those from regions IVA (6.6%), CAR (6.1%) and NCR (6.5%).

2) Children 5-10.0 years of age

Compared to the 0-5.0 age group, underweight prevalence is even higher in this older age group at 29.1%, though this is already an improvement from the 32% prevalence in 2011. Stunting is about the same (compared to the younger age group) at 29.9%, and is likewise better than the 33.6% in 2011. Wasting/ thinness is also higher than in the younger age group at 8.6%; this is unchanged from the 8.5% of 2011.

Regions with the better weight-for-age (WFA) and height-for-age (HFA) indices are CAR (78.8% normal WFA), Cagayan Valley (74% normal WFA and 76.7% normal HFA), NCR (73.2% normal WFA and 80.4% normal HFA), and Central Luzon (78.6% normal HFA).



Similar to trends in the younger age group, the poorest quintiles had the highest prevalences of underweight (42.5%) and stunting (48%). Wasting/ thinness, however, tended to be about the same for the 3 lowest quintiles (9.1%, 9.5% and 9.7%).

Underweight prevalence increased with age, starting at 25.7% for the 5yr olds, increasing to 25.6%, 29.1%, 31.4% and finally 32.4% among the 9 yr olds. Males, in general, had higher underweight and stunting rates than females.

Wasting/ thinness are highest in MIMAROPA (12.6%), Central Luzon (11.6%) and Bicol (10.7%). In contrast, overweight/obese rates are highest in NCR (16.6%), CALABARZON (12.1%) and Central Luzon (11.9%). Among the wealthiest quintile, about 1 in 4 children are overweight or obese (25.5%)!

3) Adolescents

Stunting trends continued through adolescence, with higher rates among males (34%), the poorest quintile (47.6%), those from rural areas (36.7%) and regions CAR (42.6%), SOCCSKSARGEN (41.9%), and Zamboanga Peninsula (41.6%).

Wasting/ thinness had similar patterns affecting 15% of males, 13.2% of the poorest quintile, 16.1% of those from MIMAROPA, 15.5% of those from CALABARZON, and 14.6% of West Visayan adolescents.

On the other hand, those from urban areas (11.3%), the wealthiest quintile (20.0%!), and CARAGA (14.8%), NCR (11.7%) and Central Luzon (10.8%) had the highest rates of overweight/ obesity.

4) Adults

The average height of adult Filipinos 20 yrs and older is 163 cm for males and 151.4 cm for females, while the average weight for males is 61.3 kgs and for females is 54.3 kgs. One out of ten (10.0%) adults have chronic energy deficiency (CED, BMI \leq 18.5), while three out of ten (31.1%) are overweight or obese.

In parallel to the results in children and adolescents, adults from West Visayas (14.1%), ARMM (13.2%), and MIMAROPA (13.1%) have the highest CED rates, while adults from NCR (38.3%), CAR (33.6%) and CARAGA (33.3%) have the highest overweight and obesity rates.

Urban residents have the double burden of the higher rates of CED as well as overweight and obesity rates compared to their rural counterparts. As expected, there is an inverse relationship between wealth and CED rates, and a positive one between wealth and overweight and obesity rates.

While CED rates have declined somewhat over time, overweight and obesity rates are climbing up. Likewise, the % of adults 20 years old and older with high waist circumference has also been rising particularly among females, though the % with high waist:hip ratios (WHR) appear to be plateauing. The % of females with high waist circumference increased from 10.7% in 1998, to 17.0% in 2003, 19.0% in 2008, and 19.9% in 2011; those with high WHR increased from 39.5% in 1998, 54.8% in 2003 and peaked at 65.5 in 2008. The % females with high WHR has gone down to 62.5% in 2011. Male high waist circumference rates have remained below 4% and the % male high WHRs have been between 7 and 12%. (Data from 5th, 6th and 7th NNS)

The 2013 NNS average waist circumference for males is 80.4 cm and for females is 79.3 cm; these are lower than the WHO cut-offs of 102 cm for males and 88 cm for females. However, these averages mask the proportion of the population whose waist circumferences exceed reference cut-offs (3.6% for males and 22.2% for females). The average WHR for males at 89.1% is lower than the cut-off of 100%, but for females, the average WHR of 90.5% exceeds the WHO cut-off of 85%, with 61.5% of females having high WHR compared to only 7.6% of males.



B. ANEMIA

Anemia rates in all population groups have been declining over the past 2 to 3 NNSs. Infants 6 months to 1 year of age still have the highest anemia rates¹ (39.4%) among population groups, though this figure is already a marked improvement over the 2003 (66.2%) and 2008 (55.7%) rates. Even rates among pregnant (25.2%) and lactating women (16.6%) have been drastically reduced from 2008 levels of 42.5% and 31.6% respectively.

Among the wealth quintiles, the middle quintile has the highest anemia levels (47.5%) for the 6 months to 1 year olds, even higher than the poor (46.4%) and poorest (43.1%) quintiles. Similarly for this age group, the richest quintile has higher anemia rates (30.8%) than the second richest quintile (26.6%).

Among adults, there is an inverse relationship between anemia rates and wealth, except among pregnant women.

¹ Hemoglobin (Hb) value cut-offs used for these analyses are from WHO, 1972: for infants and young children, 6 months to 6 years, Hb = 11.0 g/dl; for children 6 to 14 years, Hb = 12.0 g/dl; for adult males, Hb = 13.0 g/dl, adult females (non-pregnant, regardless of lactating status), Hb = 12.0 g/dl; for pregnant, Hb = 11.0 g/dl

C.MATERNAL HEALTH

The health of mothers is receiving more attention with greater awareness of the consequences of poor maternal health not just for the mother but for her infant as well. About 1 in 4 pregnant mothers or 24.8% are nutritionally at risk, with the youngest mothers (age <20 years old) at highest risk (37.2%). This is just a shade reduced from the 25% rate in 2011 (Updating Survey 7th NNS, 2011), and part of a slow downward trend from 30.7% in 1998 (5th NNS).

Pregnant mothers from rural areas (25.2%), the poorest quintile (30.0%), the younger age groups, in their first trimester (26.6%), and residing in the following regions: Cagayan Valley (33.6%), Bicol (33.0%) and West Visayas (32.4%) are more likely to be nutritionally at risk.

Among lactating mothers, 12.5% are nutritionally at risk, with this proportion increasing as breastfeeding duration lengthens. While 17.5% of these women are overweight only 5.1% of the youngest lactating mothers are overweight; in contrast, 18.4% of their older counterparts have this condition.

Wealth is inversely related to chronic energy deficiency (CED) rates, but positively related with overweight and obesity rates. CED is higher among rural lactating mothers, while overweight and obesity is higher among urban ones.

Anemia rates, as reported above, are going down among pregnant and lactating women. Anemia rates are inversely related to wealth among lactating mothers, but not among pregnant ones.

For the first time in the NNS, hypertension and elevated blood sugar are being reported among pregnant and lactating women. Among pregnant women, hypertension prevalence is about 3.9%, while 3.0% of pregnant mothers have elevated fasting blood glucose (FBG) levels. Hypertension prevalence is higher at 8.0% among lactating mothers; elevated FBG was found in around 5.3% of lactating ones.



D.HYPERTENSION (HPN) & DIABETES

The prevalence of hypertension and diabetes reported in this initial release is based on single visit blood pressure readings and blood glucose determinations alone. Questionnaire information regarding a previous diagnosis of the disease condition or intake of relevant medication is not yet included.

About 22.3% of the adult population is considered hypertensive; this figure is lower than the 25.3% 2008 prevalence (7th NNS). The prevalence of HPN peaks in the 50-59 age group (35.1%) and is lowest in the youngest age group (3.4%). Males have a higher prevalence than females in every age group.

Hypertension prevalence also tends to increase with wealth, and is slightly higher among rural vs. urban residents. The northern regions of CAR (25.0%), the Ilocos (23.3%) and Cagayan Valley (22.1%) have the highest hypertension prevalences, while Zamboanga (17.2%), ARMM (17.3%) and West Visayas (18.4%) have the lowest.

Diabetes prevalence based on a cut-off of 126 mg/dl is 5.4%. This is higher than the 4.8% reported in 2008 (7th NNS). However, if we consider impaired fasting blood glucose (IFG) as part of the prevalence, then differences in prevalence arise depending on whether a cut-off of 100 mg/dl is used (based on Philippine Unite Diabetes guidelines) or of 110 mg/dl (WHO/ IDF). Using Philippine guidelines, the IFG prevalence would be 12.8%, while the WHO prevalence would be 4.1%.

Based on high Fasting Blood Glucose, diabetes prevalence peaks at the age of 60-69 (12.6%), among the richest wealth quintile (6.0%) and urban residents (6.0%). Central Luzon (6.6%), Calabarzon (6.2%) and NCR (5.2%) have the highest regional prevalences, while Northern Mindanao (3.3%), ARMM (3.8%) and the llocos (4.0%) Regions have the lowest.

E. SMOKING

Smoking prevalence was measured using questions from the WHO STEPs on a history of current and past smoking and never ever having smoked. The prevalence of current smoking has gone down from 31.0% in 2008 to 25.4%; never smoking increased from 54.3% to 59.1%, and former smoking from 14.7% to 15.4%.

The peak prevalence among age groups occurs at 40-49 years, while the poorest quintiles still have the highest rates of smoking.

F. GOVERNMENT PROGRAM PARTICIPATION

Participation of households in the three following government programs is presented: the Food Production Program (FPP, 6.4% participation rate), Core Shelter Assistance Program (CSAP, 6.8%) and the Pantawid Pamilyang Pilipino Program (17.3%).

Among the regions, the Zamboanga peninsula had the highest rates of participation for the FPP (15.7%) and 4Ps (36.4%), while NCR had the lowest participation for all three programs. Rural areas and the poorest quintiles tend to have the highest participation rates, though the proportions are in the range of 25-30% in general, with the highest rate being that of the 4Ps among the poor, but even this is still at 45%, or less than 1/2 of those reporting participation.

The most common reason for no longer participating in the 4Ps is that the beneficiary was no longer eligible (age older than 15 years).



CONCLUSIONS

The 2013 NNS results, in tandem with time trends from previous NNSs, may have reflected the impact of policies and programs that have been implemented. The most dramatic results are seen in the reductions in smoking and, to some extent, in stunting prevalences. The reductions in anemia prevalence may be attributed to the intensive efforts on micronutrient fortification and supplementation, as well as on the treatment of anemia-causing diseases such as malaria and parasitism.

Based on time trends, a major outcome, that of MDG 1's 50% reduction of underweight prevalence (from 1990 baseline levels) in children under 5 years of age, is unlikely to be achieved by 2015. While this is disappointing, an evaluation of child undernutrition programs needs to be conducted so we can do better.

The positive changes documented by the NNSs should encourage more focused interventions to address persistent nutrition problems such as childhood underweight, stunting (which though declining is still relatively high) and wasting, as well as growing problems like adult overweight and obesity. Likewise, programs and policies need to be strengthened to prevent emerging conditions such as diabetes from increasing even further.

The addition of reports on hypertension and elevated blood glucose among pregnant and lactating women was done to draw interest in doing further research along these lines as these become risk factors for hypertension and diabetes for women later in life.

These results have incorporated wealth indices and regional distributions to highlight disparities in prevalence estimates for almost all nutrition-related outcomes. For many conditions, more targeted efforts may help narrow equity gaps in nutrition and its determinants.

ACKNOWLEDGEMENTS

FNRI wishes to acknowledge and thank the following, without whom this 2013 NNS would not have been realized: first and foremost would be to the hundreds of thousands of Filipinos and their households who patiently participated in this survey and gave of their time and of themselves; the barangay local officials, health workers and nutrition scholars who accompanied the NNS teams every step of the way; the provincial, municipal and city local governments who graciously assisted survey operations before, during, and after field activities; the regional DOST and DOH offices, particularly the NNC-DOH staff, who helped coordinate, facilitate and mobilize arrangements, including financial ones; our generous partners, donors, and benefactors who helped provide resources during the most crucial periods of the survey; our NNS consultants, especially those from the PSA, who continue to work with the teams at all hours and in all places; and last but not least, to our hundreds of contractual staff and volunteers who up to this moment are steadfastly processing and analyzing data. This survey belongs as much to them as it does to all of us.









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RESULTS CHILDREN, 0-5.0 YEARS OLD (0-60 MONTHS)







Prevalence of underweight children, 0-5.0 years old (0-60 months): Philippines, 2013

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DEPARTMENT OF SCIENCE AND TECHNOLOGY 2 out of 10 or 19.9% children among 0-5 years old were underweight







Prevalence of stunting among children, 0-5.0 years old (0-60 months): Philippines, 2013

FNR

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60 3 out of 10 or 30.3% children 40.6 38.9 39.9 38.9 33.6 among 0-5 years old were Stunted 20





Prevalence of wasting among children, 0-5.0 years old (0-60 months): Philippines, 2013

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Prevalence of overweight-for-height among children, 0-5.0 years old (0-60 months): Philippines, 2013



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5 out of 100 or 5.0% children among 0-5 years old were overweight





Trends in the prevalence of malnutrition among children, 0-5.0 years old (0-60 months): Philippines, 1989-2013





*significant (p-value<0.05)





Prevalence of underweight among children, 0-5.0 year-old (0-60 months) by age group: Philippines, 2008 – 2013





Prevalence of stunting among children, 0-5.0 year-old (0-60 months) by age group: Philippines, 2008 – 2013





Prevalence of wasting among children, 0-5.0 year-old (0-60 months) by age group: Philippines, 2008 – 2013

Philippines 7.9%



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Prevalence of overweight-for-height among children, 0-5.0 year-old (0-60 months) by age group: Philippines, 2008 – 2013

Philippines 5.0%



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Top regions with highest and lowest prevalence than national average: Philippines, 2013

FNRI	Form of Malnutrition	Highest Regions	Lowest Regions	
	0-5.0 years old (0-60 months)			
FOOD AND NUTRITION RESEARCH INSTITUTE	UNDERWEIGHT	MIMAROPA Western Visayas Bicol	NCR CAR Central Luzon	
DEPARTMENT OF SCIENCE AND TECHNOLOGY	STUNTING	Bicol ARMM Zamboanga Peninsula	NCR Central Luzon CALABARZON	
	WASTING*	MIMAROPA Ilocos Region Western Visayas	CAR NCR SOCCSKSARGEN	
	OVERWEIGHT	CALABARZON NCR Central	Zamboanga Peninsula Eastern Visayas Davao	



Prevalence of malnourished children, 0-5.0 years old (0-60 months) by place of residence and by wealth quintile: Philippines, 2013







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RESULTS CHILDREN, 5.08-10.0 YEARS OLD (61-120 MONTHS)



Prevalence of malnourished children, 5.08-10.0 years old (61-120 months): Philippines, 2013







Prevalence of malnourished children, 5.08-10.0 years old (61-120 months): Philippines, 2013



Trends in the prevalence of malnutrition among children, 5.08-10.0 years old (61-120 months): Philippines, 2003-2013









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Top regions with highest and lowest prevalence: Philippines, 2013

	Form of Malnutrition	Highest Regions	Lowest Regions		
P EX EX L	5.08-10.0 years old (61-120 months)				
OOD AND UTRITION ESEARCH ISTITUTE	UNDERWEIGHT	MIMAROPA Bicol Eastern Visayas	CAR NCR Cagayan Valley		
EPARTMENT F CIENCE AND ECHNOLOGY	STUNTING	Zamboanga Peninsula Eastern Visayas Bicol	NCR Central Luzon CALABARZON		
	WASTING	MIMAROPA Central Luzon Bicol	CAR Northern Mindanao SOCCSKSARGEN		
	OVERWEIGHT/ OBESE	NCR CALABARZON Central Luzon	Bicol Eastern Visayas ARMM		

Prevalence of malnourished children, 5.08-10.0 year old (61-120 months) by place of residence and by wealth quintile: Philippines, 2013





Prevalence of malnourished children, 5.08-10.0 year old (61-120 months) by place of residence and by wealth quintile: Philippines, 2013





RESULTS FRR FOOD AND **NUTRITION** RESEARCH INSTITUTE ADOLESCENTS, 10.08-19.0 YEARS OLD DEPARTMENT (121-228 **MONTHS**) SCIENCE AND **TECHNOLOGY**



OF



Prevalence of malnourished children, 10.08-19.0 years old (121-228 months): Philippines, 2013





Prevalence of malnourished children, 10.08-19.0 years old (121-228 months): Philippines, 2013



Trends in the prevalence of malnutrition among children, 10.08-19.0 years old (121-228 months): Philippines, 2003-2013









Top regions with highest and lowest prevalence: Philippines, 2013

FNRI FOOD AND	Form of Malnutrition	Highest Regions	Lowest Regions		
NUTRITION RESEARCH INSTITUTE DEPARTMENT OF SCIENCE AND TECHNOLOGY	10.08-19.0 years old (121-228 months)				
	STUNTING	ARMM SOCCSKSARGEN Zamboanga Peninsula	Central Luzon NCR Cagayan Valley		
	WASTING	MIMAROPA, CALABARZON Western Visayas	CAR Northern Mindanao Zamboanga Peninsula		
	OVERWEIGHT/ OBESE	CAR NCR Central Luzon	Bicol MIMAROPA Zamboanga Peninsula		

Prevalence of malnourished children, 10.08-19.0 years old (121-228 months) by place of residence and by wealth quintile: Philippines, 2013





Prevalence of overweight / obese children, 10.08-19.0 years old (121-228 months) by place of residence and by wealth quintile: Philippines, 2013



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 Overall, there is a significant reduction in the prevalence of stunting among the 0-19 years old between 2011 and 2013, but this remains to be medium to high and a public health concern.

 Likewise, there is a slight reduction in underweight among the 0-10 years old but the prevalence also remains to be medium to high and a public health concern.




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 Furthermore, although there are improvements in the nutritional status with regards to undernutrition, pockets of the problem are still persistent in specific age groups and selected areas.

 Overweight and obese prevalence among the 0-5 year-old is going up at an average of 0.17%-points per year for the past 24 years.



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- Among the school-age and adolescent groups, overweight prevalence increases at an average of 0.33%-points and 0.34%points per year, respectively for the past 10 years.
- The lowest/poorest quintiles have higher prevalence of undernutrition while the wealthiest/highest quintiles have higher prevalence of overnutrition across age groups.

Body Mass Index (BMI)

18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40++

RESULTS What is the current nutritional status of Filipino adults?



Normal

Overweight

Obese



Mean Height and Weight of adults 20 yrs old and above by region: Philippines, 2013

Mean Weight(kg)

Region

Mean Height (cm)



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Male Female



Mean Weight and Height by sex and by wealth index: Philippines, 2013





Prevalence of Chronic Energy Deficient Adults, 20.0 yrs old and above : Philippines, 2013





Prevalence of Chronic Energy Deficient (CED) and overweight/obese adults, 20 yrs old and above by region: Philippines, 2013





Prevalence of Overweight/Obese Adults 20.0 yrs old and above : Philippines, 2013





Prevalence of CED and Overweight/Obese in adults 20 yrs old and over by place of residence and wealth index: Philippines, 2013





Prevalence of malnourished adults, >20.0 years old: Philippines, 1993–2013



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Prevalence of high waist circumference (WC) among Adults > 20 yrs old by Sex: Philippines, 2013 Mean WC (cm) Male: 80.4







Trends in high waist circumference and high waist hip ratio prevalence among adults, 20 years old and over: Philippines 1998-2013





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SCIENCE AND TECHNOLOGY •Mean weight for male is 61.3 kg and 54.3 kg for female. Mean height is 163 cm for male and 151.4 cm for female.

SUMMARY

 Mean weight and height increased for both male and female as their wealth quintile increased

•1 in every 10 Filipino adults is Chronic Energy Deficient (CED). By gender more , more females are energy deficient.

•3 in every 10 adults are overweight and obese and more female adults are overweight and obese.

•The prevalence of CED is inversely related to wealth, while the prevalence of overweight and obese is positively related to wealth.

•From 1993 to 2013, there is a decreasing trend in the prevalence of CED from 13.9% to 10.3% but an increasing trend in the prevalence of overweight and obesity from 16.6% in 1993 to 29.9%.





SUMMARY



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DEPARTMENT OF SCIENCE AND TECHNOLOGY •Mean waist circumference for male is 80.4 cm and 79.3 cm for female. Mean waist hip ratio is 0.9 for males and 0.87 for females

•From 1993 to 2013, there is an increasing trend of high waist circumference and high waist hip ratio for both males and females.





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8th National Nutrition Survey, Philippines 2013

ANEMIA

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BACKGROUND

Anemia is a global public health problem affecting both developing and developed countries with major consequences for human health, as well as social & economic developments

- occurs at all stages of life cycle, but more prevalent in pregnant women and young children

Iron deficiency anemia (IDA) was considered to be the most important contributing factors to the global burden of disease (WHO, 2002)

- affects 1.62 billion people globally; with preschool-age children as the most at-risk (47.4%), while men presented the lowest prevalence (12.7%) (WHO, 2008)



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BACKGROUND

Consequences of iron deficiency

Iron deficiency adversely affects:

- the cognitive performance, behavior, and physical growth of infants, preschool and school-aged children
- the immune status and morbidity from infections of all age groups
- the use of energy sources by muscles and thus the physical capacity and work performance of adolescents and adults of all age groups
 - Specifically, iron deficiency anemia during pregnancy
 - increases perinatal risks for mothers and neonates
 - increases overall infant mortality



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METHODS

Study Design:

- Cross-sectional
- Multi-stage stratified sampling design

Participants: 33,852

All age/sex/ population/ physiologic groups

8th NNS

- Infants & children, 6 mos- 5y (3,190)
- School children, 6-12 y (5,794)
- Adolescents, 13-19 y (5,500)
- Adults, 20 <60 y (14,665)
- Elderly, 60 y & up (3,644)
- Pregnant women (310)
- Lactating women (749)



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METHODS

Blood Collection



FINGER PRICK from children, 6mos -5y



VENIPUNCTURE from 6 yrs to elderly

¹ ICSH, J Clin Path 31: 139 - 143, 1978

Sample Assay



by cyanmethemoglobin method ¹ using spectrophotometer



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METHODS

Quality Assurance

Accuracy

- Tri-level Control Blood Sample determined in the field in every barangay
- Hemoglobin level within the acceptable limit of the certified value

Precision

- In-house QC blood sample (pooled) analyzed in each assay day
- Hemoglobin level within ± 2SD of the analyzed value and plotted in a QC chart



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ASSESSMENT CRITERIA

Normal hemoglobin levels, WHO cut-off, 1972

AGE/ SEX/ PHYSIOLOGIC STATE		Normal hemoglobin level (g/dL)	
Children:	6 mos - 6 yrs	11.0	
	6.1 - 14 yrs	12.0	
Adult:	Males	13.0	
(no	Females	12.0	
Pregnant		11.0	
Lactating	Women	12.0	



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ASSESSMENT CRITERIA

Classification of public health significance of anemia in populations on the basis of prevalence estimated from blood levels of hemoglobin, WHO, 2001

Category of public health significance	Prevalence of anemia (%)
Severe	≥ 40.0
Moderate	20.0 – 39.9
Mild	5.0 – 19.9
Low	≤ 4.9



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RESULTS

Prevalence of anemia by age, sex and physiologic state, 2013

Age/Sex/Physiologic State	No. of Subjects	Prevalence (%)		
Philippines	33852	11.1 39.4		
6 mos - < 1 yr	262			
1 – 5 y	2928	11.3		
6 – 12 y, M	2993	11.1		
F	2801	11.1		
13–19 y, M	2898	5.3		
F	2602	10.2		
20 – 39 y, M	3746	4.1		
F	3238	12.0		
40 – 59 y, M	3706	8.4		
F	3974	13.2		
≥ 60 y, M	1588	23.1		
F	2056	19.3		
Pregnant	310	25.2		
Lactating	749	16.6		

Prevalence of anemia among children by age, 2008

Age	n	Prevalence (%)
6 mos – 5 y	3190	13.9
6 mos - < 1 y	262	
1 – 5 y	2928	11.3
1 y	529	24.6
2 y	545	14.0
3 y	567	8.5
4 y	597	5.8
5 y	690	4.3
		0 5 10 15 20 25 30 35 40 45 50

Trends in the overall prevalence of anemia, Philippines: 1993, 1998, 2003, 2008 and 2013



Trends in the prevalence of anemia among children Philippines: 1998, 2003, 2008 and 2013



Trends in the prevalence of anemia among children Philippines: 1993, 1998, 2003, 2008 and 2013



Trends in the prevalence of anemia among pregnant and lactating women, Philippines: 1993, 1998, 2003, 2008 & 2013



Prevalence of anemia by age group, by region



Regions with highest & lowest prevalence of anemia by age group



Prevalence of anemia among preschool children by quintile index, Philippines: 2013



Prevalence of anemia among children by quintile index, Philippines: 2013



Prevalence of anemia among adults by quintile index, Philippines: 2013



Prevalence of anemia among pregnant and lactating women by quintile index, Philippines: 2013


Prevalence of anemia by urbanization, Philippines, 2013





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SUMMARY

- Over all, the 2013 NNS showed a decreasing trend in anemia prevalence among Filipinos
- Anemia prevalence is moderate among infants, 6 mos -<1 year and pregnant and lactating women
- Highest prevalence of anemia was found among infants, 6 mos -<1 y and generally among the poorest groups





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Prevalence of nutritionally at-risk* pregnant women by age-group: Philippines, 2013

Philippines: 24.8%



*Based on weight-for-height classification; P<95 = Nutritionally at- risk, P≥95 = Not nutritionally at- risk (Magbitang, et.al, 1988)



Prevalence of nutritionally at-risk pregnant women by wealth quintile and by place of residence: Philippines, 2013



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Trends in the prevalence of nutritionally at-risk pregnant women: Philippines, 1998-2013





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Elevated blood pressure* among pregnant women by wealth quintile and place of residence: Philippines, 2013

Philippines: **3.9%**



*Based on a single visit BP measurement

Source: Report of the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy. *Am J Obstet Gynecol* 2000; 183(1);S1-S22



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Fasting Blood Glucose (FBG) among pregnant women 18 years and over: Philippines, 2013

DCC	Mean FBG				
PSC	n	Mean	SE	(95%	% CI)
Pregnant	268	74.33	0.95	72.46	76.20

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% Distribution by FBG (mg/dL) levels*									
<100			100 - 125			≥126			
%	(95%	ó CI)	%	(95%	ó CI)	%	(95%	ő CI)	
97.03	95.03	99.04	1.13	-0.02	2.27	1.84	0.18	3.50	
2.070/									
2.97%									





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RESULTS Lactating Mothers







Nutritional status of *lactating* mothers: Philippines, 2013





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Year



Nutritional status of lactating mothers by age group and length of lactation: Philippines, 2013

4.4











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Nutritional status of lactating mothers by wealth quintile and place of residence: Philippines, 2013





Nutritional status of lactating mothers by wealth quintile by place of residence: Philippines, 2013





Elevated blood pressure* among lactating women 18 yrs old & over by wealth index and place of residence : Philippines, 2013

Philippines: 8.0%



*Based on a single visit BP measurement

Source: Report of the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy. *Am J Obstet Gynecol* 2000; 183(1);S1-S22



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Fasting Blood Glucose (FBG) and percentage distribution among lactating mothers 18 years and over: Philippines, 2013

PSC	Mean FBG					
	n	Mean	SE	(95%	% CI)	
Lactating	685	80.19	0.67	78.86	81.51	

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5.32%



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SUMMARY

- The prevalence of nutritionally-at-risk pregnant women remained high at 24.8% with pregnant teen age girls more likely to be nutritionally at-risk at 37.2%.
- Compared with 2011 results, prevalence of CED/underweight among lactating mothers slightly increased from 11.9% to 12.5% while overweight barely changed from 17.7% to 17.5%.



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SUMMARY

- Elevated BP affected 3.9% of pregnant women and 8.0% of lactating mothers.
- Impaired and elevated fasting blood sugar affected 2.97% of pregnant women and 5.32% of lactating mothers.







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8th National Nutrition Survey: 2013

Clinical and Health Survey Component







Hypertension



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Classification	Systolic Blood Pressure (mmHg)		Diastolic Blood Pressure (mmHg)
Normal	< 140	and	<90
Hypertension	≥140	or	≥ 90
			CQ Ib



Based on the Modified JNC VIII (2013)



Prevalence of hypertension based on a on a single visit, by sex and age, Philippines: 2013



Based on the Modified JNC VIII (2013)



Prevalence of hypertension based on a single visit BP, by wealth quintile and place of residence, Philippines: 2013





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Trends in the Prevalence of Hypertension* among adults \geq 20 years old in the Philippines: 1993, 1998, 2003, 2008 & 2013



Based on single visit BP determination using the 7th Joint National Committee (JNC 7) p-value< 0.0001





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RESULTS







Classification and cut-off points of Fasting Blood Glucose by Guidelines

FOOD AND NUTRITION RESEARCH NSTITUTE	Classification	WHO and IDF ^a	Philippine CPG ^b
	Normal	< 110	< 100
	Impaired Fasting Glucose (IFG)	110-125	100-125
	Diabetes	<u>></u> 126	<u>></u> 126

^aInternational Diabetes Federation ^bClinical Practice Guideline





Prevalence of High Fasting Blood Glucose*, by age and sex, Philippines: 2013



* WHO and CPG criteria of high FBG >125 mg/dL



Comparison in the Prevalence of Impaired Fasting Glucose (IFG) using WHO and Philippine CPG, Philippines: 2013





Prevalence of Diabetes, Philippines: 2013



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Trends in the prevalence of high fasting blood glucose among adults \geq 20 years old, Philippines: 1998, 2003, 2008 and 2013



p-value: 0.0336



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Summary

- The prevalence of hypertension slightly decreased while that of diabetes significantly increased from 2008 to 2013.
- There were more hypertensive males than females across all ages.
- The urban poor have a higher prevalence of diabetes compared to their rural counterparts.
- The prevalences of hypertension and diabetes have increasing trend with increasing age and wealth.



SMOKING STATUS OF FILIPINO CHILDREN & ADULTS

FNRI

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SMOKING

OPERATIONAL DEFINITIONS

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DEPARTMENT OF SCIENCE AND TECHNOLOGY – those who smoked during the survey either on a "daily" (at least one cigarette a day) or on a regular/occasional basis; those who do not smoke daily but who smoke at least weekly or those who smoke less often than weekly.

- those who have ever smoked in the past year prior to survey whether on a daily basis or an aggregate lifetime consumption of at least 100 cigarettes but not daily, and are no longer smoking at the time of the survey

NEVER SMOKERS

CURRENT

SMOKERS

FORMER

SMOKERS

- those individuals who have never smoked at all





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SMOKING STATUS





Distribution of male adults 20 years old and over by smoking status and age group: Philippines, 2013



Distribution of female adults 20 years old and over by smoking status and age group: Philippines, 2013



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Distribution of adults 20 years old and over by smoking status and age group: Philippines, 2013





Distribution of Smoking Status among Adults 20 years & over : Philippines, 1998-2013


Distribution of children 10.0-19.9 years by Smoking status: Philippines, 2013





Distribution of Smoking Status among Children 10.0-19.9 years: Philippines, 2008 and 2013

2008 2013





Prevalence and 95% CI of adult current smokers: Philippines, 2013

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REGIONS	LL	UL	PREVALENCE (%)
PHILIPPINES	24.5	26.3	25.4
NCR	20.4	26.1	23.3
llocos	24.5	28.5	26.5
Cagayan Valley	21.5	28.6	25.1
CAR	14.3	23.7	19.0
Central Luzon	28.1	34.1	31.1
CALABARZON	23.1	27.9	25.5
MIMAROPA	21.7	29.3	25.5
Bicol	23.2	28.6	25.9
Western Visayas	23.3	29.3	26.3
Central Visayas	16.9	22.1	19.5
Eastern Visayas	19.2	26.6	22.9
Zamboanga Peninsula	26.8	35.8	31.3
Northern Mindanao	20.9	26.0	23.5
Davao	20.1	26.3	23.2
SOCCSKSARGEN	24.3	32.1	28.2
ARMM	23.4	32.5	28.0
CARAGA	24.3	32.5	28.4



Prevalence of Current Smokers by Place of Residence and Wealth Quintile: Philippines, 2013







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SMOKELESS SMOKING STATUS



Distribution of male adults 20 years old and over by smokeless smoking status and age group: Philippines, 2013





Distribution of female adults 20 years old and over by smokeless smoking status and age group: Philippines, 2013











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REPORTED **EXPOSURE TO** SECONDHAND SMOKE

Distribution of children 10.0-19.9 years by reported exposure to secondhand smoke at home: Philippines, 2013





Distribution of adults 20.0 years old and over by reported exposure to secondhand smoke at home: Philippines, 2013





Distribution of adults 20.0 years old and over by reported exposure to secondhand smoke outside the home: Philippines, 2013





SUMMARY



DEPARTMENT OF SCIENCE AND TECHNOLOGY 25.4% or 1 in 4 adults, 20 years old and over are current smokers

There is a significant decline in the prevalence of smoking among adults from 2008 to 2013.

6.8% or 7 in 100 children 10.0 to 19.9 years old are current smokers

A decrease in the prevalence of smoking among children from 2008 to 2013 is also observed, although results are not statistically significant.



The top three regions with the highest proportions of current adult smokers are Zamboanga Peninsula (31.3%), Central Luzon (31.1%) and CARAGA (28.4%).



SUMMARY



There is a significantly higher proportion of current smokers among the rural poor than in their urban counterparts.

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1.8% of adults are current smokeless smokers; 2.5% were males and 1.1% were females

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40.6% of children reported to have been exposed to secondhand smoke at home



Overall, 36.6% of adults have reported to have been exposed to secondhand smoke at home; exposure is higher among females at 39.6% than males at 33%.



Reported exposure to secondhand smoke outside the home is higher among males at 67.1% than females.