

TECHNICAL MEETING ON THE DIET AND EATING PRACTICES OF ADOLESCENT GIRLS AND WOMEN OF REPRODUCTIVE AGE



THE LANDSCAPE OF NUTRITION OF ADOLESCENT GIRLS AND WOMEN

Laura E Caulfield PhD, Victoria Elliot MSPH

The Johns Hopkins Bloomberg School of Public Health
Program in Human Nutrition

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Presentation goal

- Current landscape of nutritional status of adolescent girls, women of reproductive age, women during pregnancy and during lactation
- Summarize findings to identify key nutrition actions



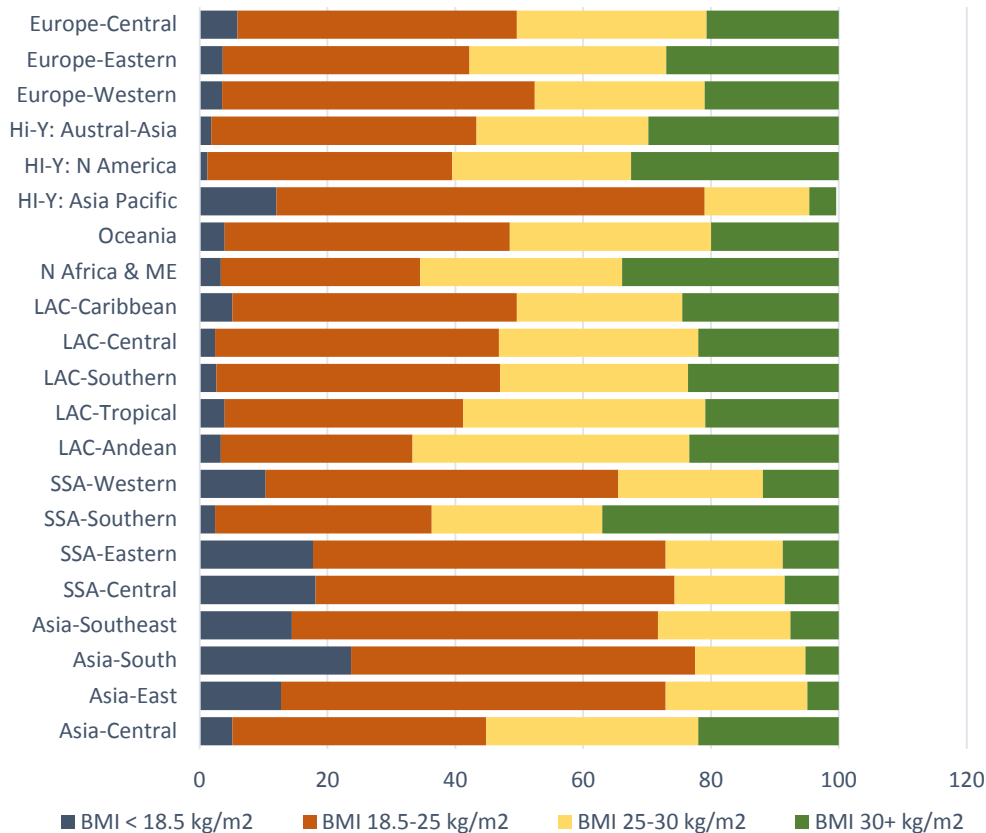
Distributions of height among women of reproductive age by UN region (Kozuki et al., submitted)

UN MDG region	< 145 cm	145 < 150 cm	150 < 155 cm	≥ 155 cm
Oceania	2.3	8.5	16.8	72.4
Eastern Asia	2.0	7.8	22.6	67.7
Western Asia	1.3	7.2	22.3	69.1
SE Asia	8.9	23.6	35.8	31.6
South Asia	10.7	24.6	33.2	31.5
Caucasus & Central Asia	0.7	3.7	15.3	80.2
Northern Africa	1.5	5.4	17.7	75.5
Sub-Saharan Africa	2.6	7.0	18.8	71.6
Latin America & Caribbean	4.8	13.0	24.1	58.1
US (NHANES) -- Counterfactual	0.6	3.0	9.7	86.7

145 cm is 4'9"; 150 cm is~ 4'11"; 155 cm is 5'1" tall



BMI status of women 20+years by region (Ng et al, 2014; Stevens/WHO (unpublished))



Low prevalences of underweight except in SSA (not Southern), Southeast and South Asia

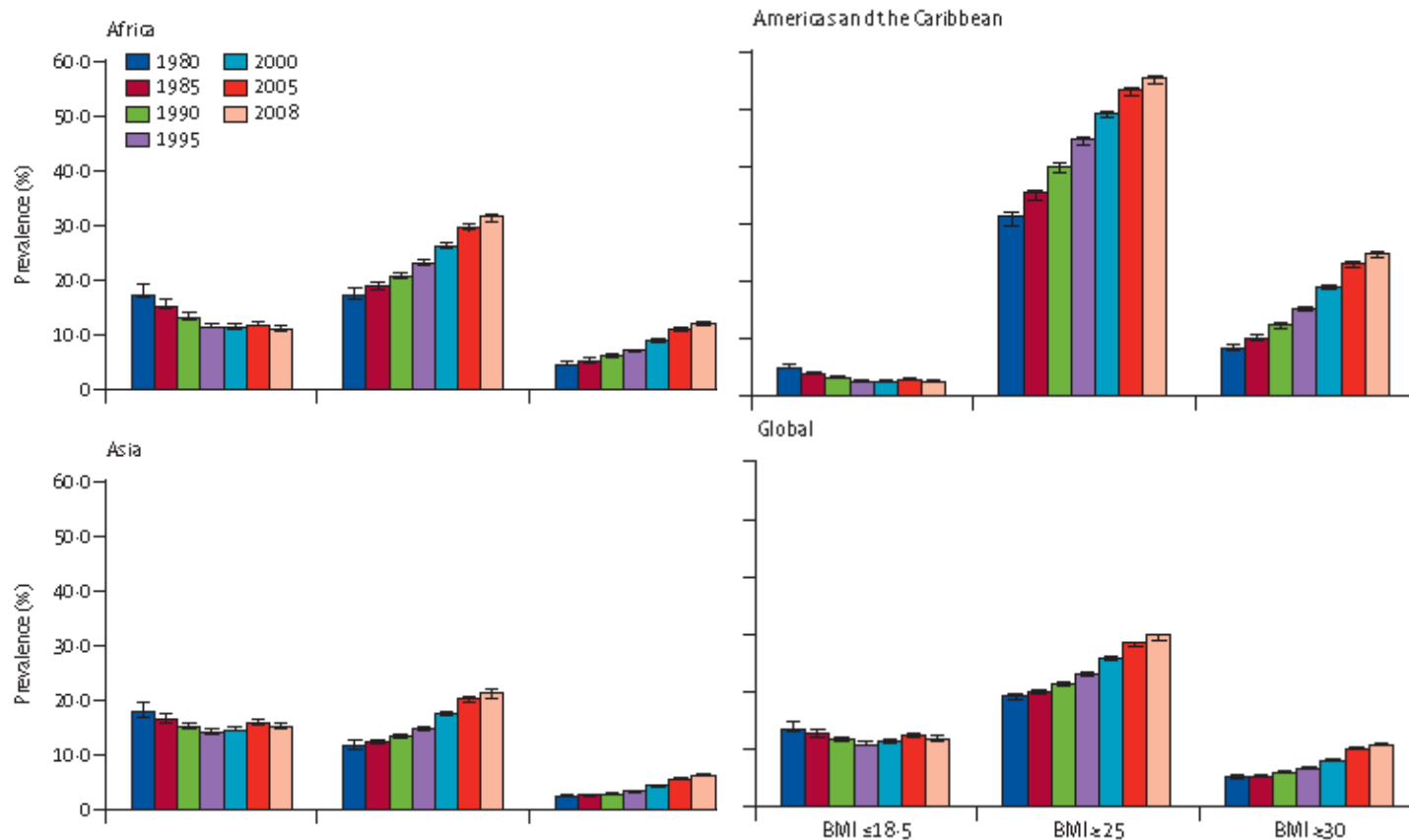
Only in South Asia are > 20% women underweight

Throughout LAC, the prevalences of overweight and obesity surround the 50% mark

This is also true for Central and Eastern Europe



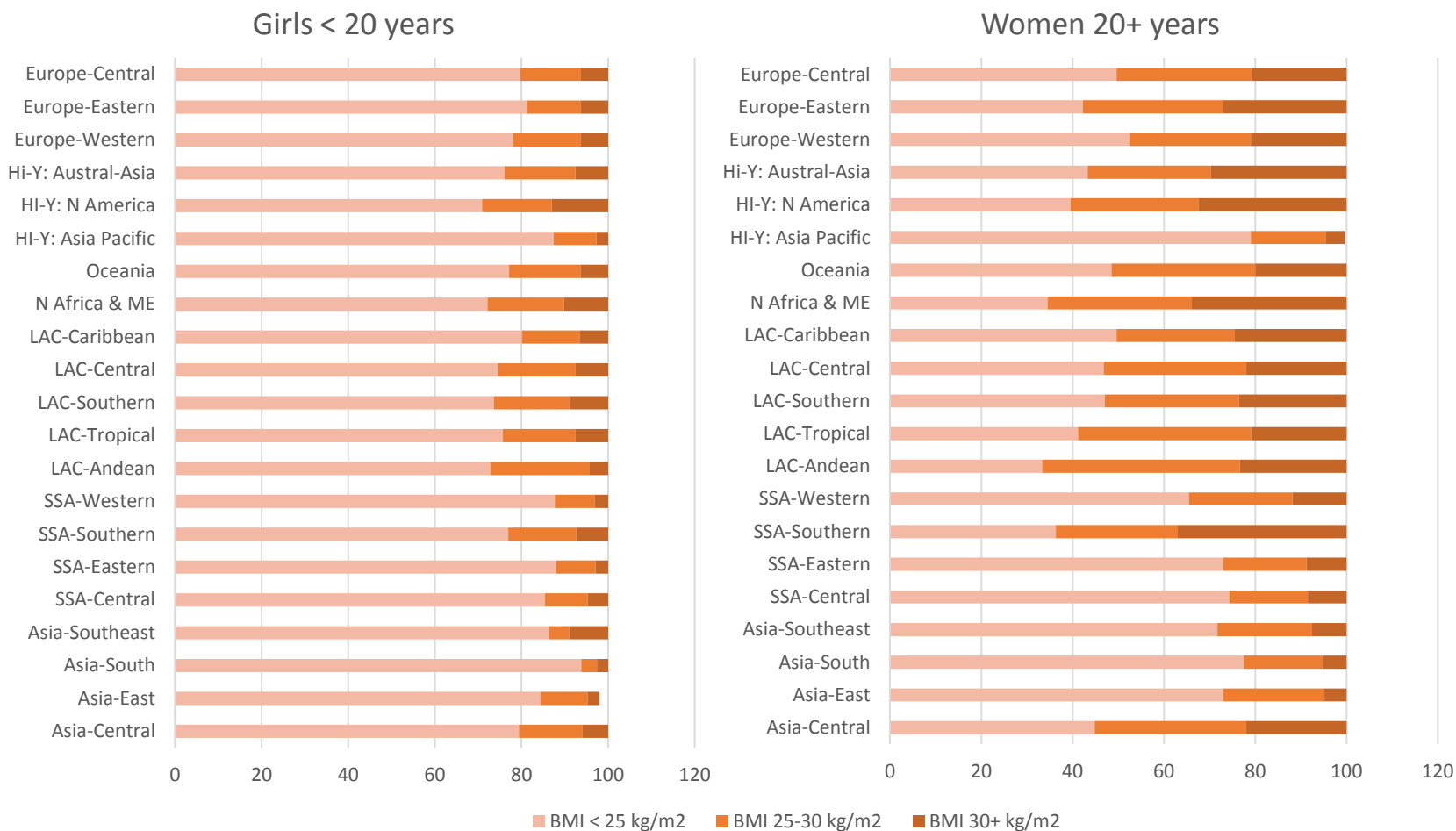
Changes in prevalence of underweight, overweight and obese women in LMIC from 1980 to 2008 (Black et al., 2013)



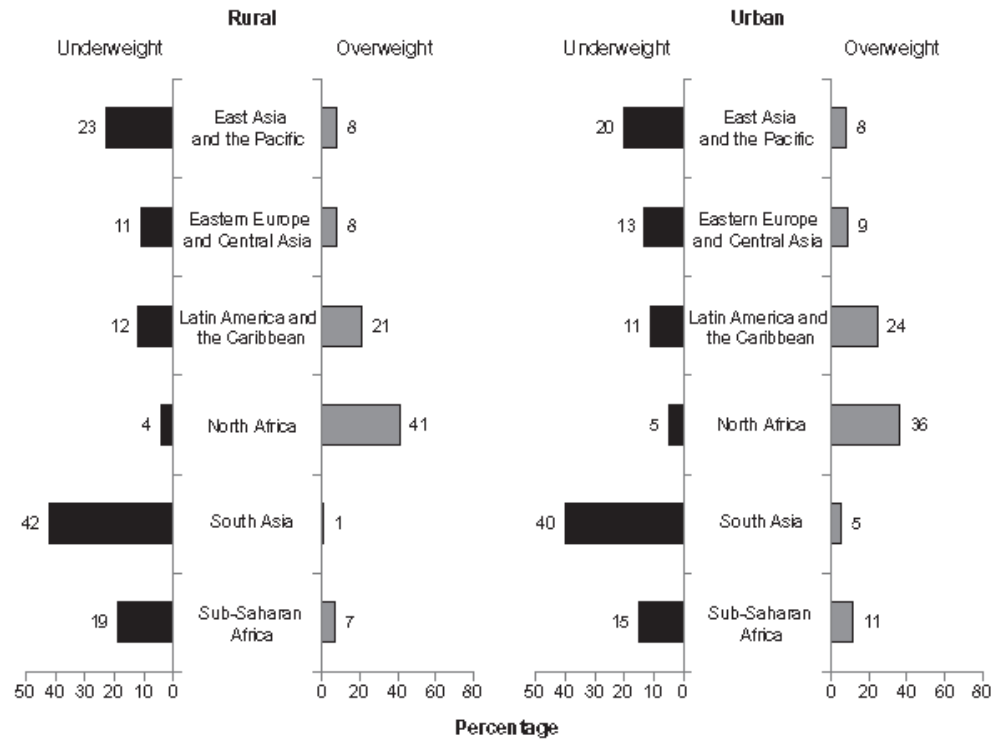
Presented are the prevalences of maternal body mass index (BMI) < 18.5 , > 25 and > 30 kg/m²



BMI status of girls < 20 years and women 20+ years by region (Ng et al, 2014)



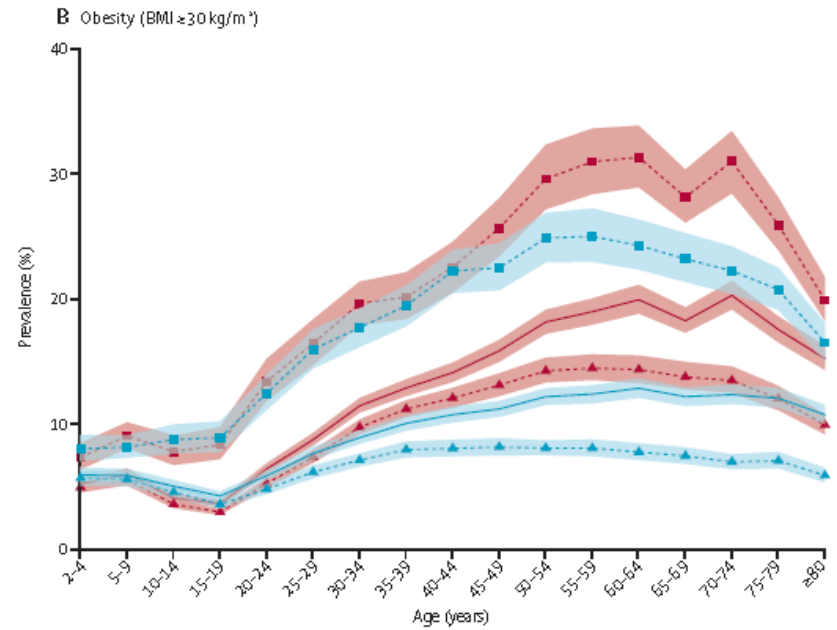
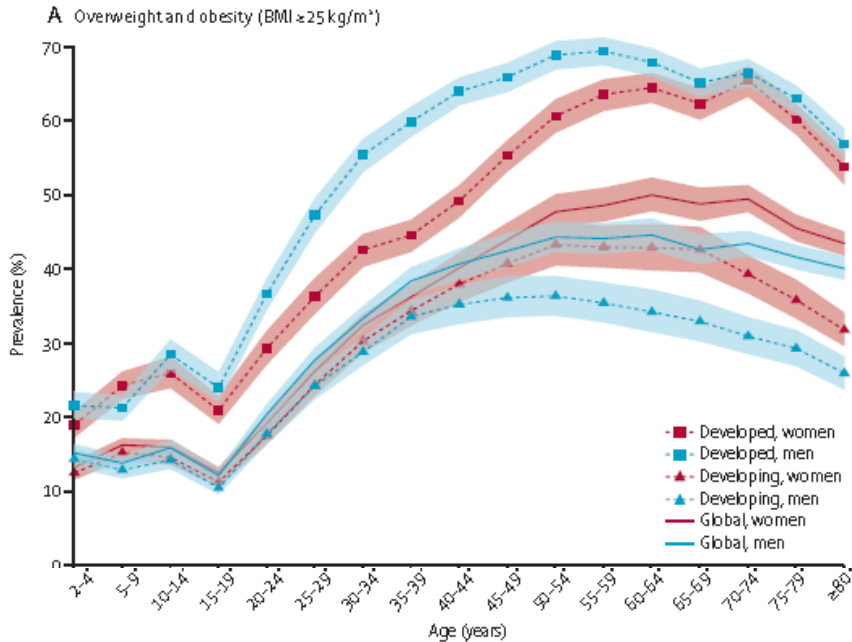
Comparisons of underweight and overweight among adolescents girls 15-18 y in LMIC by rural/urban status (Jaacks et al., 2015)



Underweight is defined as BMI < 17.7-18.5 kg/m² depending on age
 Overweight is > 25 kg/m² (IOTF criteria)



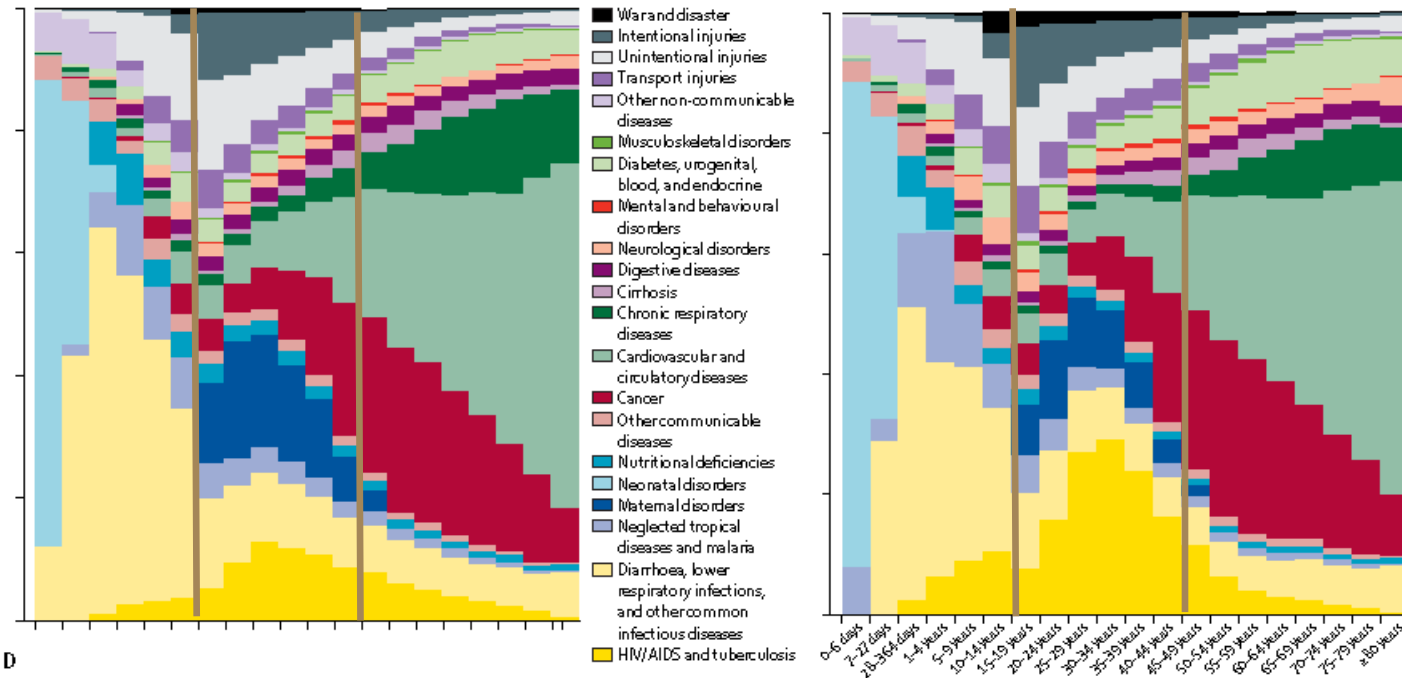
Overweight and Obesity by age (Ng et al., 2014)



The rise in overweight and obesity begins at 20-24 years of age



Changes in causes of deaths from 1990 to 2010 by cause and age (Lozano et al., 2012)



For women, 15 and 45 years:

Overall deaths have declined over time

Maternal disorders (middle blue) have been reduced

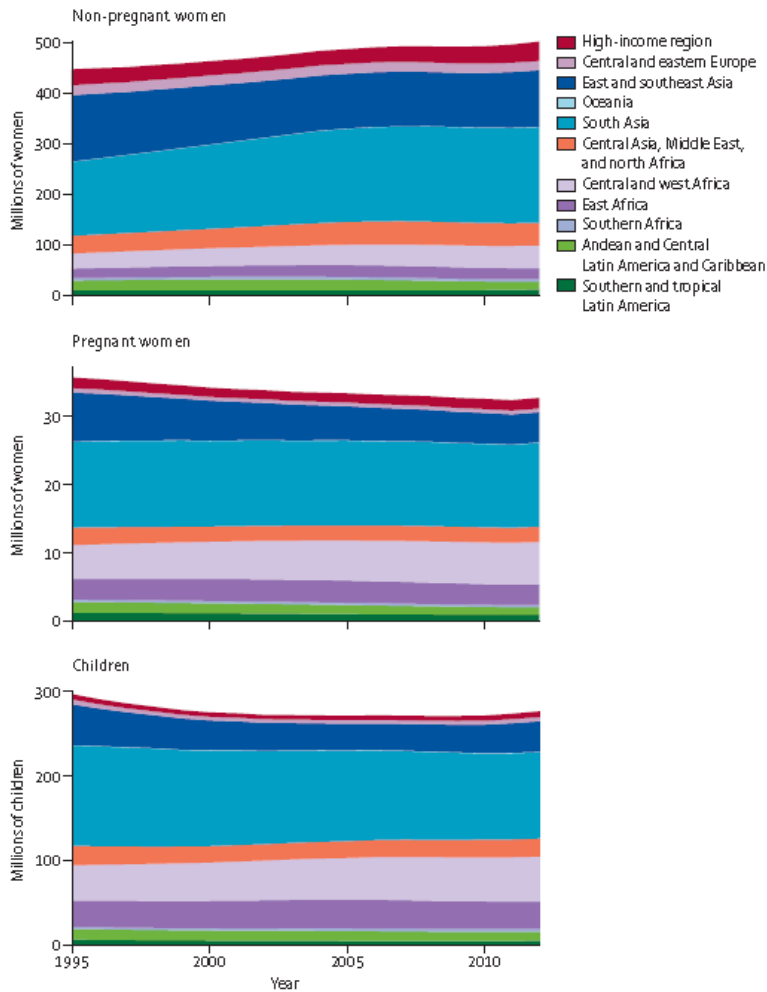
Deaths due to HIV/Tuberculosis appear to have risen

Cancer and CVD emerge as causes of death in their 30's

Nutritional deficiencies (turquoise) are an infrequent direct cause of death



Anemia in women and children and changes from 1995 to 2011 (Stevens et al., 2013)



	Children	Pregnant women	Non-pregnant women
Anemia	47% to 43%	43% to 38%	33% to 29%
Severe anemia	3.7% to 1.5%	2.0% to 0.9%	1.8% to 1.1%

(Anemia: < 110 g/L for children and pregnant women; and 120 g/L for women)
(Severe anemia < 70 g/L for children and pregnant women; < 80 g/L for women)



Prevalence of micronutrient deficiencies among adult women and during pregnancy

Region	Vitamin A deficiency among pregnant women ¹		Insufficient iodine intake in general population ²	Inadequate zinc intake in general population ³
	Night blindness (%)	Serum retinol < 0.70 umol/L (%)	Urinary iodine concentration < 100 ug/L (%)	Zinc available < EAR (%)
Globe	7.8	15.3	28.5	17.3
Africa	9.4	14.3	40.0	17.1-25.6
Americas & Caribbean	4.4	2.0	13.7	6.4-17.0
Asia	7.8	18.4	31.6	7.8-29.6
Europe	2.9	2.2	44.2	9.6

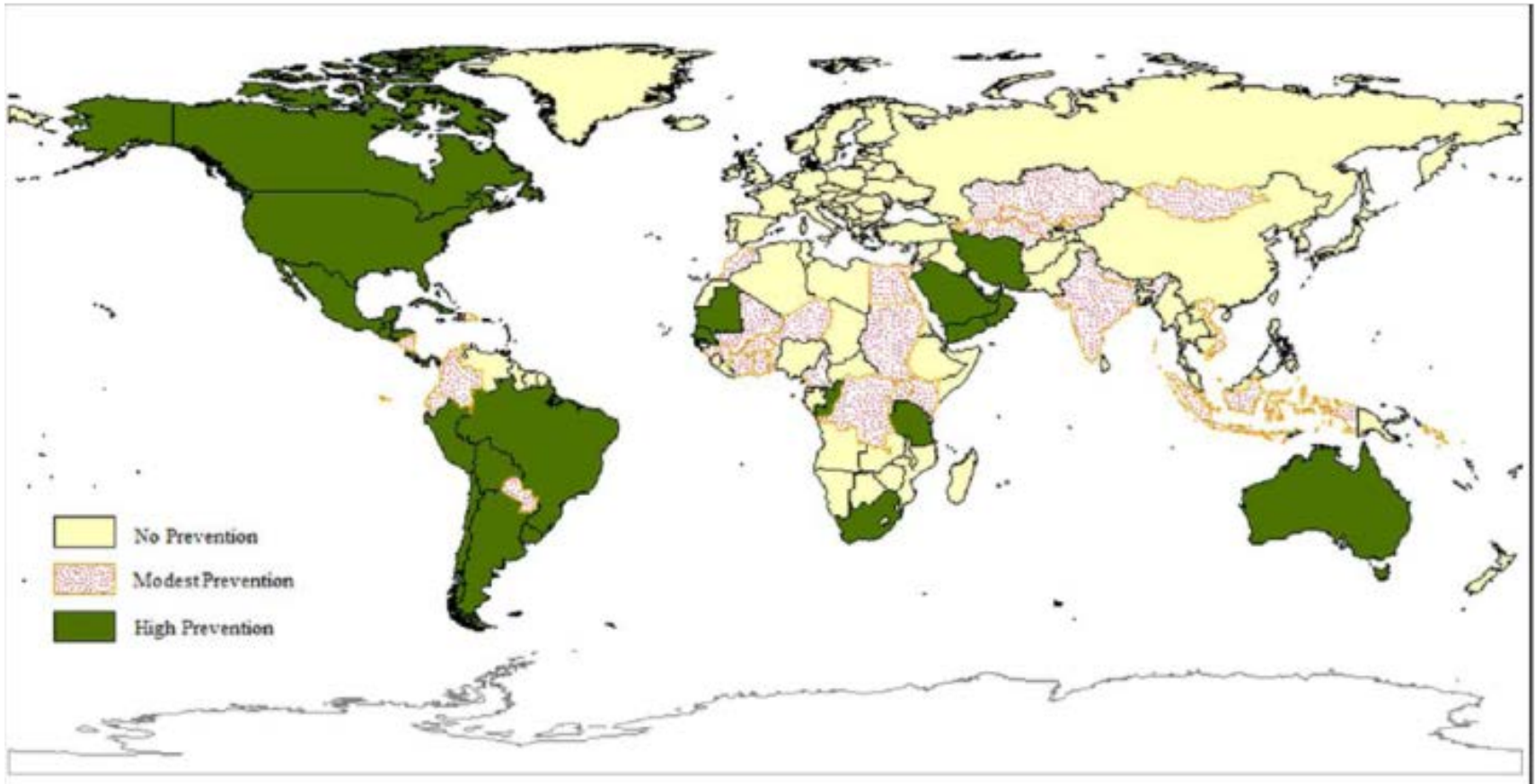
¹reported in WHO (2009) and in Black et al (2013)

²reported in Andersson et al (2012) and in Black et al (2013)

³reported in Wessells and Brown, 2012; see also Wessells et al., 2012

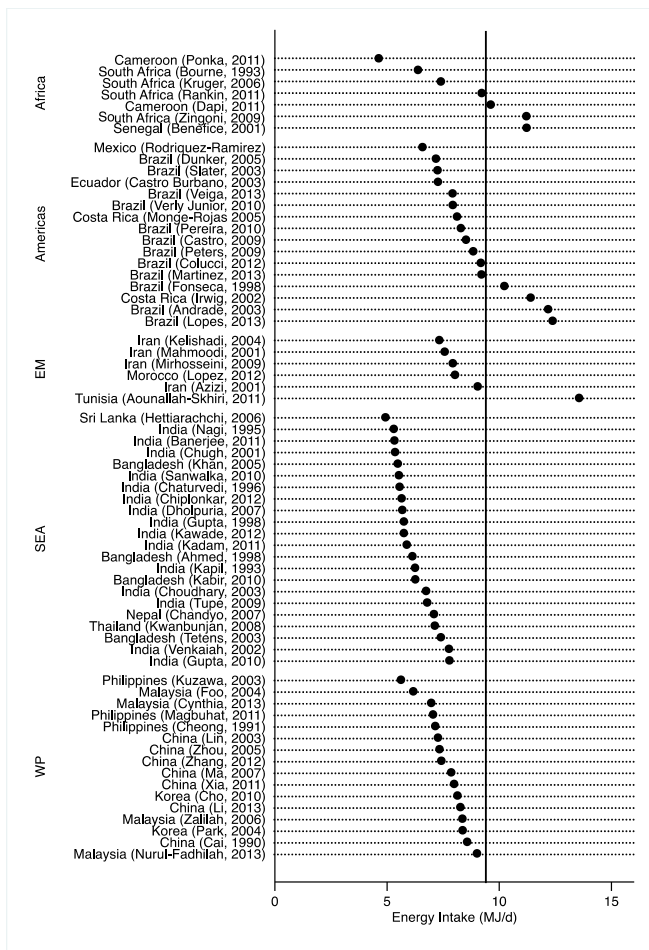


Status of global prevention of folic-acid preventable birth defects, 2012 (Source: Youngblood et al. 2013)

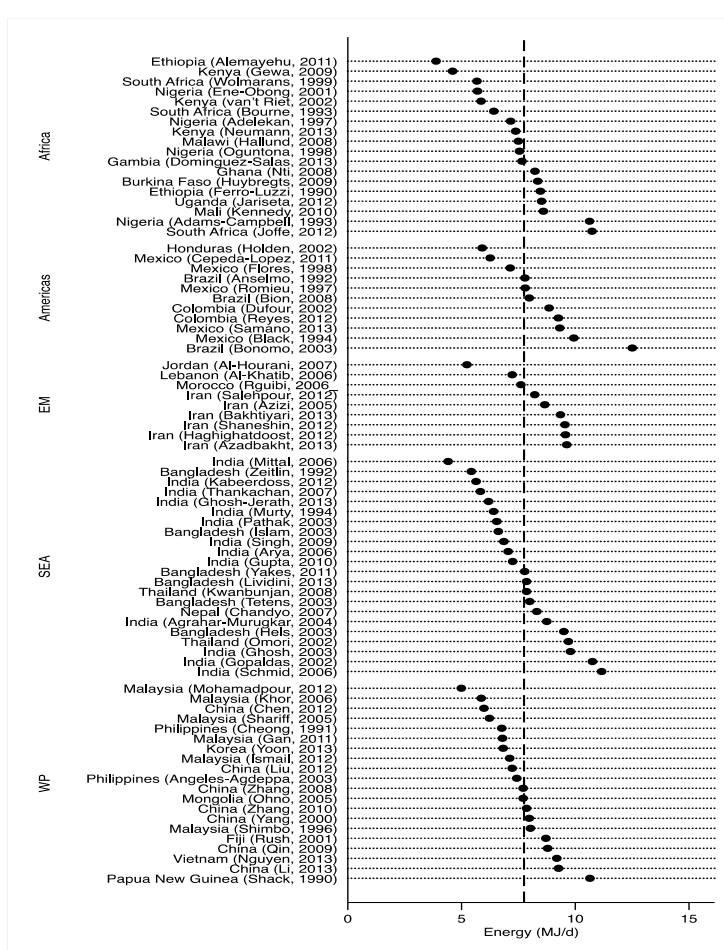


Energy intakes of adolescent girls and women of reproductive age (WRA) by region (Caulfield and Elliott, unpublished)

Adolescent girls

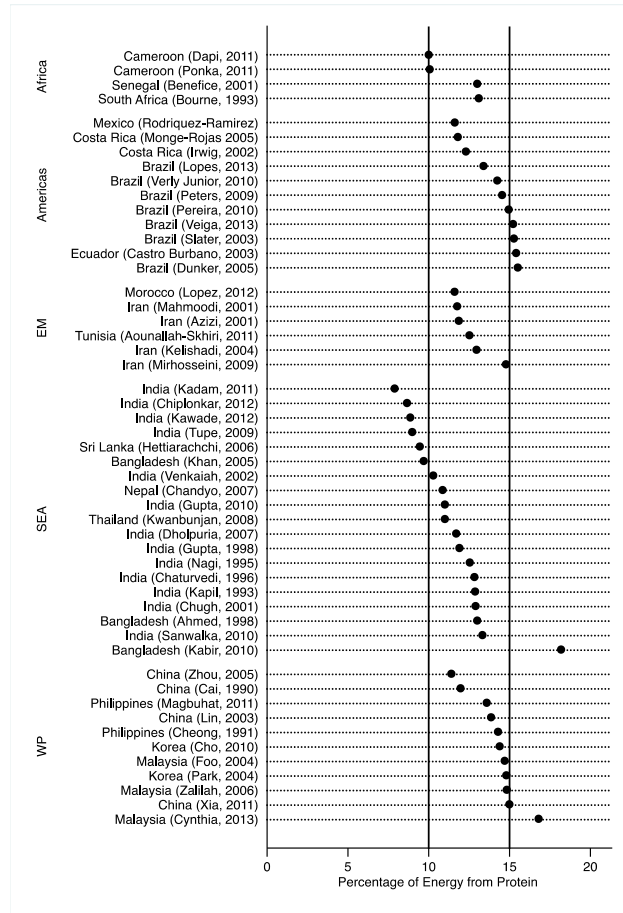


WRA

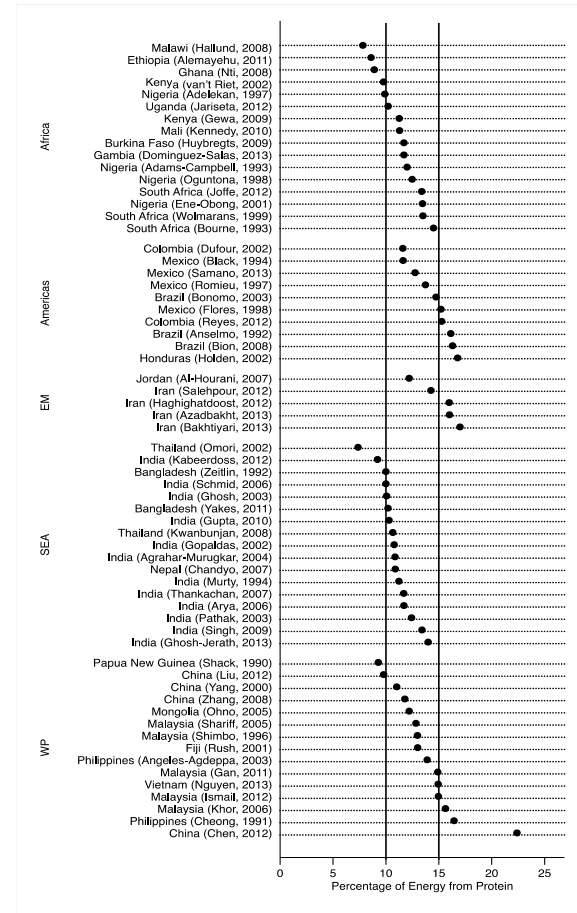


Protein intakes (% energy) of adolescent girls and women of reproductive age (WRA) by region (Caulfield and Elliot, unpublished)

Adolescent girls

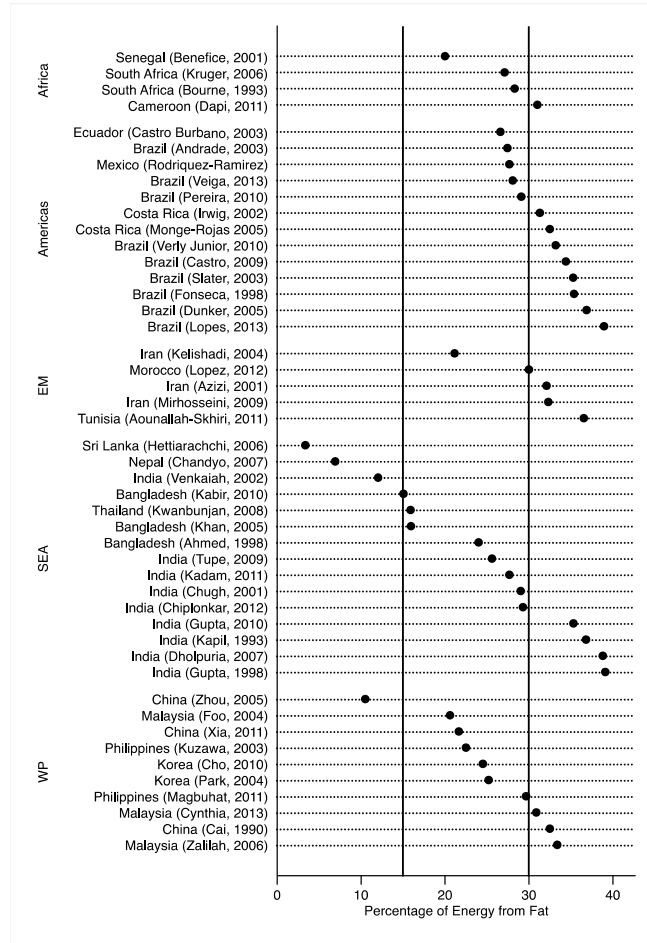


WRA

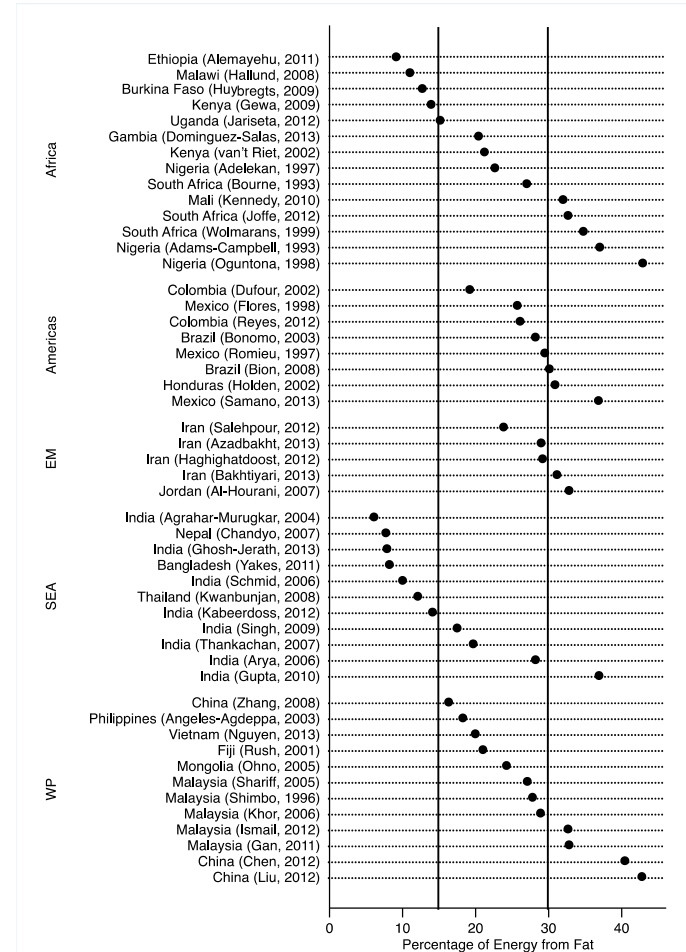


Fat intakes (% energy) of adolescent girls and women of reproductive age (WRA) by region (Caulfield and Elliot, unpublished)

Adolescent girls

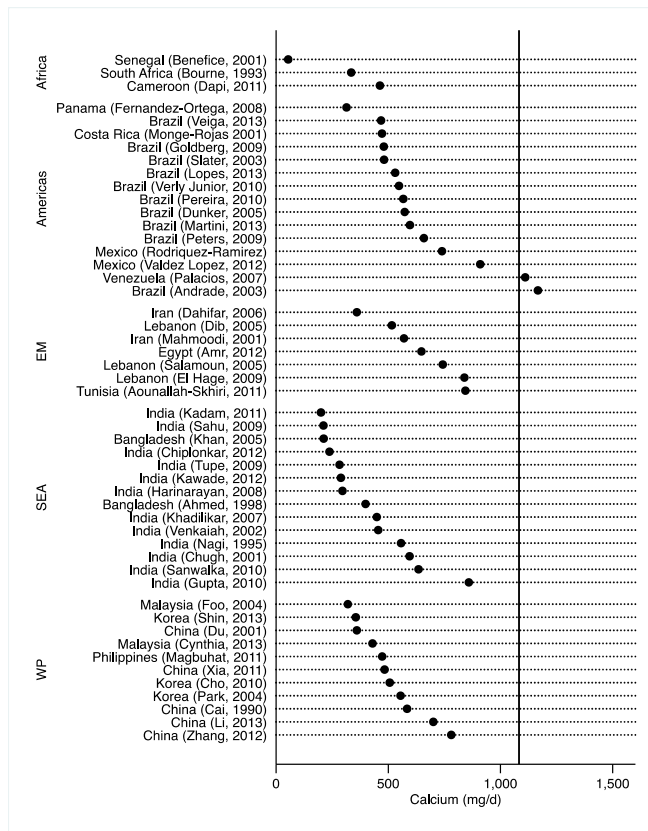


WRA

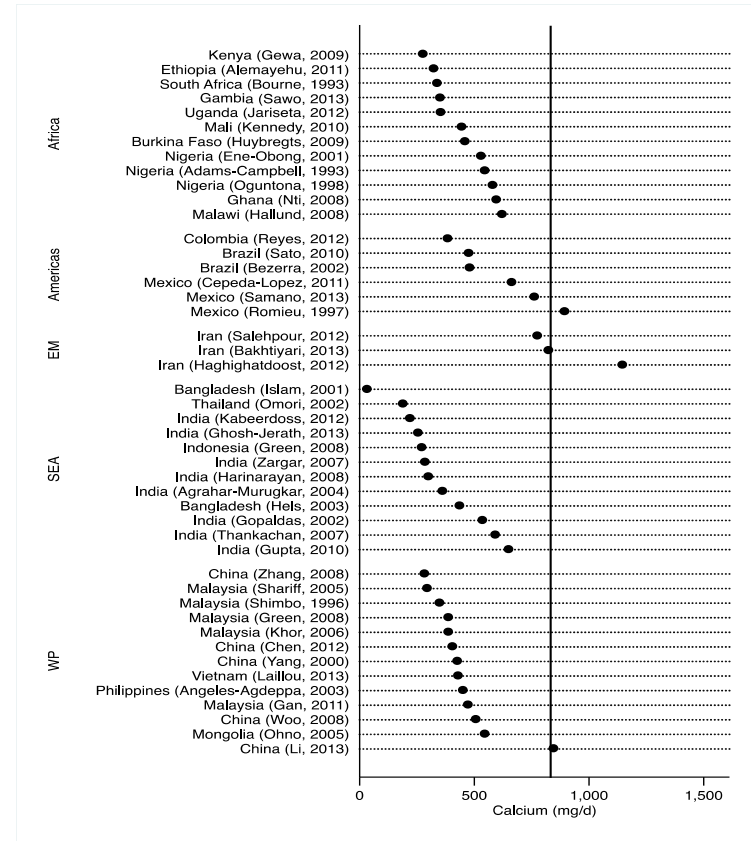


Calcium intakes of adolescent girls and women of reproductive age (WRA) by region (Caulfield and Elliot, unpublished)

Adolescent girls

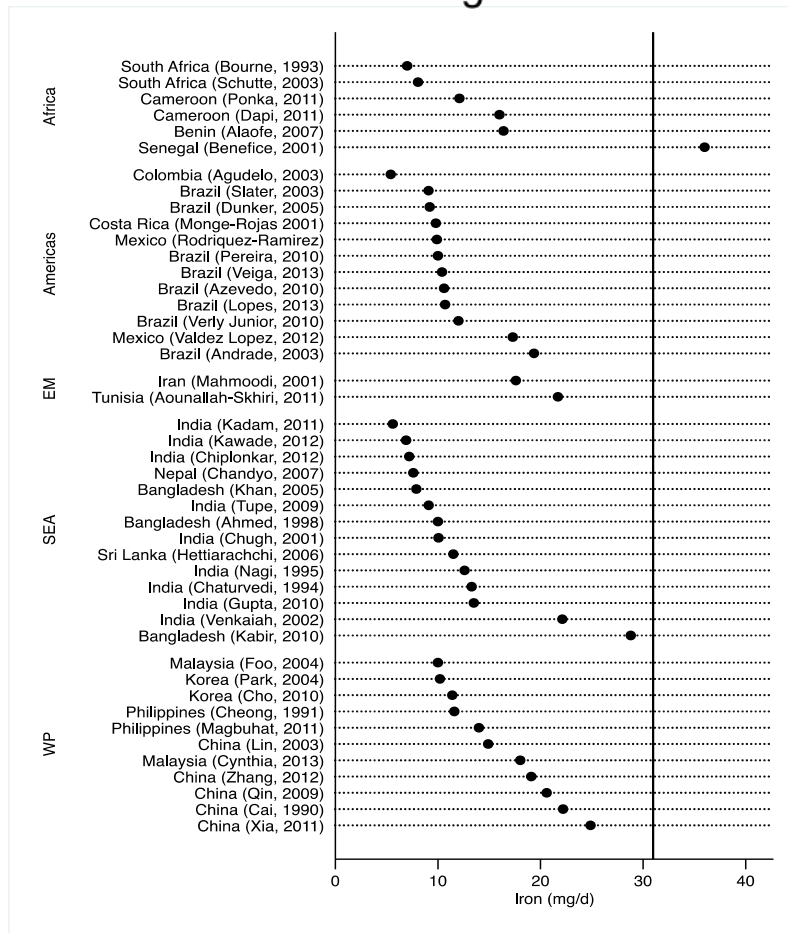


WRA

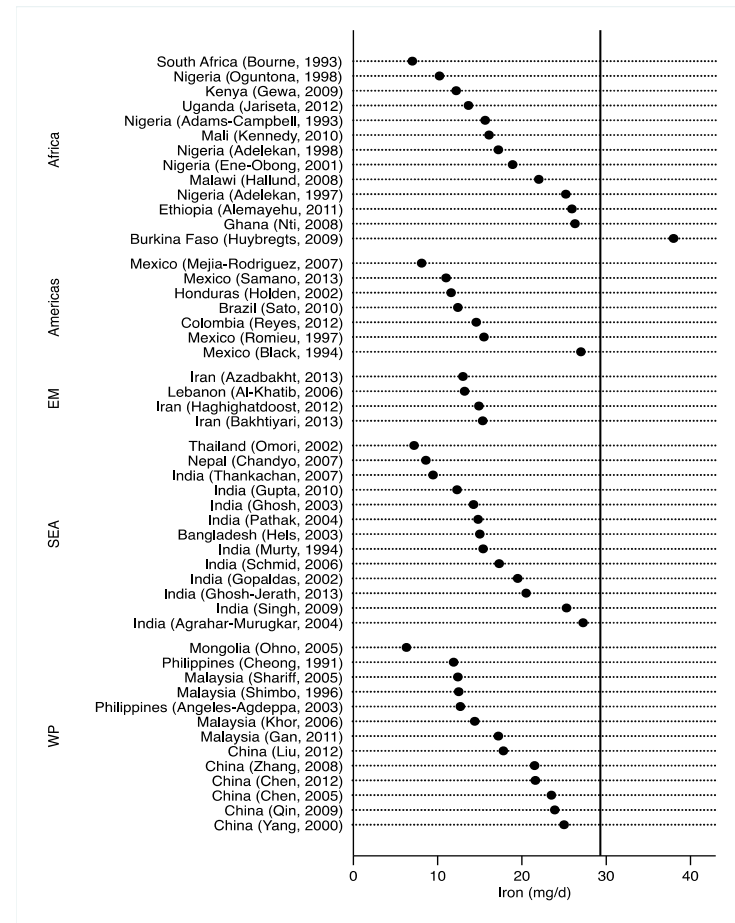


Iron intakes of adolescent girls and women of reproductive age (WRA) by region (Caulfield and Elliot, unpublished)

Adolescent girls

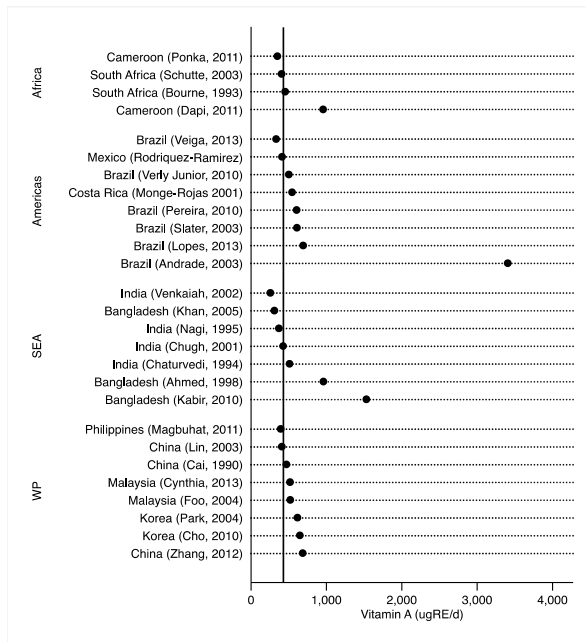


WRA

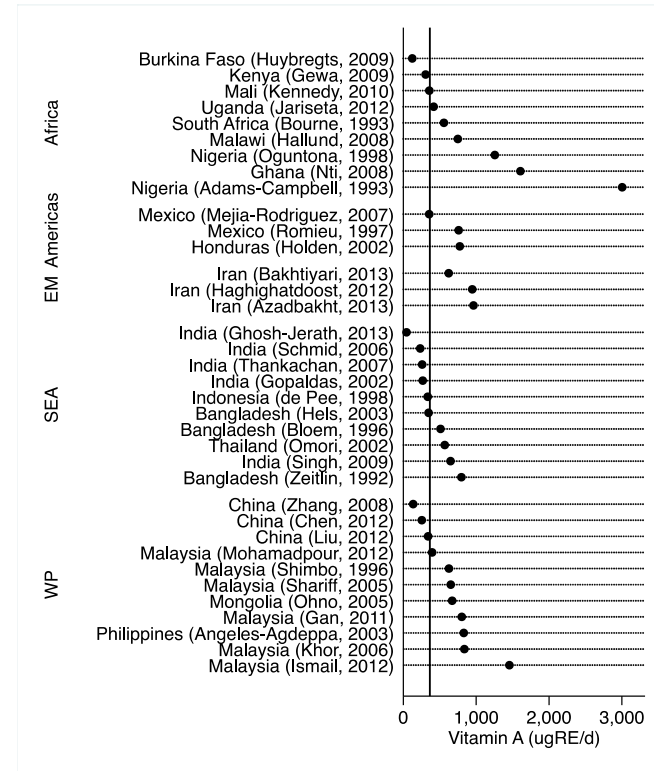


Vitamin A intakes of adolescent girls and women of reproductive age (WRA) by region (Caulfield and Elliot, unpublished)

Adolescent girls

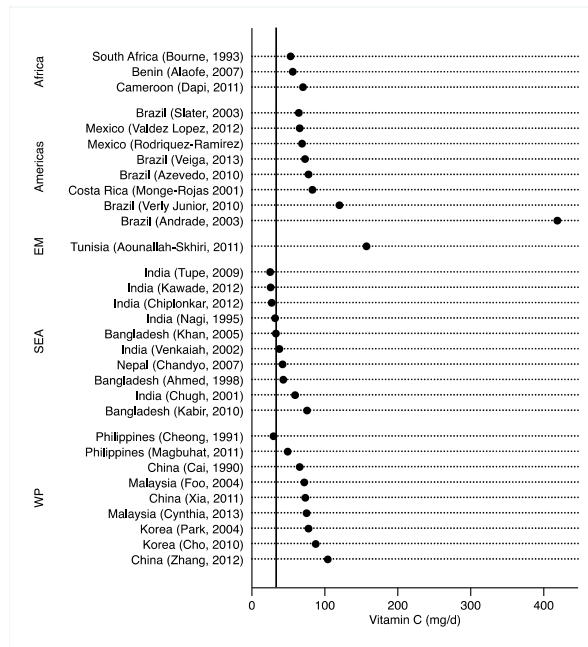


WRA

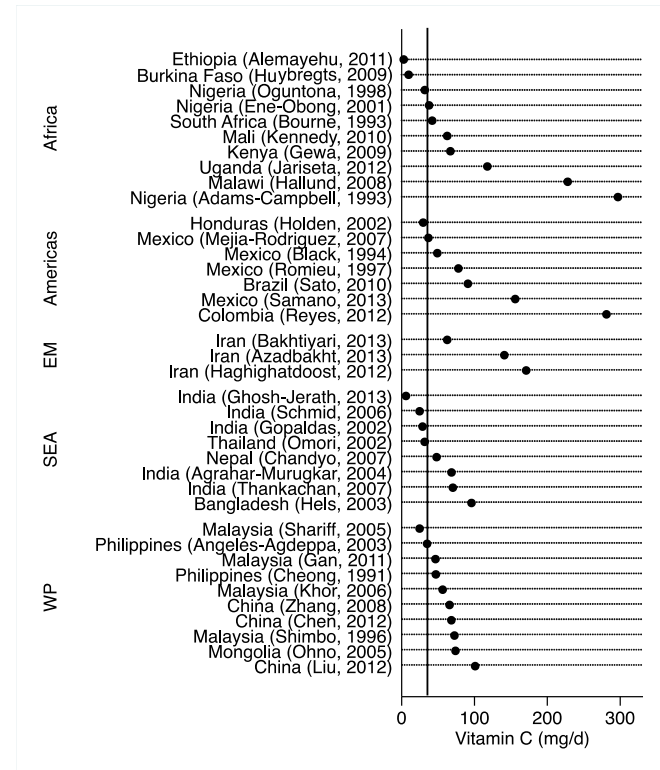


Vitamin C intakes of adolescent girls and women of reproductive age (WRA) by region (Caulfield and Elliot, unpublished)

Adolescent girls

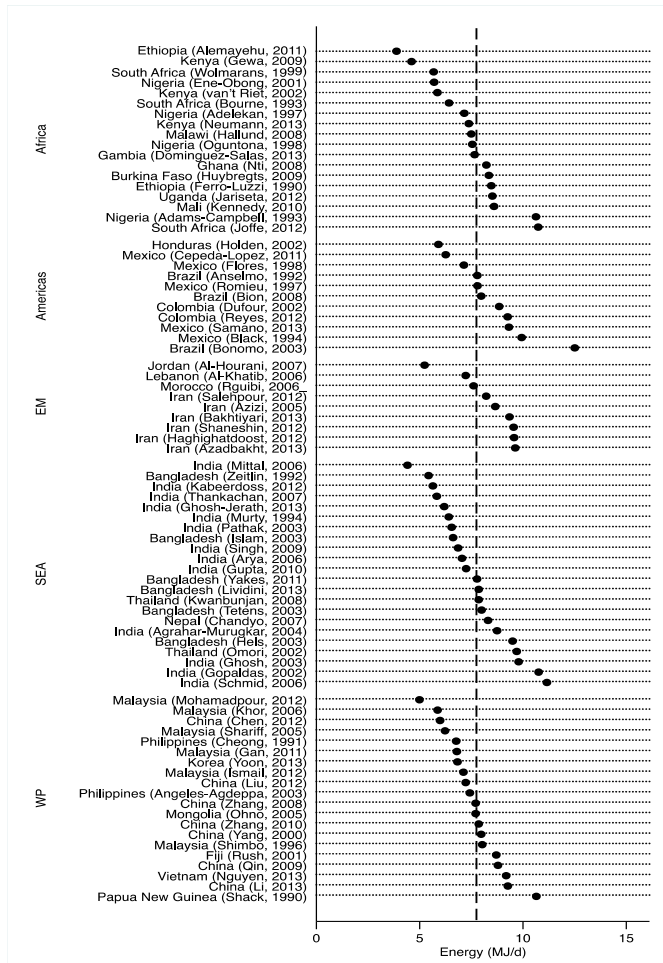


WRA

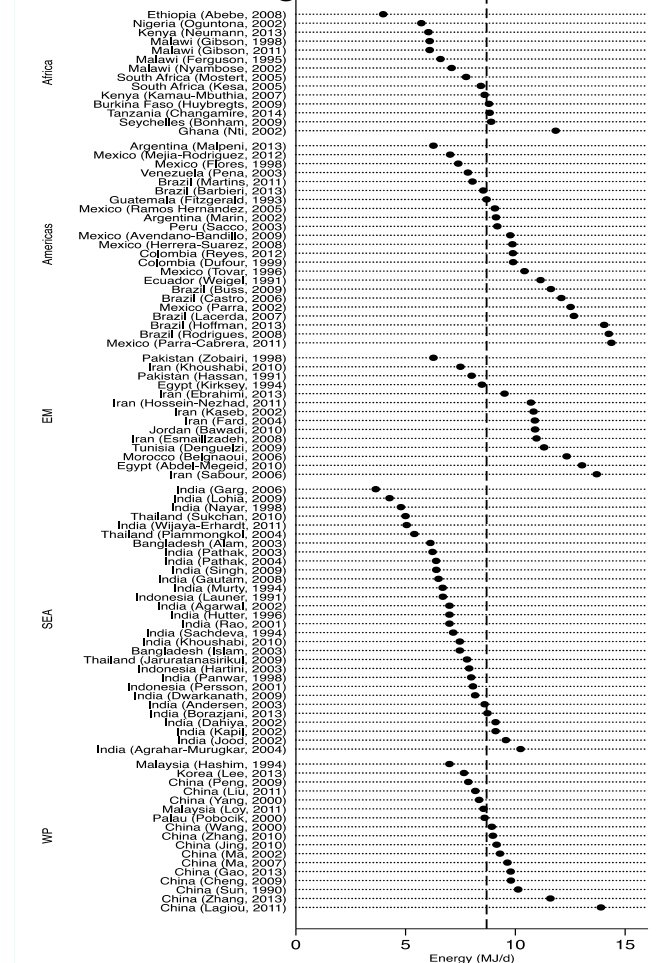


Energy intakes of non-pregnant and pregnant women by region (Caulfield and Elliot, unpublished)

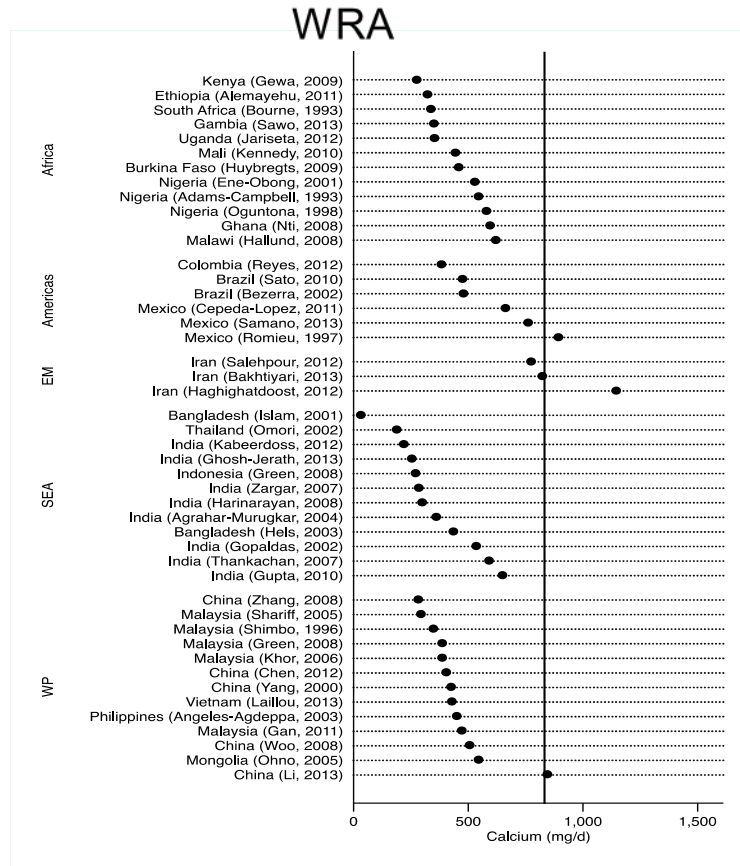
WRA



Pregnant Women

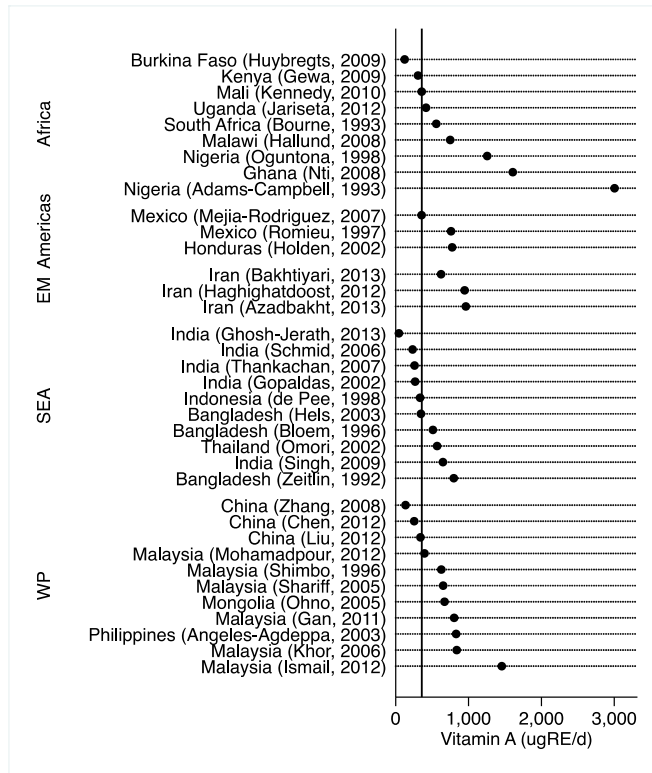


Calcium intakes of non-pregnant and pregnant women by region (Caulfield and Elliot, unpublished)

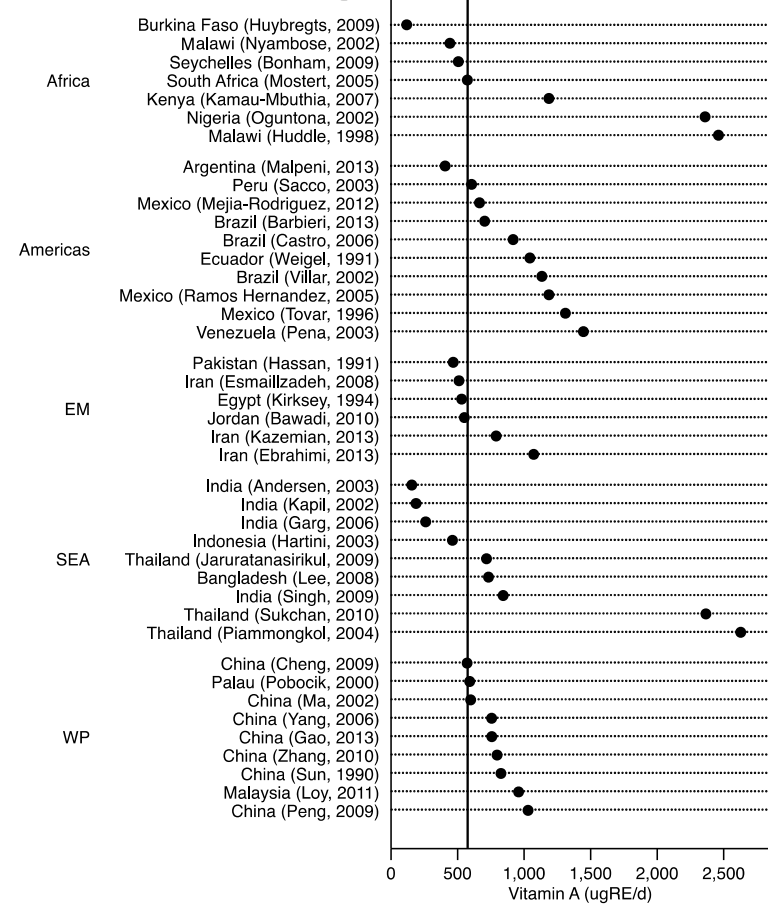


Vitamin A intakes of non-pregnant and pregnant women by region (Caulfield and Elliot, unpublished)

WRA

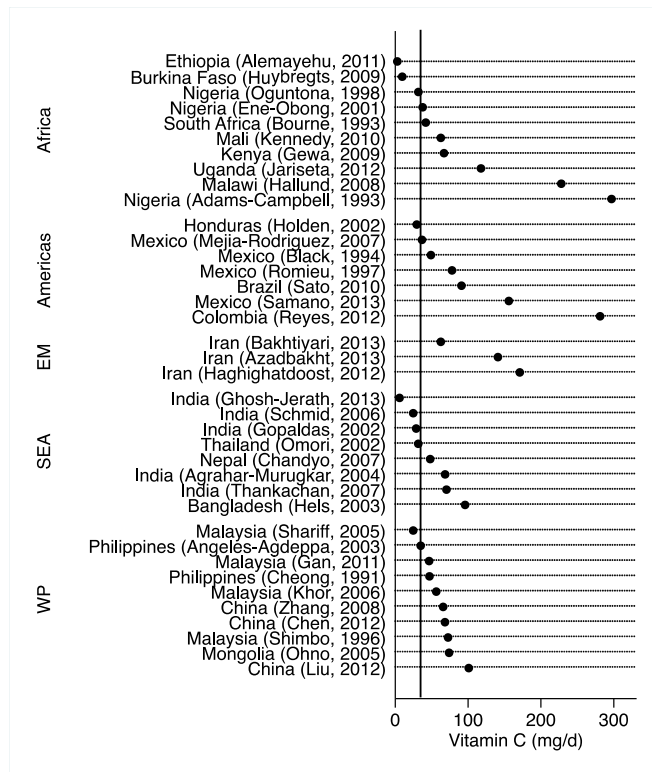


Pregnant Women

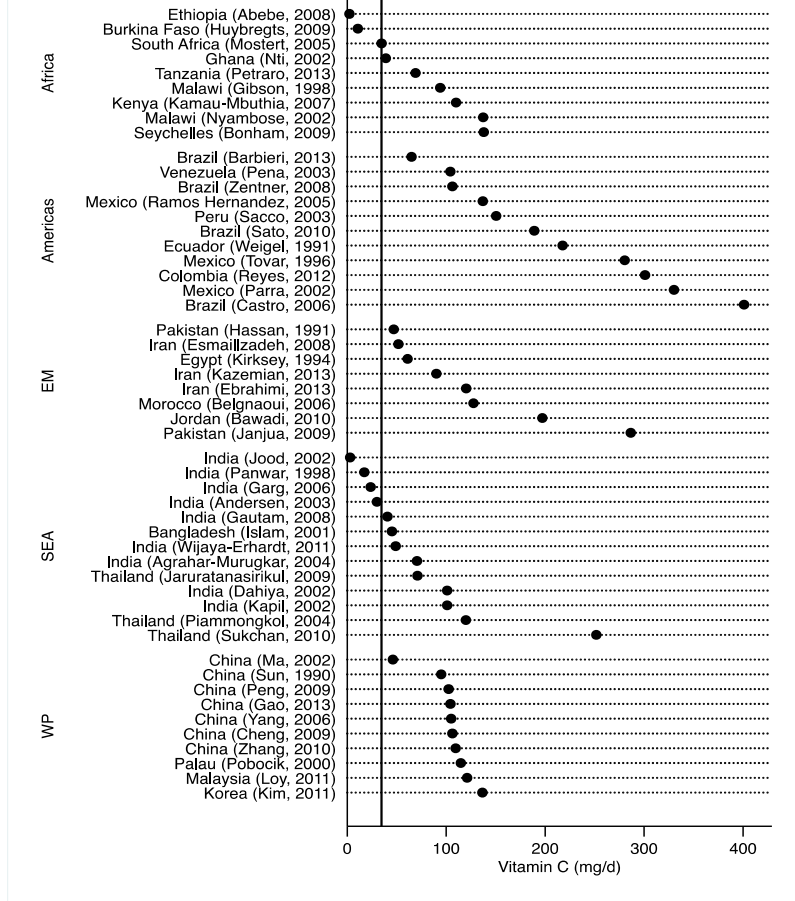


Vitamin C intakes of non-pregnant and pregnant women by region (Caulfield and Elliot, unpublished)

WRA



Pregnant Women

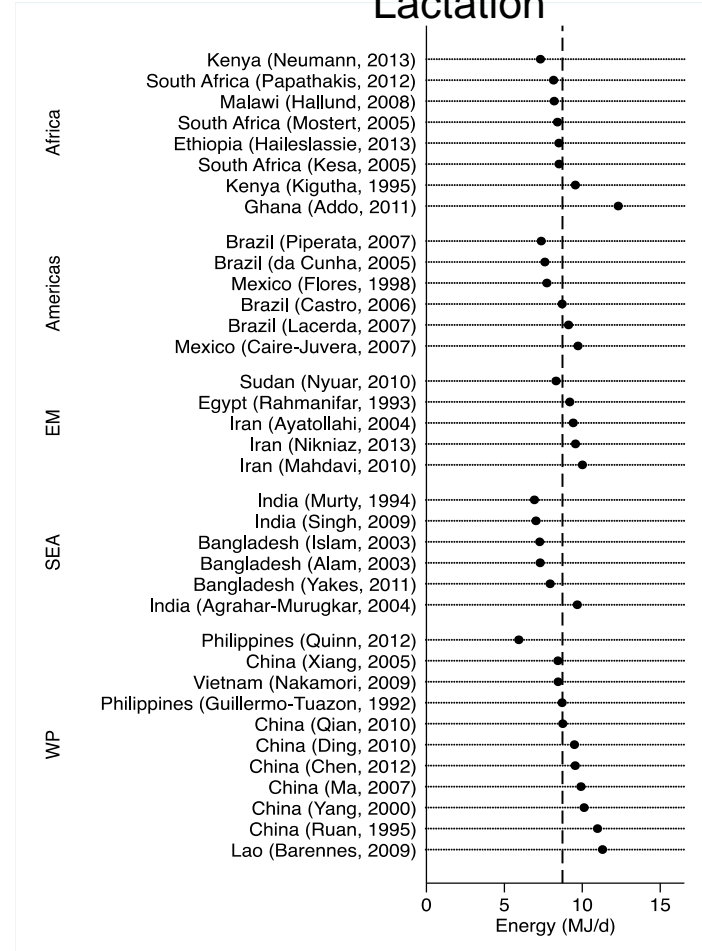


Energy intakes of women during pregnancy or lactation by region (Caulfield and Elliot, unpublished)

Pregnancy

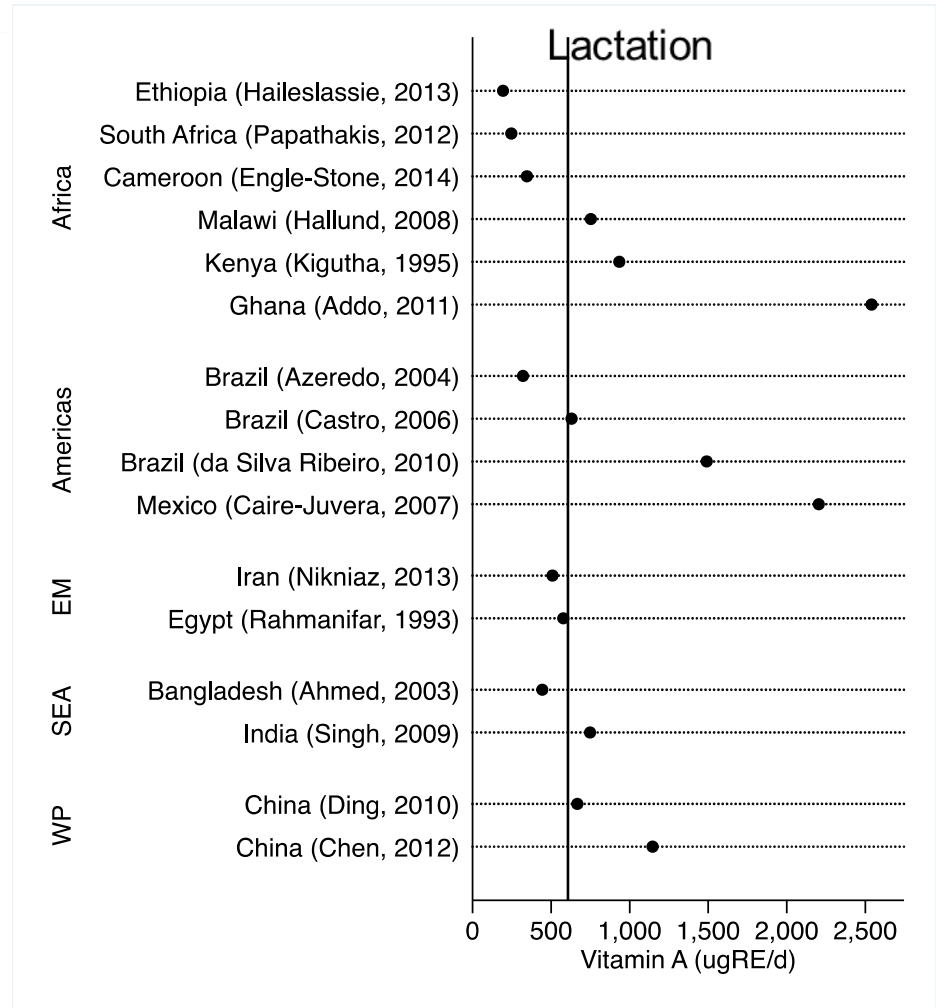
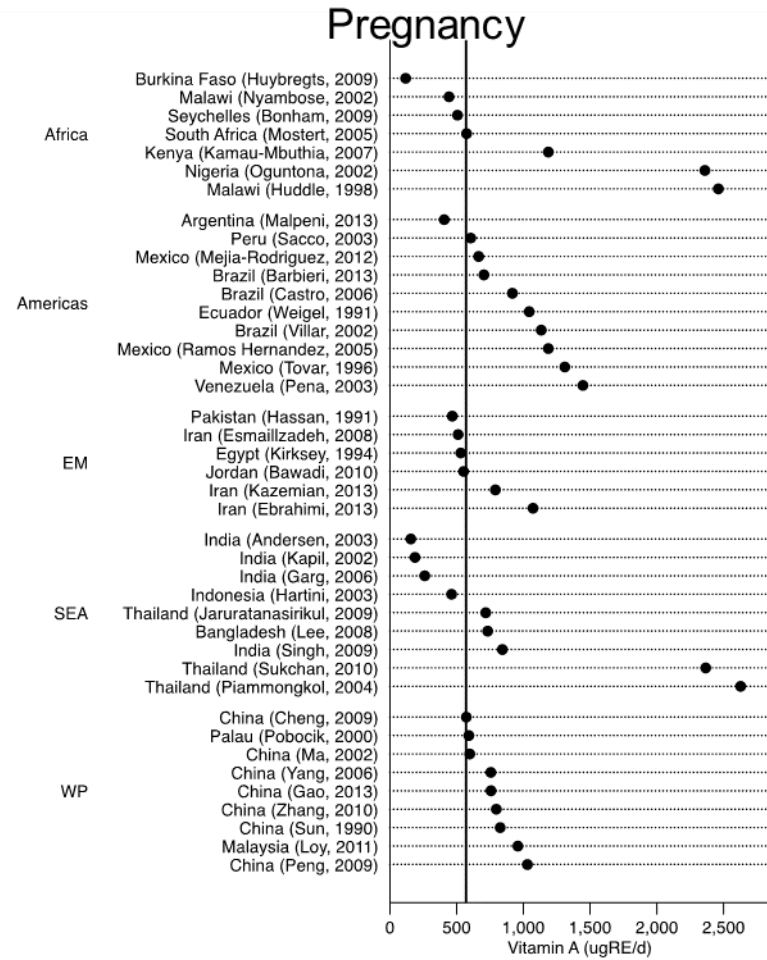


Lactation



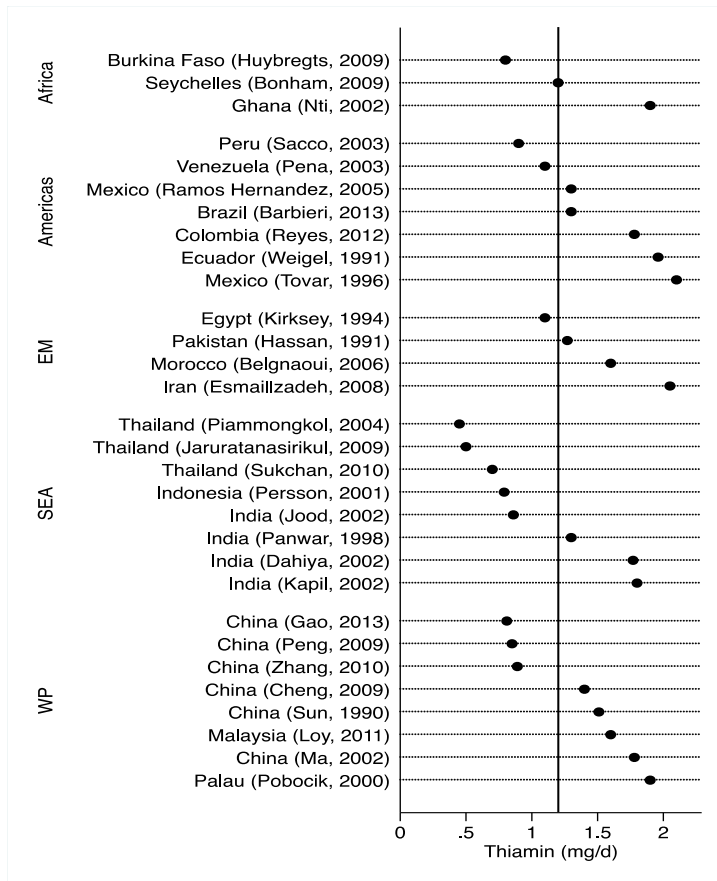
Vitamin A intakes during pregnancy and lactation by region

(Caulfield and Elliot, unpublished)

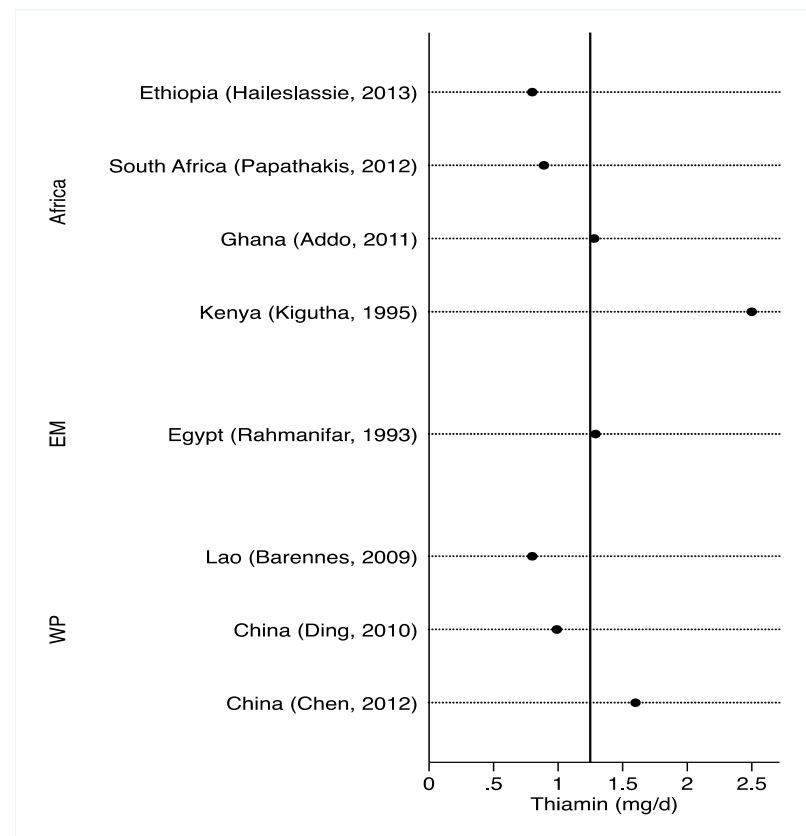


Thiamin intakes during pregnancy and lactation by region (Caulfield and Elliot, unpublished)

Pregnancy

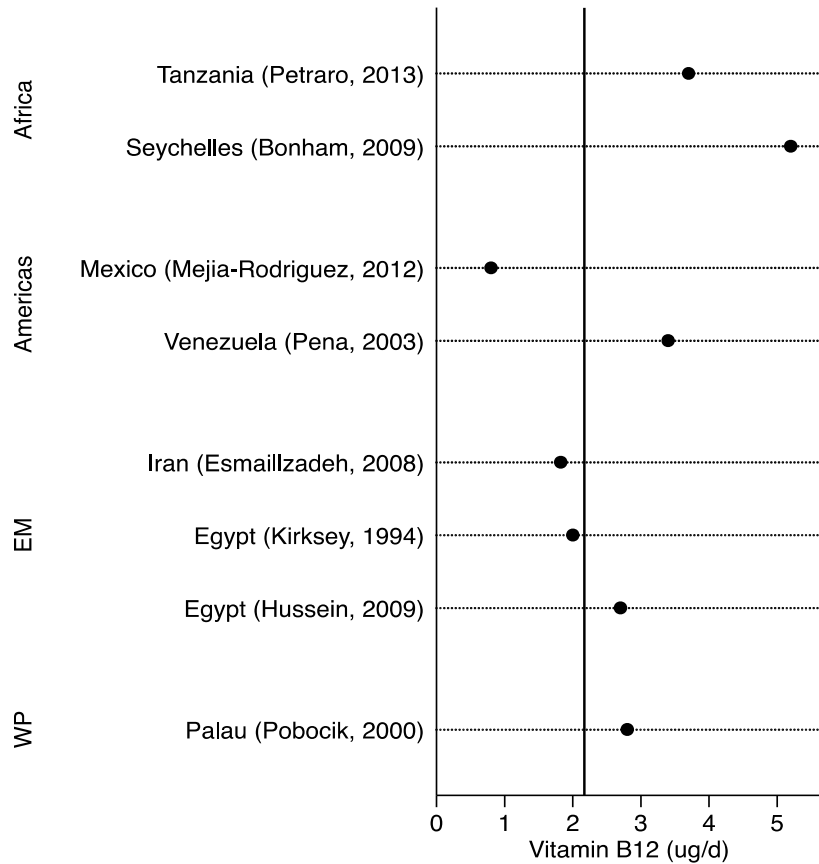


Lactation

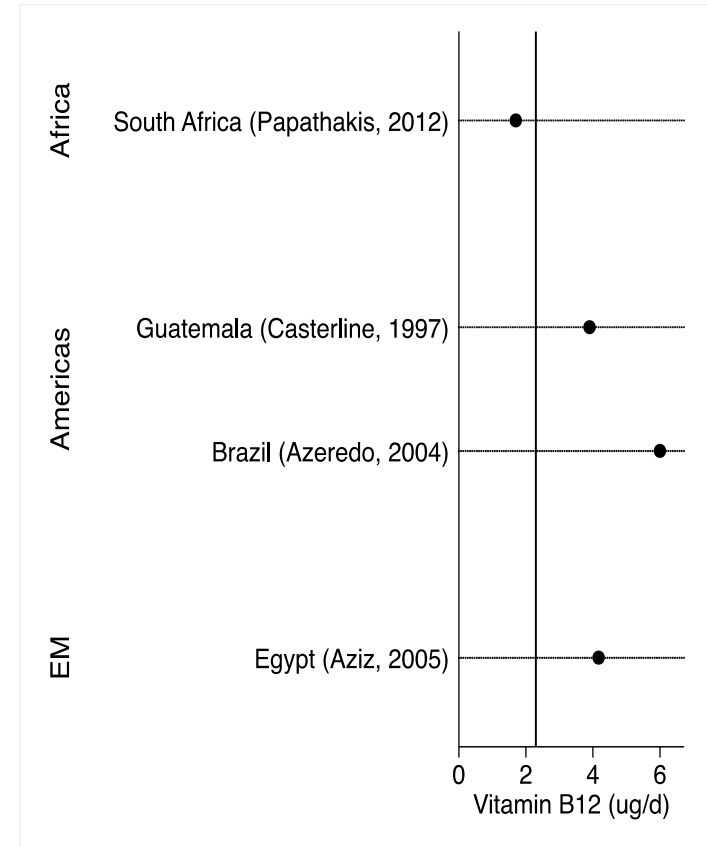


Vitamin B12 intakes during pregnancy and lactation by region (Caulfield and Elliot, unpublished)

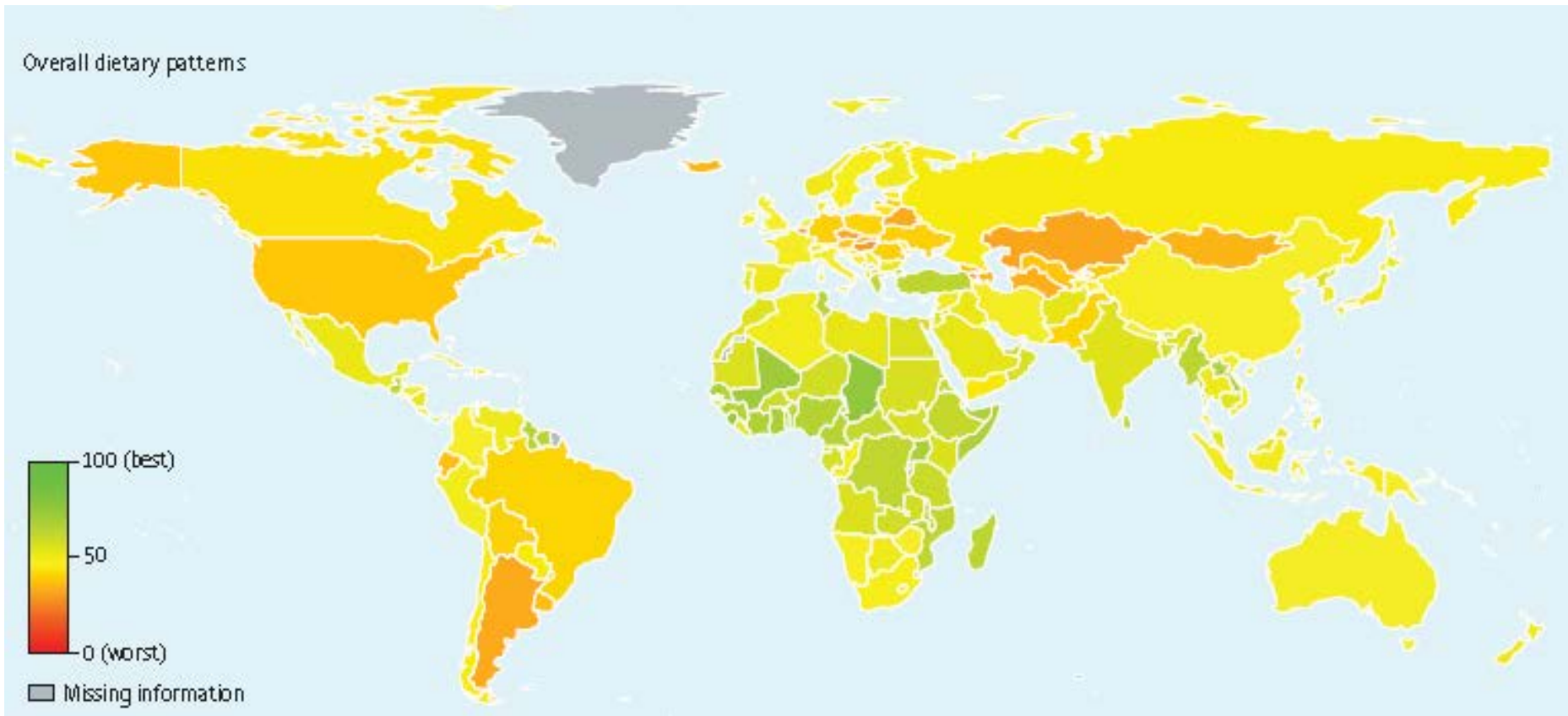
Pregnancy



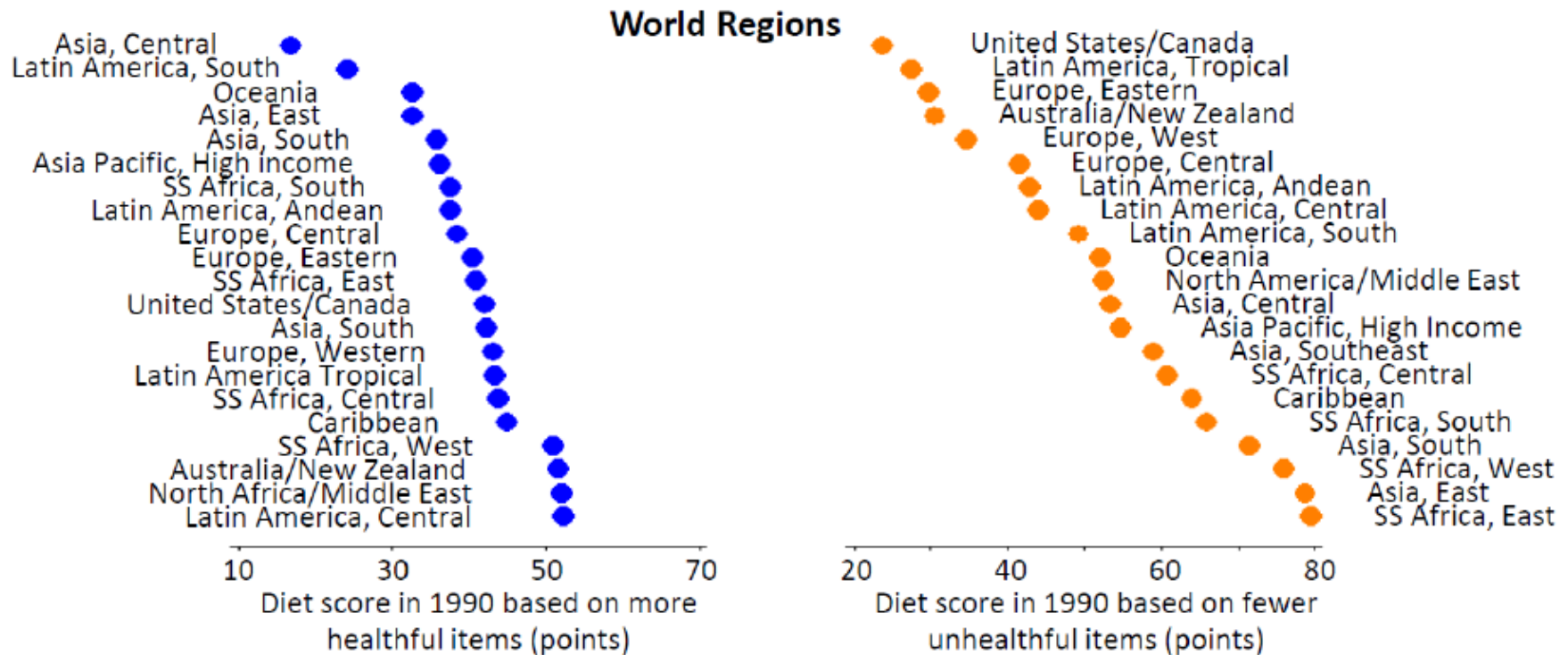
Lactation



Overall healthy dietary pattern score for adult men and women (Imamura et al., 2015)



Diet Quality Score in 1990 by World Region (Imamura et al., 2015)

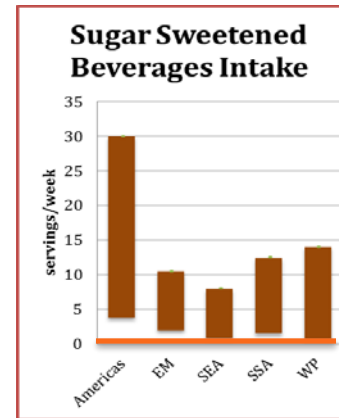
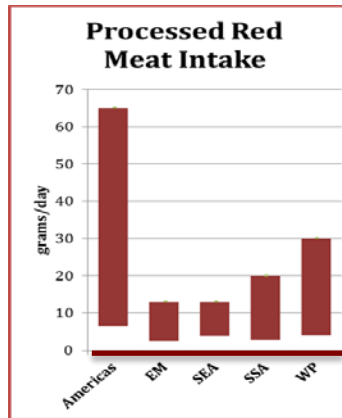
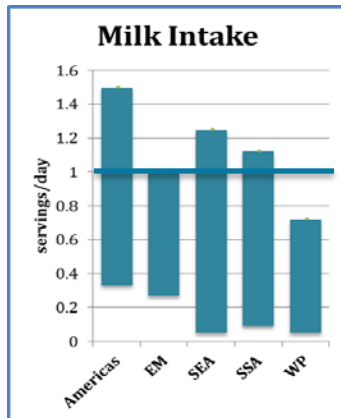
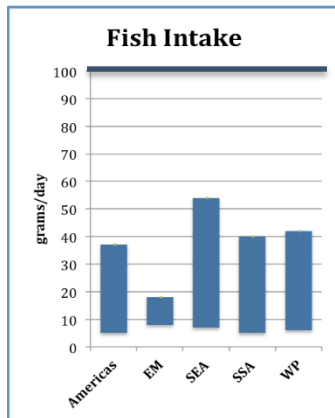
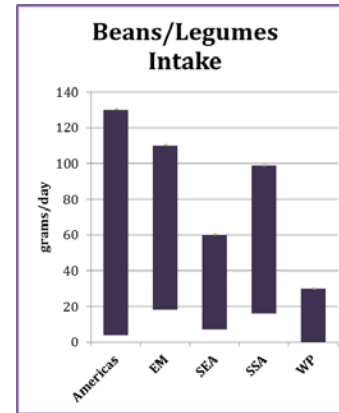
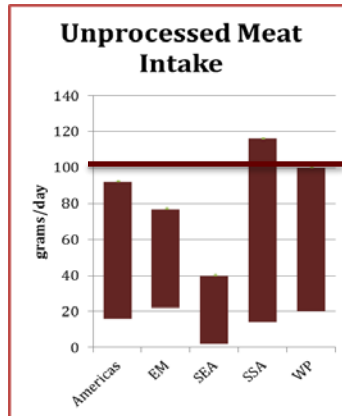
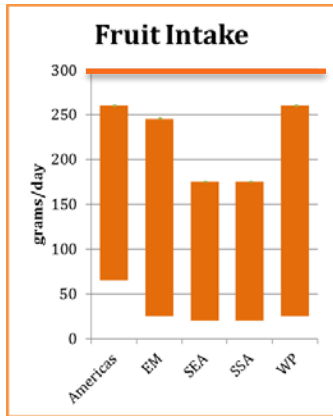
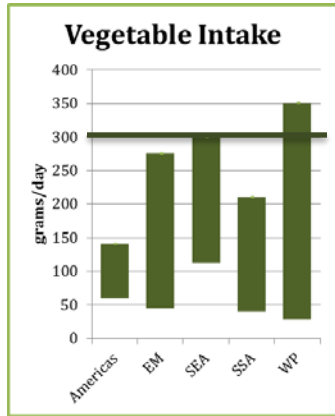


Healthy foods: fruits, vegetables, legumes, fish, nuts/seeds, whole grains, milk, PUFA, plant Omega-3, fiber

Unhealthy foods: unprocessed red meats, processed meats, sugar-sweetened beverages, saturated fat, trans fat, dietary cholesterol, sodium



Estimated intakes of selected “healthy” and “unhealthy” foods by region among women 20-29 y (adapted from Imamura et al., 2015)



What are recommended intakes to ensure nutrient needs are met for WRA?

How do we combine goals for maternal nutrition and chronic disease prevention?

Horizontal lines represent the mean of the theoretical minimal risk exposure distribution



Summary - 1

- Reducing short maternal stature requires continued improvements in nutrition lifecycle of girls
- Key nutrition interventions include support for maternal nutrition during pregnancy and lactation, IYCF and development of healthy eating
- Whether nutritional interventions during later childhood and/or adolescence are efficacious is a question for research
- Family planning to delay age at first pregnancy likely contributes to improving maternal stature



Summary -2

- The nutritional status of WRA has shifted over time, with some reductions in the prevalence of underweight, and shifts from normal weight to overweight and obesity
- The problem of underweight at the national level is less 10% in all areas except for some parts of Sub-Saharan Africa, and South Asia
- The problem of underweight among adolescent girls, particularly those 15-19 y is less well characterized, but appears to be consistent with those of women 20+, except in South Asia where it may be as high as 40% (compared with ~20% in women 20+ y)
- When examined by age, overweight and obesity increase among women 20-30 y, suggesting postpartum weight retention as an explanatory factor
- The average woman is of normal weight across most regions. There is a need to characterize BMI status for local programming; in most areas the goal of having normal BMI means weight loss rather than weight gain; in South Asia, there is an urgent need to address the problem of underweight among girls and women. Postpartum weight management is needed.



Summary-3

- Progress has been achieved in reducing maternal deficiencies of vitamin A and iodine, as well as anemia, but the problems remain
- The problem of inadequate zinc intake in LMIC appears significant and has only recently been characterized
- Folic acid fortification coverage is not optimal in all regions



Summary-4

- Average nutrient intakes are inadequate in LMIC across regions and target groups. Importantly, adolescent girls, WRA and pregnant and lactating women do not face dietary concerns distinct from one another in terms of imbalanced macronutrient intakes, and inadequate micronutrient intakes
- More studies are needed, particularly among lactating women, and a comprehensive strategy for nutrition during lactation is needed
- Improvements in nutrient intake need to be placed within the context of overall weight management. Promotion of nutrient dense foods or foods providing key nutrients within the context of weight maintenance or loss (shift in consumption) is different from promotion of greater food intake (of the same or greater nutrient density) within the context of increasing BMI to normal
- The relative effectiveness of interventions to reduce “unhealthy foods” (e.g., sugar-sweetened beverage) consumption and/or increase consumption of “healthy foods” requires research in LMIC.





Thank you

