Contribution ID: 208

Type: Poster

Existence of Double Burden of Malnutrition among Filipino Children in the same Agegroups: Is there a Difference in the Nutrients Intake?

Introduction: This study aims to assess the prevalence of underweight and overweight children in the same agegroups and evaluate if differences exists in their usual nutrients intake.

Methods: Data were from a nationally representative sample of 8992 children aged 3-12y who participated in 2013 National Nutrition Survey. Dietary intake was collected using 24-h dietary recall. A second 24-h recall was collected from 50% of the sample on a non-consecutive day. Usual intakes and distributions of energy and nutrients were estimated in three subgroups: preschoolers (3-5y, n=2427), younger and older schoolchildren (6-9y, n=3594 and 10-12y, n=2971 respectively) using PC-side program from Iowa State University. Nutrients reported included protein, calcium, iron, zinc, vitamin C, thiamine, riboflavin, vitamin A, vitamin B6, vitamin B12 and folate. Energy inadequacy was assessed by Estimated Energy Requirements (EER) calculated using the equation of the Institute of Medicine and sedentary physical activity level. The prevalence of nutrient inadequacy is estimated as the proportion of individuals with usual intakes below the EAR-EAR cut-point method. Children 3-9y was classified as underweight if weight-for-age Z-score is <-2SD (WAZ <-2 SD); and BMI-for-age Z-score >2SD (BAZ >2 SD) for children 10-12y. Children 3-5y was classified as overweight if weight-for-height Z-scores >2SD (BAZ >2 SD) and BMI-for-age Z-scores >1SD (BAZ >1 SD) for 6-12y (WHO, 1995)

Results: The prevalence of underweight among preschool children, younger and older schoolchildren is 22%, 30% and 16% respectively while the prevalence of overweight is 4%, 9% and 10% respectively.

The average energy intake of underweight preschoolers is 14% lower than EER and 3% lower in younger schoolchildren; and 10% higher than EER among older schoolchildren. Inadequate intake of carbohydrate as percent of total energy intake was 5% among preschoolers; 2% among younger and older schoolchildren. Fats as percent total energy was 34% inadequate among preschoolers, 52% among younger schoolchildren; 47% among older schoolchildren.

The average energy intake of overweight preschoolers is 4% higher than EER, 8% higher among younger schoolchildren and 5% higher among older schoolchildren. Inadequate intake of carbohydrate as percent of total energy intake was 24% among preschoolers and 6% among younger and older schoolchildren. Fats as percent total energy was 7% inadequate among preschoolers, 11% among younger schoolchildren; 21% among older schoolchildren

For underweight, percentages below EAR were: thiamine (56-74%), riboflavin (57%-83%), vitamin C (64-90%), folate 68-91%, iron (84-97%) and calcium (92-96%). For overweight, percentages below EAR were: folate (50-79%) and calcium (58-84%).

Conclusions: High prevalence of double burden of malnutrition co-exists in the same agegroups of children. The prevalence of energy inadequacy was higher among underweight than overweight children. Inadequacy of fat is lower among overweight than underweight children while inadequacy in carbohydrate was higher in overweight than underweight children. The main source of energy therefore for underweight is carbohydrates while overweight was fats.

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Session Classification: Poster Session 7

Track Classification: Epidemiology