Junk Food Is a Feeding Problem Contributing to Poor Growth and Stunting in Egyptian Children

Why is stunting a problem in Egypt?

One in three Egyptian children under five years of age is stunted in their growth, placing Egypt among the 34 countries with the highest burden of malnutrition—these countries account for 90% of the world's stunted children.[1]

To ensure healthy growth and development during the first two years of life, optimal infant and young child feeding (IYCF) practices include: exclusive breastfeeding* up to six months of age, introduction of foods to complement the nutrients in breast milk at six months of age, and continuation of breastfeeding for two years.[2]

What causes stunting and why does it matter if a child is stunted?

Across populations, all children have the same potential for growth in height. High prevalence of stunting is not due to genetic differences.

Poor growth in height occurs when a child is not growing according to his/her potential, which can lead to stunting.[3] Stunting is a process that is caused by inadequate food intake and infections during the period that begins in utero and continues through the child's first two years of life—known as the "window of opportunity to prevent malnutrition."[4,5] Interventions during this period of rapid growth have the most impact on preventing stunting. Poor growth in length/height is difficult to reverse after this period.[6]

Stunting contributes to impaired cognitive development and increased risk of illness and death in young children.[7-10]

Stunted children are likely to be stunted adults.[11] Stunting negatively impacts work capacity and productivity, increases the risk of obesity and related non-communicable diseases, such as hypertension and diabetes, and poor delivery and birth outcomes in women who are stunted adults.[6,12,13] Stunting reduces lifetime earnings by 10% and gross domestic product (GDP) by 2–3% in low- and middle-income countries.[13]

In Egypt, stunted children are more likely to repeat a grade and drop out of school and stunted adults lost 857 million working hours in 2009 alone.[14] The total economic cost of child undernutrition is estimated to cost 20.3 billion Egyptian pounds (3.7 billion U.S. dollars), or 1.9% of the GDP, largely due to loss in potential productivity due to stunting.[14]

Since 2005, Egypt has faced increased levels of food insecurity combined with rising poverty rates and food prices and successive crises, including the avian influenza epidemic (2006), and food, fuel, and financial crises (2007–2009) resulting in reduced household access to food and purchasing power.[14,15]

---

* Exclusive breastfeeding is defined as the infant consuming nothing but breast milk and no other foods or liquids, including water, during the first six months of life.

In addition to stunting, Egypt is experiencing the double burden of malnutrition: with static prevalence of stunting accompanied by rising levels of overweight and obesity in adults and children.[16] Twenty percent of children under the age of five are overweight or obese[16,17] and nearly 75% of adult women are overweight.[18] In Egypt, losses due to chronic disease associated with obesity are estimated to be US$1.3 billion by 2015.[19]

Original research on factors associated with stunting

The United States Agency for International Development (USAID) commissioned the Maternal and Child Health Integrated Program (MCHIP)/SMART Project to carry out a research study to investigate factors related to stunting. This study sought to understand current infant and young child nutrition practices and cultural beliefs and perceptions that influence feeding practices.[21] In the study, a major finding was that most children were eating junk foods rather than a nutritious diet.

The Trials for Improved Practices (TIPs)[20] methodology was used to identify feeding problems and mothers' motivations to determine whether they could make small, feasible changes in feeding their children. After working together with mothers on alternative solutions to feeding junk food, mothers were able to carry out culturally tailored IYCF practices.[21] Mothers responded positively to the new feeding practices they tried during the study.

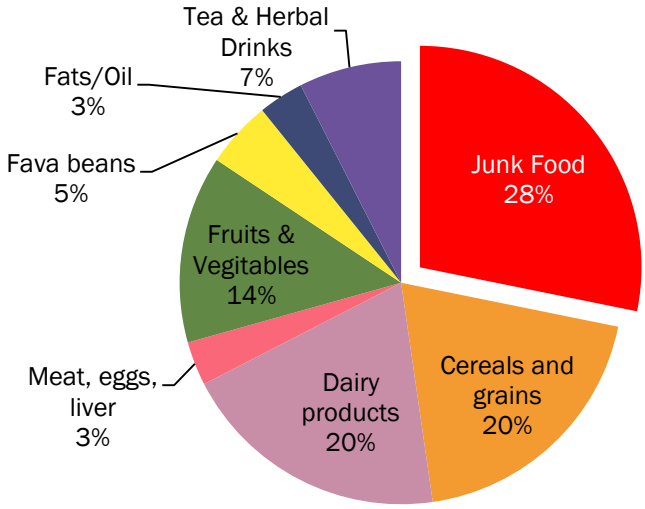
How do junk foods contribute to poor growth and stunting?

Studies have demonstrated that obesity and stunting in children are associated with a decreased intake of nutrient-rich foods and an increased consumption of junk foods (i.e., non-nutritive processed foods, sugary drinks).[16,22] These junk foods can replace nutritious foods, which can lead to nutrient deficiencies and malnutrition.[16,22]

In Egypt, junk food is a significant part of the diet of young children in the first two years of life.

This study found that junk food is a feeding problem in Egypt. Junk food comprises 28% of foods fed to Egyptian children on a daily basis (Figure 1). Within the context of this study, junk foods included ready-made snacks such as potato chips, popular, commercial store-bought sponge cakes with cream filling that are high in sugar and fat and low in nutritive value; sugary biscuits; sweets and candy; as well as sugary drinks, such as fizzy drinks, sodas, and store-bought juices. Junk food was a problem in both Lower and Upper Egypt; however, it was more of a problem in Lower Egypt.

Figure 1. Daily food frequency



Definitions and Specifications: **Cereals and Grains**: bread, rice, macaroni, rice pudding, wheat porridge made with milk and sugar, tubers (potato, sweet potato, and taro). **Dairy Products**: fresh milk, milk powder, cheese (Karees, processed white cheese), yogurt. **Junk Foods and Sugary Drinks**: 1) **Ready-made snacks**: Locally made potato chips (*caratee*), store-bought potato chips, store-bought small sponge cakes; 2) **Biscuits:** sugary cookies; 3) **Sweets & Candy;** 4) **Sugary Drinks:** fizzy drinks, sodas, and store-bought juices.

Top findings from the Stunting Study—Why, when, and what types of junk foods do mothers feed their children?

Why do mothers feed junk food?

Junk foods are considered essential first foods for Egyptian children. Mothers perceive junk foods, which are widely available, to be convenient, easy-to-digest, and easy-to-give foods for children. Mothers initiate feeding by providing sugary biscuits, store-bought small sponge cakes, and fried, salty potato chips. These foods are seen as an easy way to feed infants as they grow older. Feeding these foods is often encouraged by grandmothers, fathers, and some health care providers. In general, mothers feed small amounts of nutritious food because they don't believe children can digest them or are ready for them and rely on junk food to satiate their hungry child. Consequently, junk foods replace nutritious foods (see Figure 1). There is also a heavy reliance on liquids—herbal teas, juices, and black tea—particularly in the second year of life. Mothers compensate for limited intake of foods, especially if children refuse food, with junk foods and non-nutritious liquids.

When and what types of junk food are given to young children?

0–5 months of age: At this age, children should be exclusively breastfed.[2] In Egypt, the introduction of junk foods begins early. Some mothers perceive their milk is insufficient as *"too weak, and not heavy,"* which leads mothers to believe they need to feed other "light" foods, along with breastfeeding to nourish the child. Breastfeeding practices are not optimal—babies are not fed frequently and long enough—so a mother perceives a child's cry as a signal that he/she is "*not nourished enough*" and is "*still hungry,*" when, in fact, the baby wants to continue to nurse. Introduction of food begins as early as the first month of life, but more often at three to five months of age. Sugary biscuits (pre-packaged cookies) and light foods, such as yogurt sweetened with sugar, are fed often. Continued use of locally produced, pre-packaged, commercial herbal drinks, and anise and caraway tea—which mothers and health care providers believe "*helps babies sleep at night,*" "*soothes and calms,*" and remedies *"crying from hunger"* or illness—are also given in response to perceptions of insufficient milk. However, giving these preparations works to decrease breast milk production.

6–8 months of age: At this age, mothers should continue breastfeeding and start feeding a wide variety of foods (i.e., fruits and vegetables, meat, lentils, beans).[2] In Egypt, mothers continue to give sugary biscuits and begin to introduce *caratee,* locally made potato chips; small, store-bought small sponge cakes, and sodas were also introduced to some children. Mothers like to give foods that they believe are easy for children to digest while they continue to breastfeed. Store-bought small sponge cakes are considered to be essential first foods because they are soft, easy for the child to hold, and liked by the child. Mothers also believe more nutritious foods are hard for the child to digest or swallow and they use junk foods to encourage children to eat if they refuse more nutritious food. Herbal teas which also replace solid food are given to nearly all children.

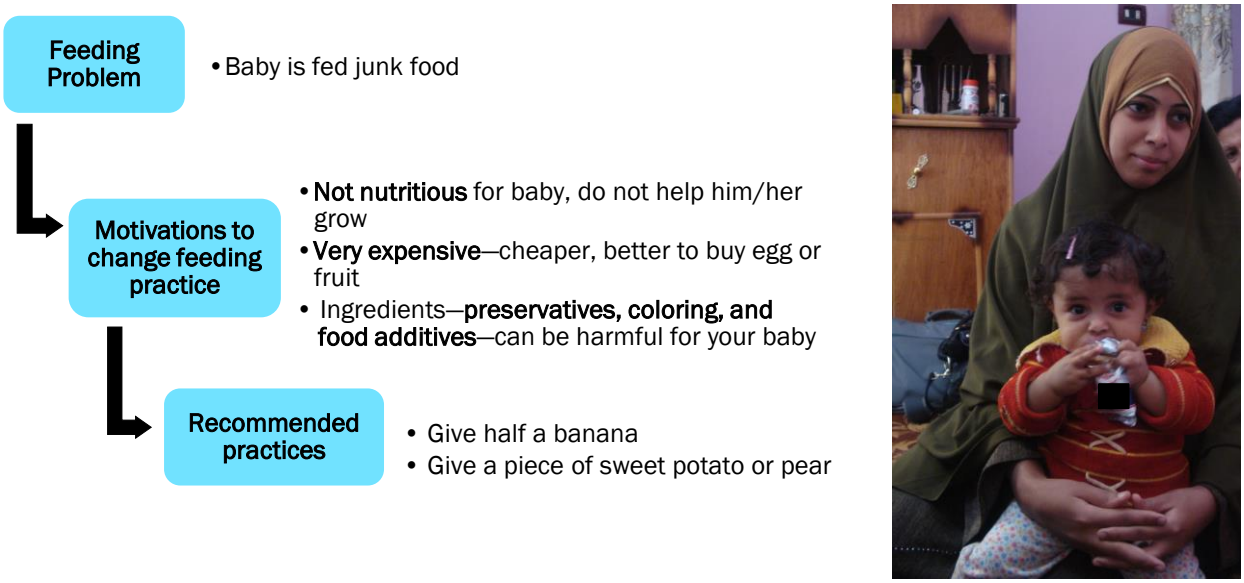
9–11 months of age: Children should continue to breastfeed and transition to the greater variety of food in the family diet at this age.[2] Mothers often do not prepare foods especially for children, so mothers continue to rely on and increase the amounts of junk foods. Sugary biscuits, handheld snack cakes, and chips are seen as an easy way to feed infants as they become older. Mothers also tend to sweeten juice drinks, yogurt, and teas with sugar or honey

before giving them to children. Thus, children develop a taste for and become accustomed to sweetened foods, candy, and drinks at an early age.

12–23 months of age: Children should be fed family foods and a variety of energy and nutrient-dense foods.[2] In Egypt, feeding junk food increases in the second year of life, and is highest among 18–23 month old children. Because mothers believe that junk foods are easy to give, and are essential, complementary[†] foods, mothers often use these foods to replace nutritious foods.

Junk food is an integral part of children's daily meals.

Figure 2. Motivations and recommended practices to address junk food as a feeding problem



If a child refuses food, some mothers feel they need to encourage the child to eat by feeding foods the child likes (i.e., junk food), which often is due to the introduction of junk food at an early age. Mothers also rely on liquids—sodas, juices/ sugary drinks, hot chocolate, herbal teas, and black tea—which can reduce their appetite for solid foods. Excessive juice consumption can cause loose stools and dental caries. Tea also interferes with absorption of iron, which can lead to anemia.

How did the mothers respond to the study?

Mothers responded well to trying new practices and substituting junk foods with more nutritious foods (see Figures 2 and 3).

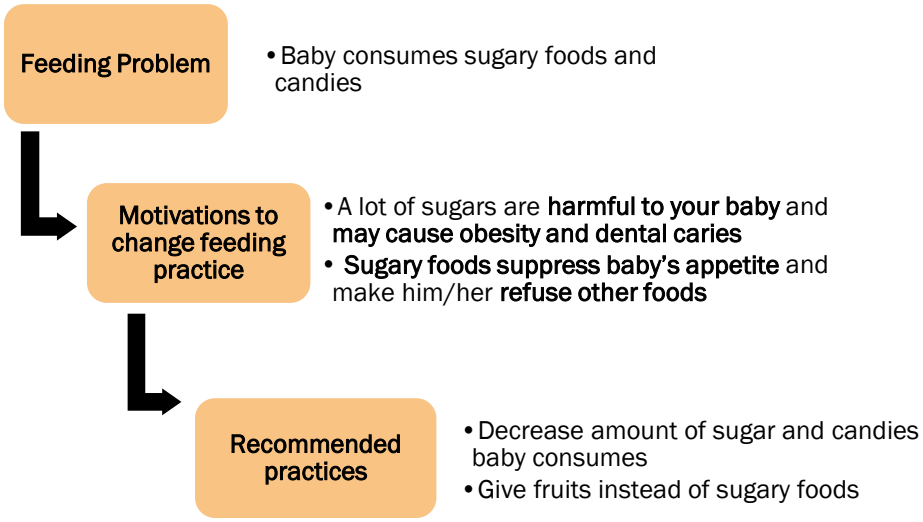
Mothers were able to substitute foods of low nutritive value with nutritious foods that are available and affordable. Mothers were motivated by the cost savings and their child's improved health and appetite. Mothers were also motivated to stop or decrease junk foods after receiving counseling on the harmful effects of these nutrient-poor foods and the positive impact of giving nutrient-dense food to their children. Mothers noticed their children were eating more, sleeping well, and ill less frequently.

[†] Complementary feeding is defined as the process, starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with continued breastfeeding, to complement the nutrients in breast milk. The target age range for complementary feeding is 6 to 24 months of age.

Other findings included:

- Fruit and sweet potato were acceptable substitutes for non-nutritious foods in both Lower and Upper Egypt.
- Mothers and other household members said they had never received information on how to feed children or that junk foods were bad for their children and were glad to know that they could buy less-expensive foods and that young children should not receive tea.

Figure 3. Motivations and recommended practices to address sugary foods and candies as a feeding problem



Conclusion

Mothers are committed to the care and feeding of young children; however, they need knowledge and feasible solutions to face the challenges of infant and young child feeding. Junk food should not be given in the first two years of life. Mothers should stop giving fizzy drinks/soda, store-bought juices, tea, and herbal drinks, which are currently used by some mothers to replace more nutritious foods. Messages should reinforce that junk foods can be replaced with locally available and affordable nutritious foods.

Key Policy and Program Recommendations to Address Junk Food in Egypt[21]

- Community-level strategies should prioritize educational messages that target mothers, fathers, grandmothers, community health care providers, and community development associations (CDAs) to not feed junk foods to children less than two years of age. Families should be advised that junk food is detrimental to the growth of children and the entire family's health and well-being.
- Within the context of reducing junk food, messages on breastfeeding and complementary feeding need to be given to mothers and their families who do not have this information to improve quantity, quality, and frequency of meals. These messages should be disseminated through community health workers and health care providers.
- A national policy on junk food should be developed, stating that junk foods should not be given to children less than two years of age and junk foods should not be marketed to young children.[23]
- Junk foods should have a warning on the package that they should not be given (are dangerous) to children less than two years of age and should be given on a limited basis (once a month) to older children.
- Information should be routinely collected on junk food consumption through surveys, like the Egypt Demographic and Health Survey, to track the range of junk foods fed to children less than two years of age.

References

1. Black RE, et al. Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet*, 2013. 382(9890): p. 427–451.

2. Pan American Health Organization, World Health Organization (WHO). *Guiding Principles for the Complementary Feeding of the Breastfed Child*. Washington, DC: Pan American Health Organization; 2003.

3. WHO Child Growth Standards based on length/height, weight and age. *Acta Paediatrica Scandinavica Supplement*. 2006;450:76–85.

4. Shrimpton R, Victora CG, de Onis M, Lima RC, Blössner M, Clugston G. Worldwide timing of growth faltering: implications for nutritional interventions. *Pediatrics*. 2001 May;107(5):E75.

5. Victora CG, de Onis M, Hallal PC, Blössner M, Shrimpton R. Worldwide timing of growth faltering: revisiting implications for interventions. *Pediatrics*. 2010;125(3):e473–e480.

6. Martorell R, Khan LK, Schroeder DG. Reversibility of stunting: epidemiological findings in children from developing countries. *European Journal of Clinical Nutrition*. 1994;48 Suppl 1:S45–S57.

7. Walker SP, Wachs TD, Gardner JM, et al. Child development: risk factors for adverse outcomes in developing countries. *Lancet*. 2007;369(9556):145–157.

8. Walker SP, Chang SM, Powell CA, Simonoff E, Grantham-McGregor SM. Early childhood stunting is associated with poor psychological functioning in late adolescence and effects are reduced by psychosocial stimulation. *Journal of Nutrition*. 2007;137(11):2464–2469.

9. Georgieff MK. Nutrition and the developing brain: nutrient priorities and measurement. *American Journal of Clinical Nutrition*. 2007;85(2):614S–620S.

10. Scrimshaw NS, Taylor CE, Gordon JE. Interactions of nutrition and infection. *Monograph Series World Health Organization*. 1968;57:3–329.

11. Adair LS, Fall CH, Osmond C, et al. Associations of linear growth and relative weight gain during early life with adult health and human capital in countries of low and middle income: findings from five birth cohort studies. *Lancet*. 2013;382(9891):525–534.

12. Stewart CP, Iannotti L, Dewey KG, Michaelsen KF, Onyango AW. Contextualising complementary feeding in a broader framework for stunting prevention. *Maternal & Child Nutrition*. 2013;9 Suppl 2:27–45.

13. World Bank. *Repositioning Nutrition as Central to Development: A Strategy for Large-Scale Action*. Washington, DC: World Bank; 2006.

14. Egyptian Cabinet Information and Decision Support Center (IDSC), World Food Programme. *Cost of Hunger in Egypt: Implications of Child Undernutrition on the Social and Economic Development in Egypt. The Social and Economic Impact of Child Undernutrition in Egypt*. Cairo, Egypt: World Food Programme; 2013.

15. World Food Programme. *Status of Poverty and food Security in Egypt: Analysis and Policy Recommendations, A Preliminary Summary Report*. World Food Programme; 2013.

16. Food and Agriculture Organization of the United Nations. *The double burden of malnutrition: Case studies from six developing countries*, 2006, Food And Agriculture Organization of the United Nations: Rome.

17. de Onis M, Blossne M, Borghi E. Global prevalence and trends of overweight and obesity among preschool children. *Am J Clin Nutr*. 2010(92): p. 1257–64.

18. Yang Z, Huffman SL. Nutrition in pregnancy and early childhood and associations with obesity in developing countries. *Maternal & Child Nutrition*. 2013;9 Suppl 1:105–119.

19. Abegunde D, et al. The Burden and Costs of Chronic Diseases in Low-Income and Middle-Income Countries. *Lancet*, 2007. 370: p. 1929–38.

20. Dicken K, Griffiths M, Piwoz E. *Design by Dialogue: A Program Planner's Guide to Consultative Research for Improving Young Child Feeding*. Washington, DC: Manoff Group and Academy for Educational Development; 1997.

21. Kavle J, Mehanna S, Saleh G, Foaud M, Hassan M, Ramzy M Hamed D, Khan G, Galloway R. *Examining Factors Associated with Stunting in Lower Egypt in Comparison to Upper Egypt: Bridging the Gap between Cultural Beliefs and Feasible Feeding Practices through Trials for Improved Practices (TIPs)*. USAID Report; 2014

22. Li Y, et al., *Lack of dietary diversity and dyslipidaemia among stunted overweight children: the 2002 China National Nutrition and Health Survey*. Public Health Nutrition. 14(5): p. 896–903.

23. WHO *A Set of Recommendations on the Marketing of Foods and Non-alcoholic Beverages to Children*. Geneva Switzerland: World Health Organization, 2010.