

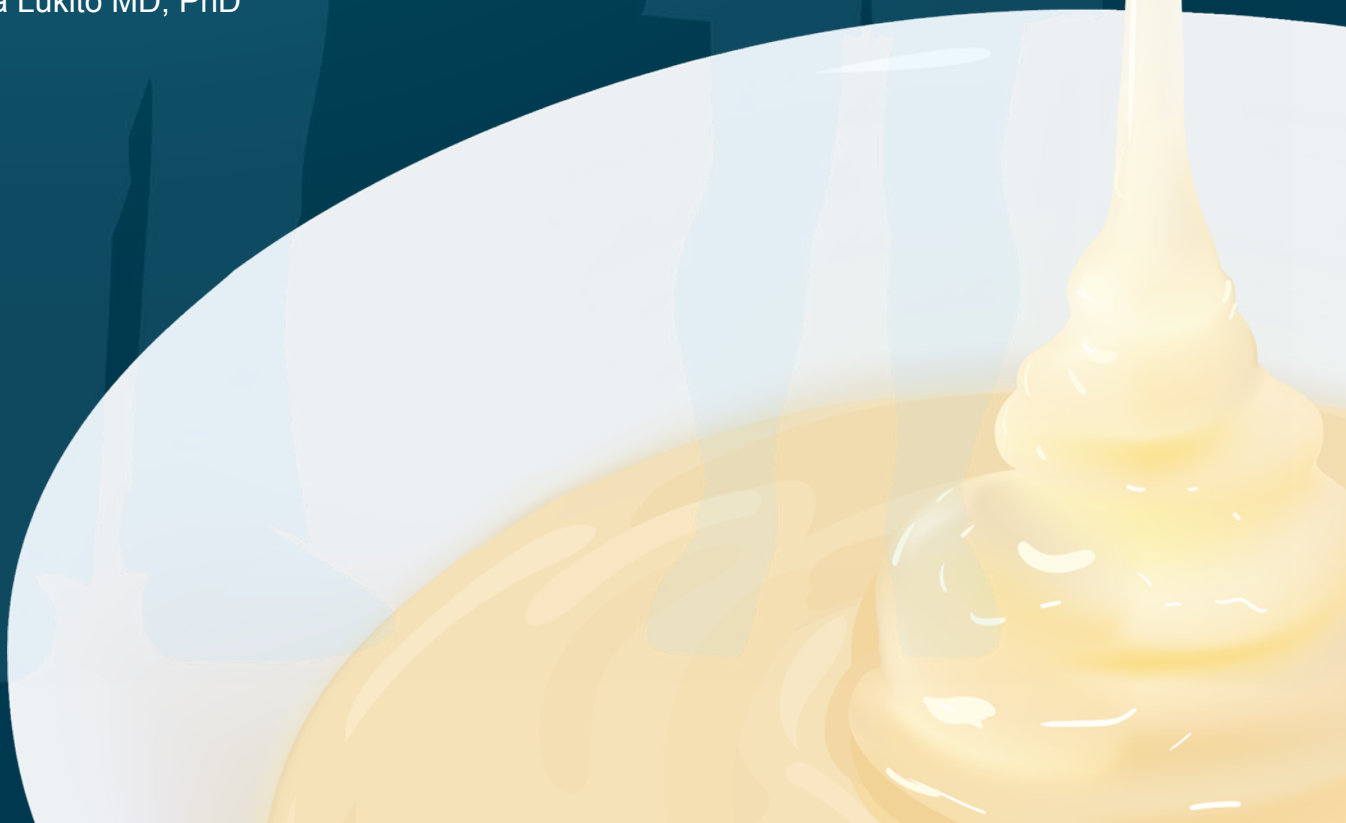


Yayasan
INSTITUT DANONE
Gizi untuk Anak Bangsa

CONSUMPTION PATTERNS OF SWEETENED CONDENSED MILK (SCM)

*in the Diet of Young
Indonesian Children and Its
Potential Nutritional Health
Consequences*

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FACTS & FIGURES

Approximately 90% of the Indonesian population prefer consuming SCM, milk powder, or ultra-high-temperature (UHT) milk than fresh milk

(DG of Livestock and Animal Health, 2012).

58.9% of children who consumed SCM were from families with a low socioeconomic status

(Sugito et al, 2008).

A survey in Jakarta found that 22.1% of children 12-38 months were given SCM in combination with breast milk (Martha E. et al, 2017).

A few cases where infants were given SCM as breastfeeding substitute were found in some studies, either among normal (0.25%; Palupi E., 2015) or underweight infants (2,2%; Adriani M. & Kartika V., 2011).

30% of caregivers of preschoolers (aged 3-5 years) in urban Yogyakarta maintained their children's milk consumption by substituting the growing-up formula/milk with SCM, especially when children grew older (Prawirohartono et al, 2015).

SCM should not be given to young children as either breast milk or formula milk substitutes. Yet, indications of such improper utilization of SCM have been repeatedly documented in several independent studies mostly conducted in urban and semiurban areas in Indonesia (UNICEF, 2005; Martha E et al, 2017; Sugito FS et al, 2008; Prawirohartono EP et al, 2015).

Caregivers, especially those from families with low socioeconomic status, perceived that SCM is nutritionally sufficient to support growth of a toddler (Martha E et al, 2017; Sugito FS et al, 2008).

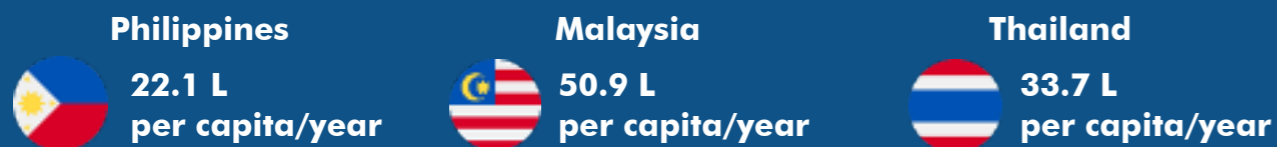
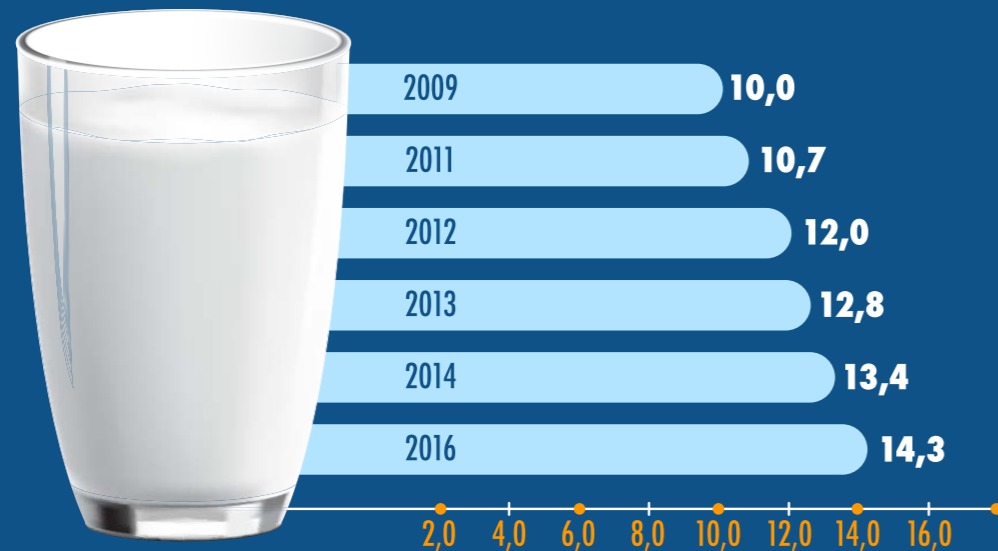
Parents' education, particularly the mother's, is also associated with the preference to administer SCM to children. (Palupi E, 2015; Sartika RAD & Ruswandi RBI, unpublished data).



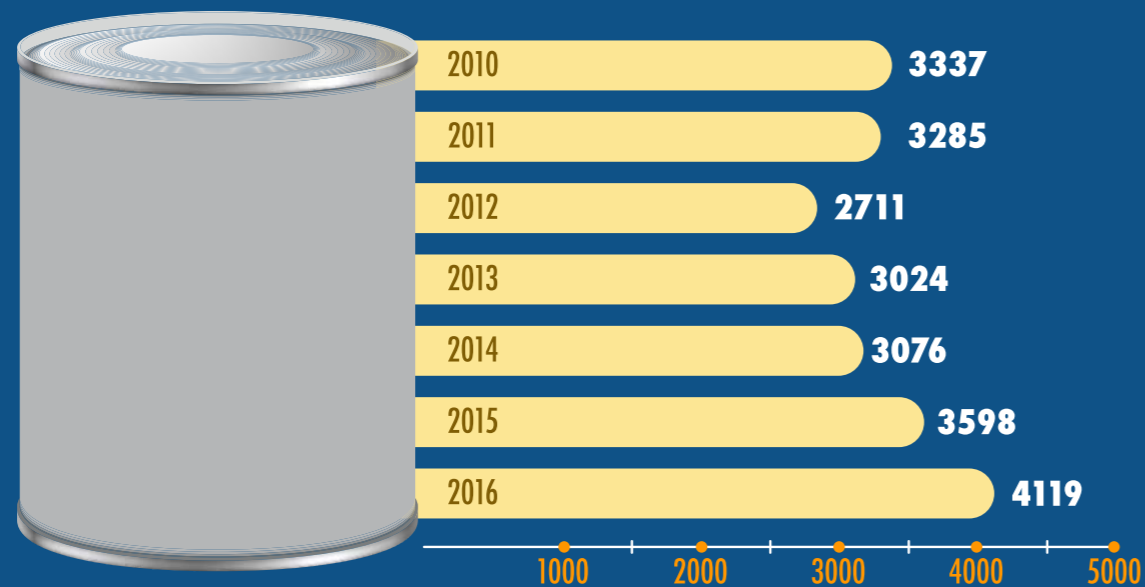
SWEETENED CONDENSED MILK IN INDONESIA

Indonesia is still categorized as a country with low milk consumption, with an estimated country-specific intake of less than 30 kg or 29.1 L per capita/year. It is the lowest among other ASEAN countries, including the Philippines, Malaysia, and Thailand.

Annual milk consumption (L per capita) of Indonesians



Annual consumption of SCM and its product analogs in Indonesia per capita from 2010 to 2016 (Ministry of Agriculture, 2017) (in 397 g per unit)



SCM MARKET IN INDONESIA



Annual SCM production capacity
±812,000 tons



Local SCM industries obtain fresh milk supplies from > 100,000 dairy farmers equivalent to an investment value Rp 5,5 trillion



SCM industries employ 6,652 workers.



The annual market for SCM grew steadily by 4.74% (USDA, 2017). The much cheaper price and the ease of bulk transportation without the need for cold chain management make the market distribution of SCM widespread within the country.



Supplies used for processing SCM include low-grade local fresh milk containing high amount of bacteria and low protein. In the evaporation process, fresh milk is pasteurized, which can remove pathogens and inactive vegetative spoilage bacteria and enzymes, but not bacterial spores (USDA Foreign Agricultural Service GAIN Report, 2009-2013).



Local manufacturers rely on imported Whole Milk Powder (WMP), as one of SCM ingredients, from New Zealand (53%-65%), Australia (15%-16%), the UK (7%), and very limited quantities from the US.



SCM, with a market share of 35% sustainably dominates the national market together with liquid ready-to-drink milk (26%) and powdered milk (39%) (USDA Foreign Agricultural Services, 2009-2015).

DETERMINANT FACTORS OF SCM CONSUMPTION



The preference for dairy products for consumption is attributable to some interlinked factors related to product characteristics (taste, aroma, etc.) and socioeconomic variables. Data have shown that SCM in sachets is favorable to be administered to toddlers because the product is easy to obtain, very affordable, has an enjoyable taste, needs no storage with only a one-serving portion per sachet, and can be prepared whenever the child wants it (Martha E. et al, 2017; Prawirohartono EP et al, 2015). This might explain why product characteristics of SCM appear to matter more than its nutritional value, particularly within certain population segments (i.e. underprivileged, poor, or less educated).

PATTERNS OF SCM CONSUMPTION AMONG INDONESIAN CHILDREN

Studies in urban Yogyakarta, Bogor, and West Jakarta have consistently found gradual increases in the proportion of children consuming SCM in analyses stratified by age group. These studies also show that economic variables—family income and parent’s education—are consistently associated with child milk consumption patterns.

Urban Yogyakarta (Prawirohartono et al, 2015)



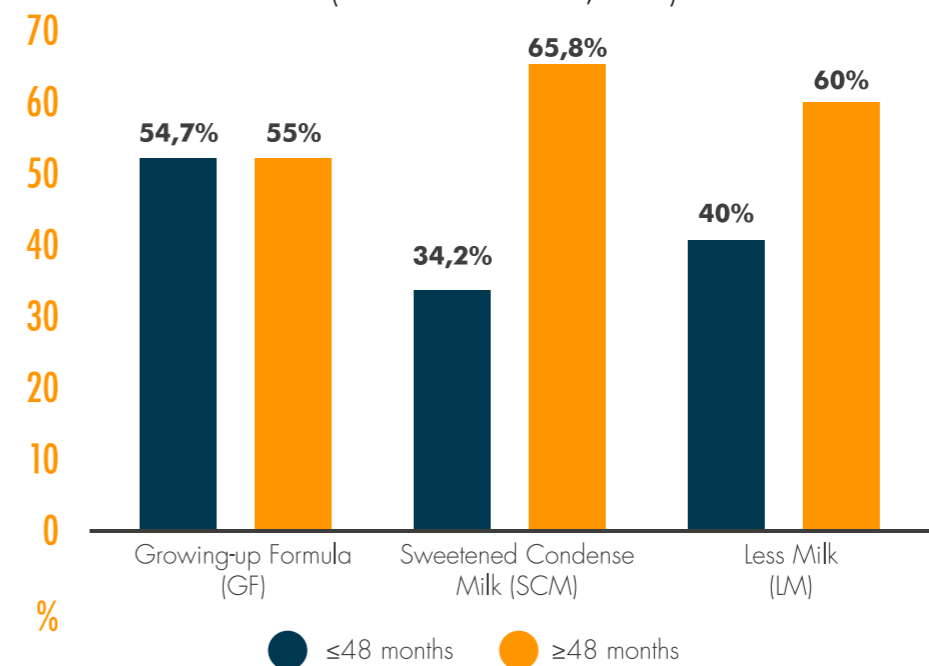
Method: 3-day food recall



Subjects: 249 children aged 3-5 years; compared between those who consumed growing-up formula (GF), sweetened condensed milk (SCM), less milk (LM)

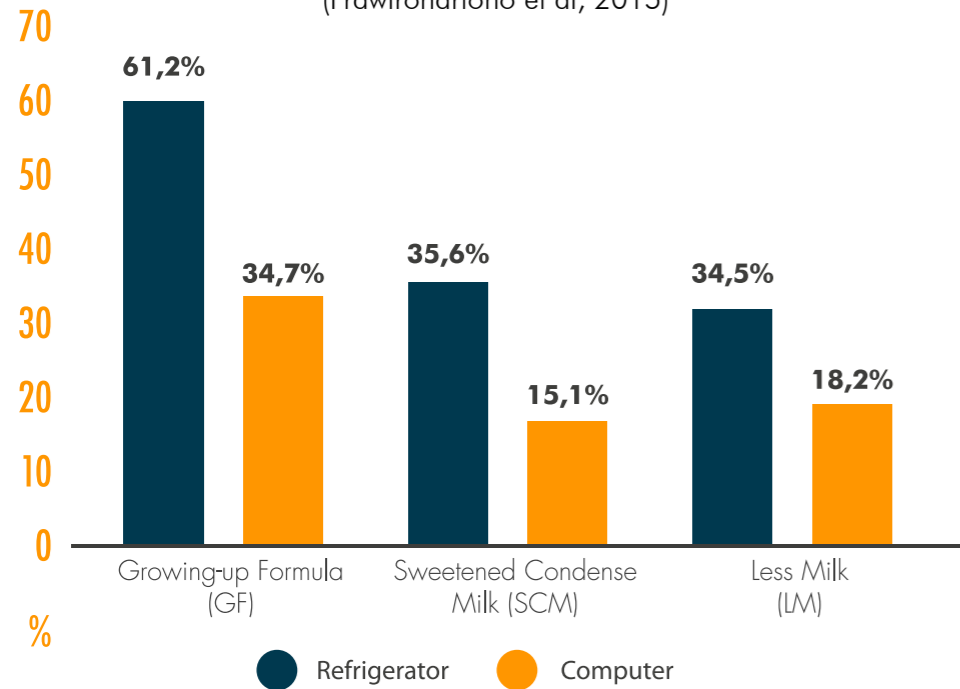
Proportion of children in urban Yogyakarta consuming GF, SCM, and LM based on child age groups

(Prawirohartono et al, 2015)



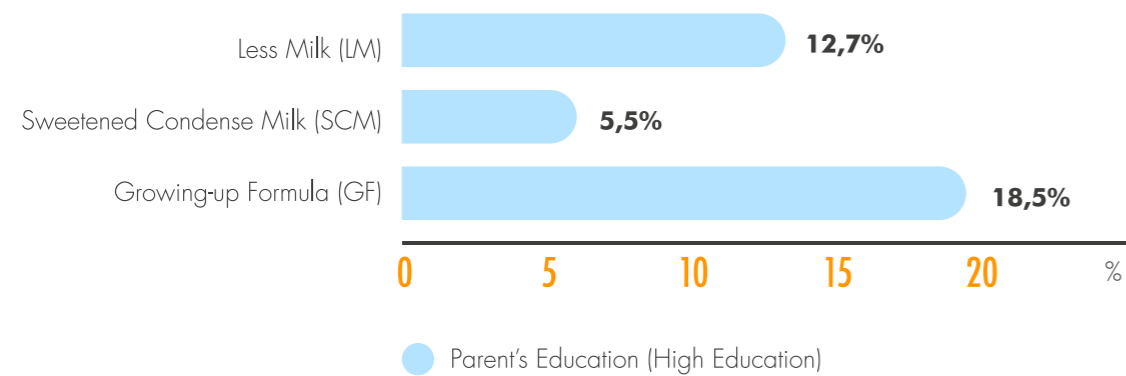
Proportion of children in urban Yogyakarta consuming GF, SCM, and LM based on family income (tertiary goods availability)

(Prawirohartono et al, 2015)



Proportion of children in urban Yogyakarta consuming GF, SCM, and LM based on parent's education (high education)

(Prawirohartono et al, 2015)



Bogor City (Palupi E., 2015)



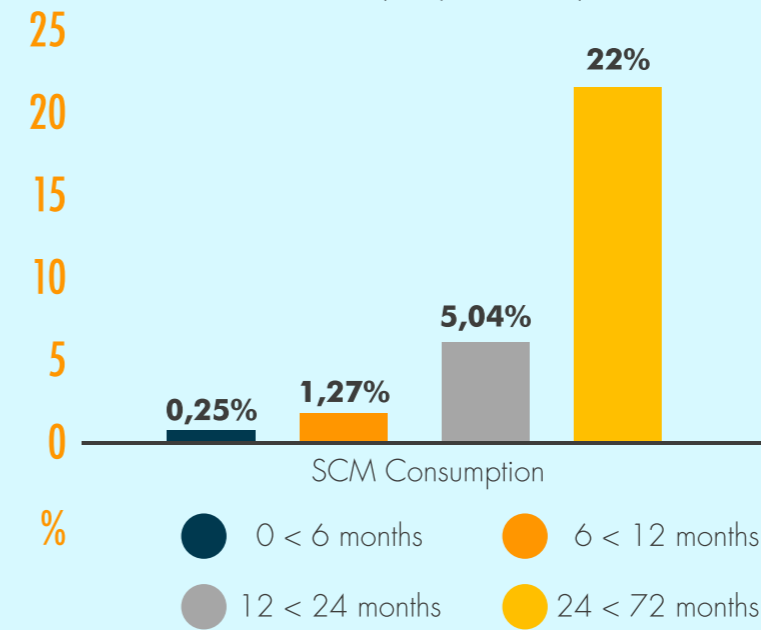
Method: History of breastfeeding & milk consumption, milk consumption frequency, 2-day food recall



Subjects: 221 children at ages 5 to 6

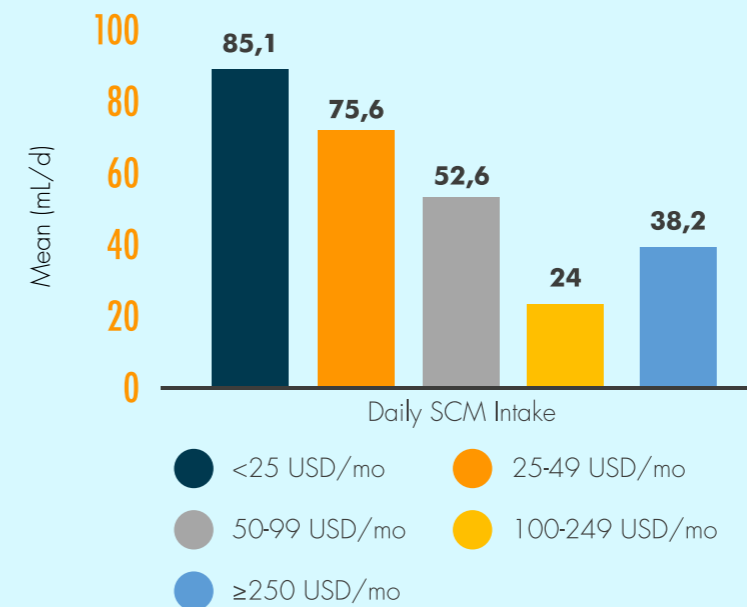
Proportion of children in Bogor City consuming SCM based on child age groups

(Palupi E., 2015)

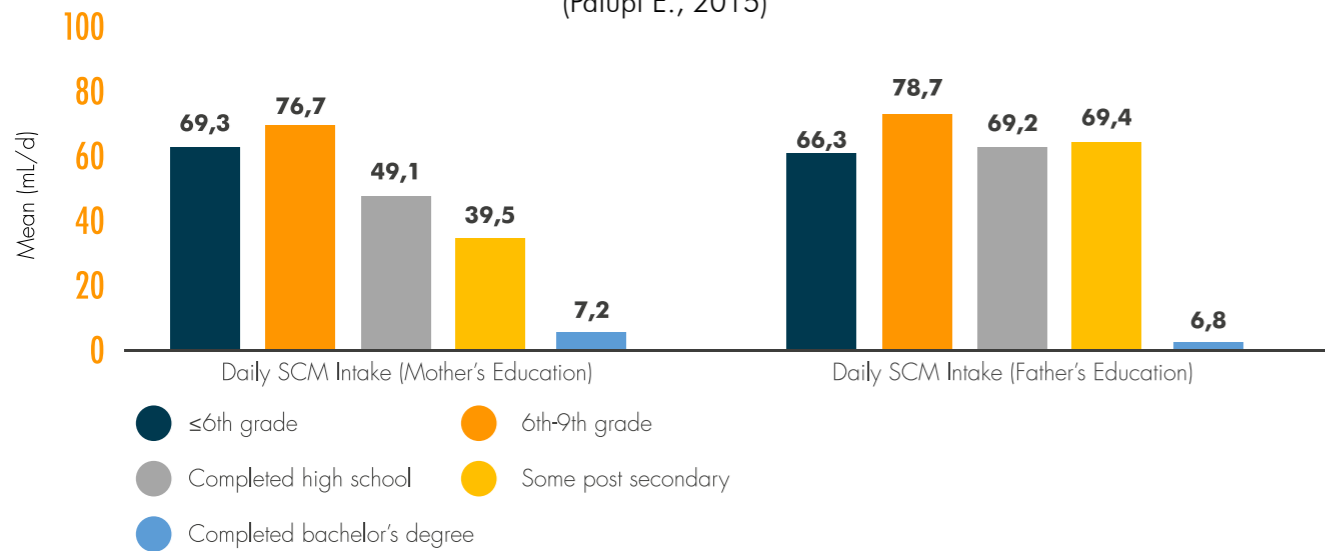


Proportion of children in Bogor City consuming SCM based on family income

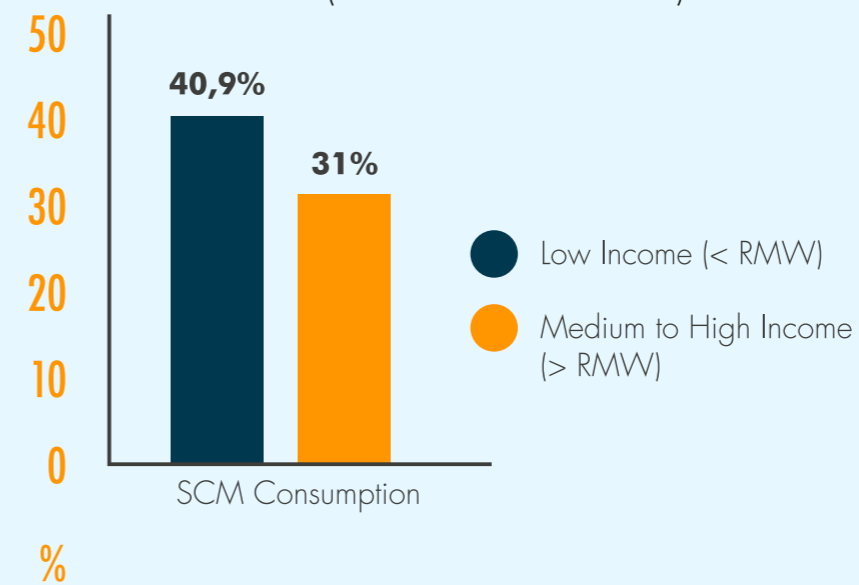
(Palupi E., 2015)



Proportion of children in Bogor City consuming SCM based on parent's education
(Palupi E., 2015)



Proportion of children in West Jakarta consuming SCM based on family income
(Sartika RAD & Ruswandi RBI)

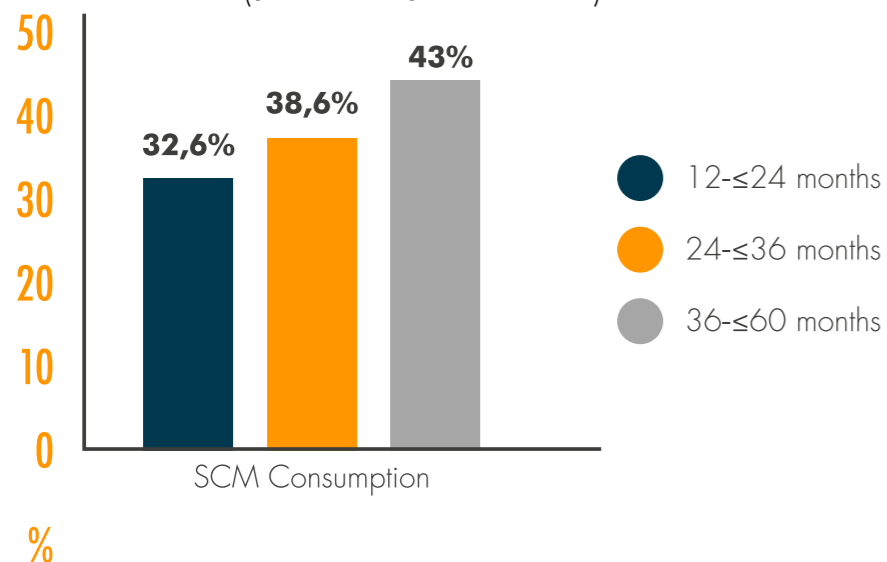


West Jakarta (Sartika RAD & Ruswandi RBI, unpublished data)

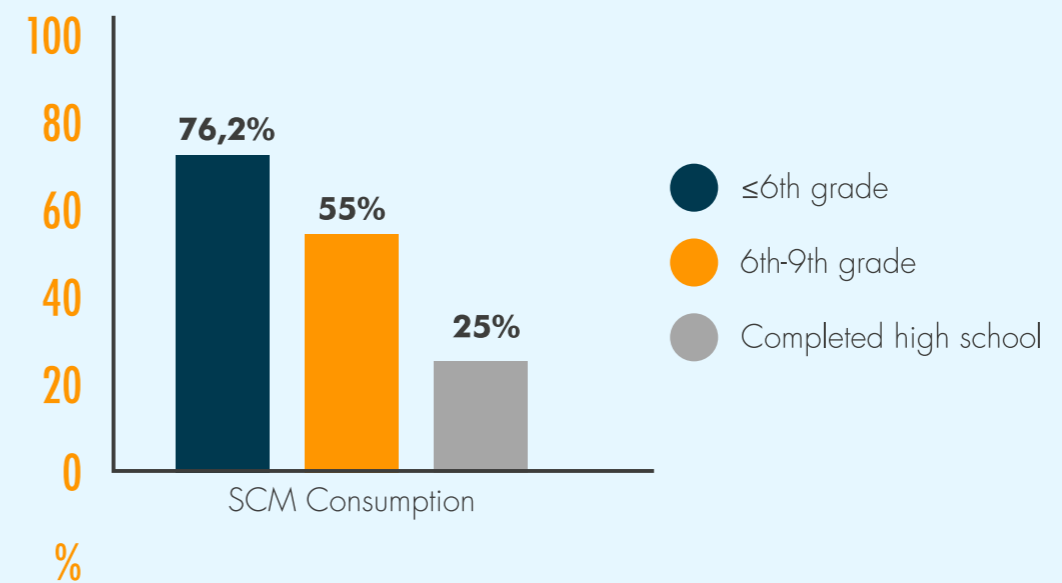
Method: 2-day food recall

Subjects: : 200 children aged 12-<60 months

Proportion of children in West Jakarta consuming SCM based on children age groups
(Sartika RAD & Ruswandi RBI)

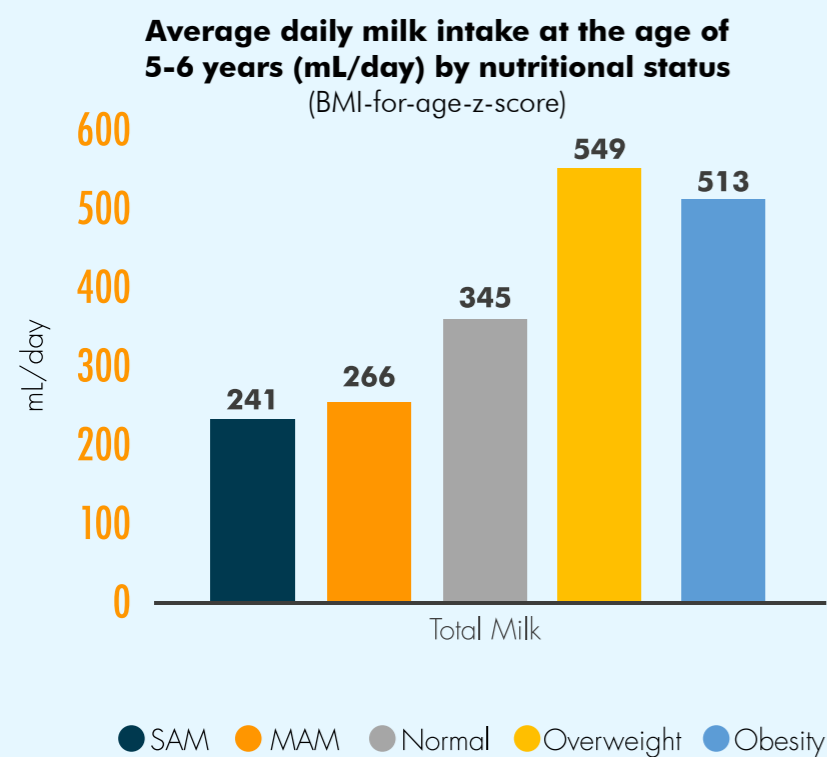
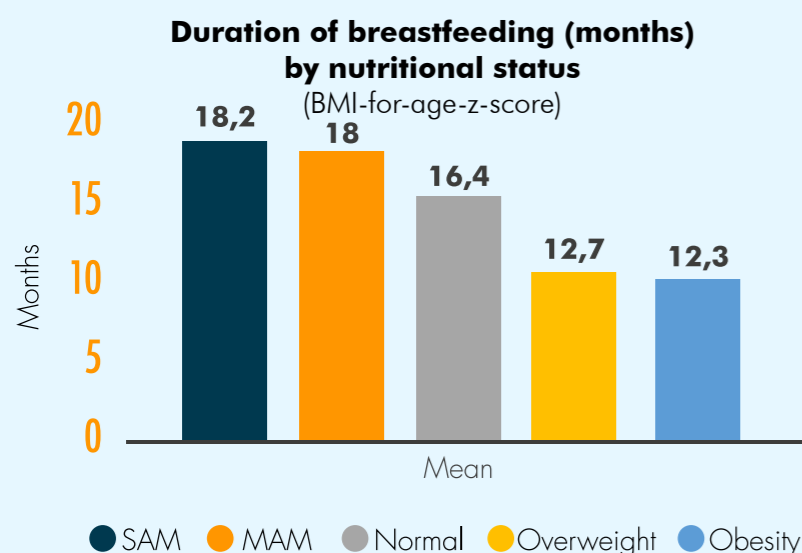


Proportion of children in West Jakarta consuming SCM based on mother's education
(Sartika RAD & Ruswandi RBI)

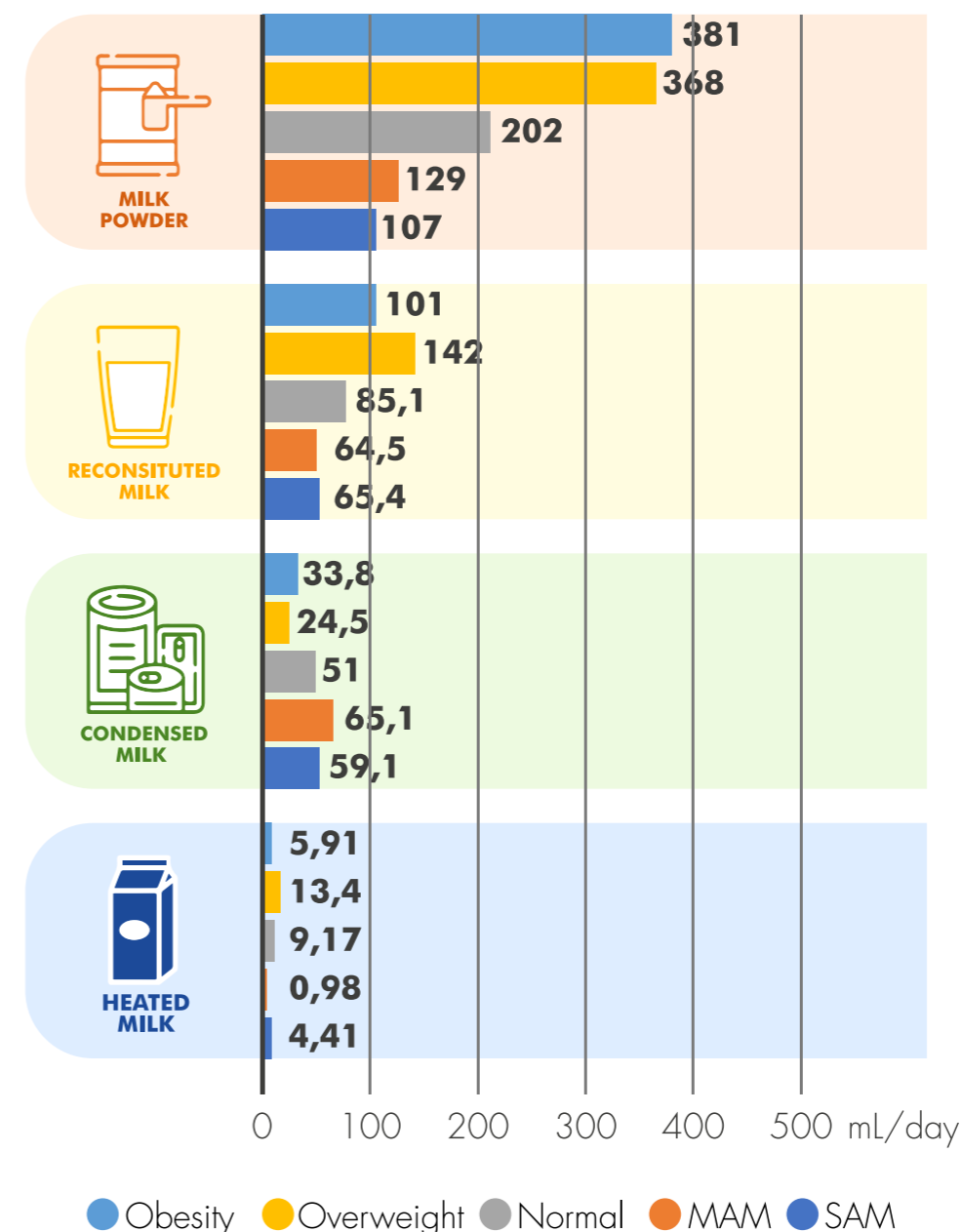


EVIDENCE ON THE ASSOCIATION BETWEEN (REGULAR) CONSUMPTION OF SCM AND HEALTH MEASURES

Duration of breastfeeding and usual daily milk intake at age of 5-6 years by nutritional status (Palupi E., 2015)



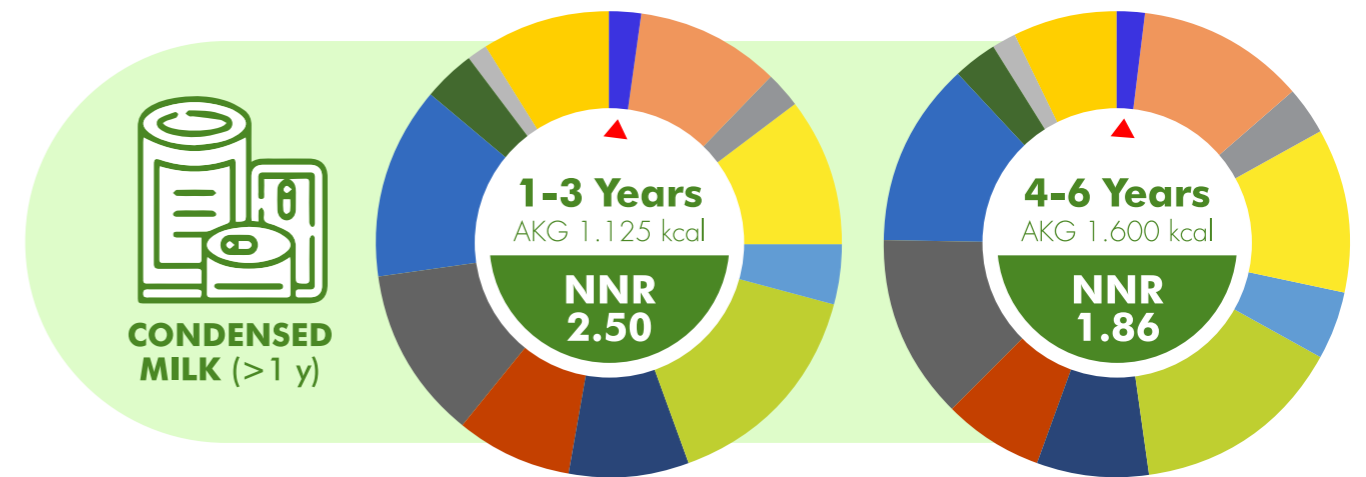
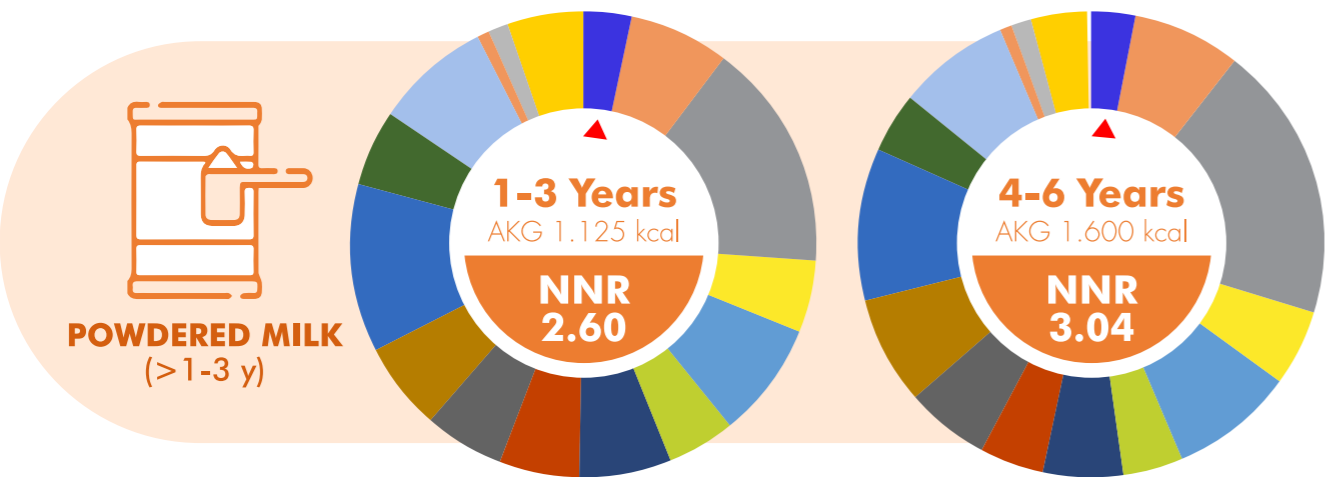
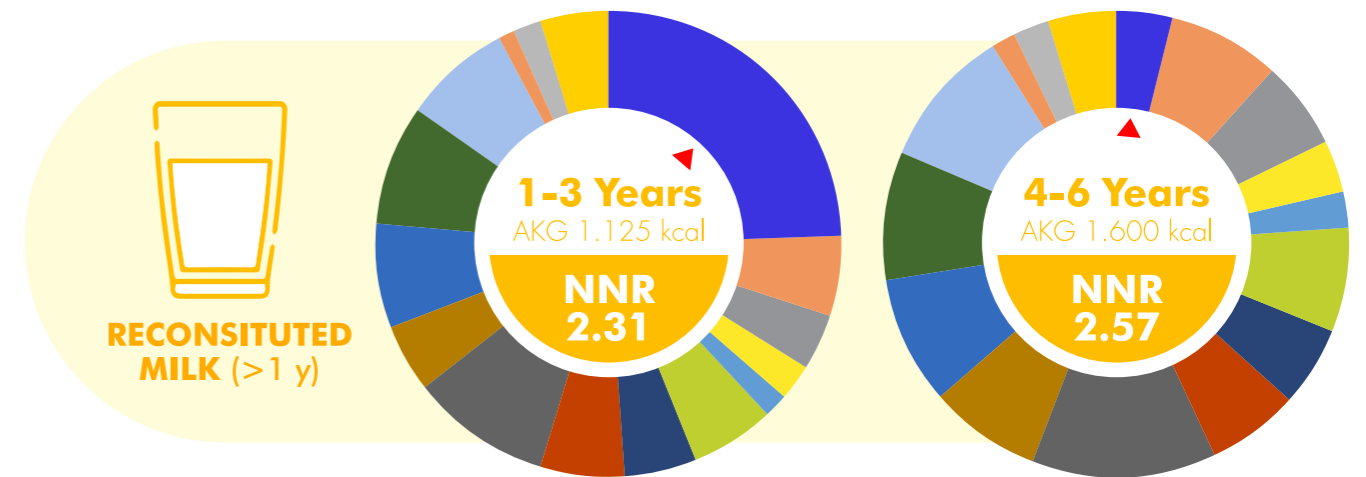
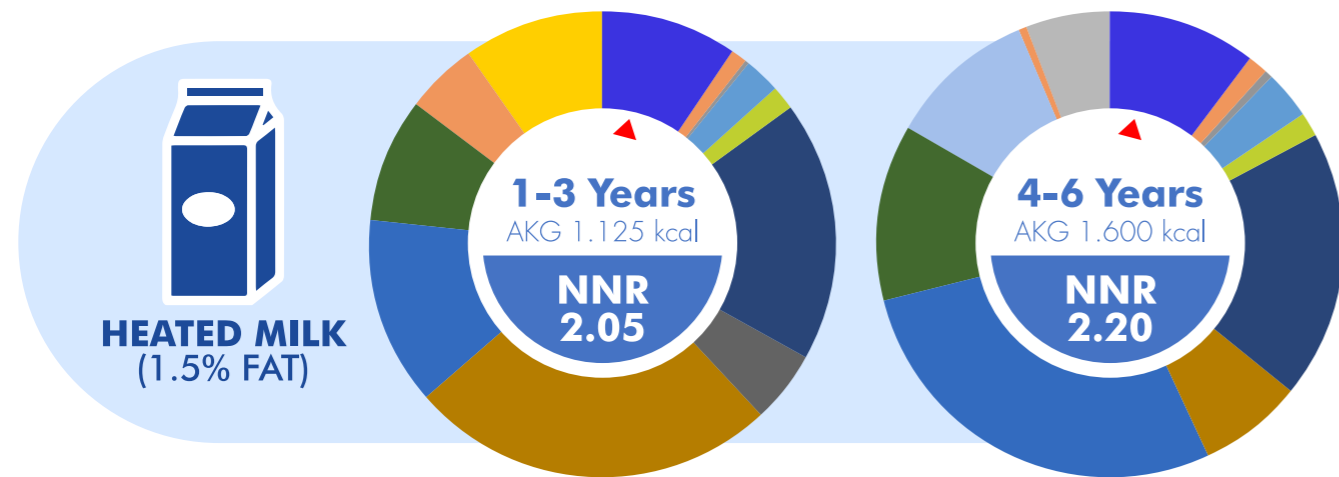
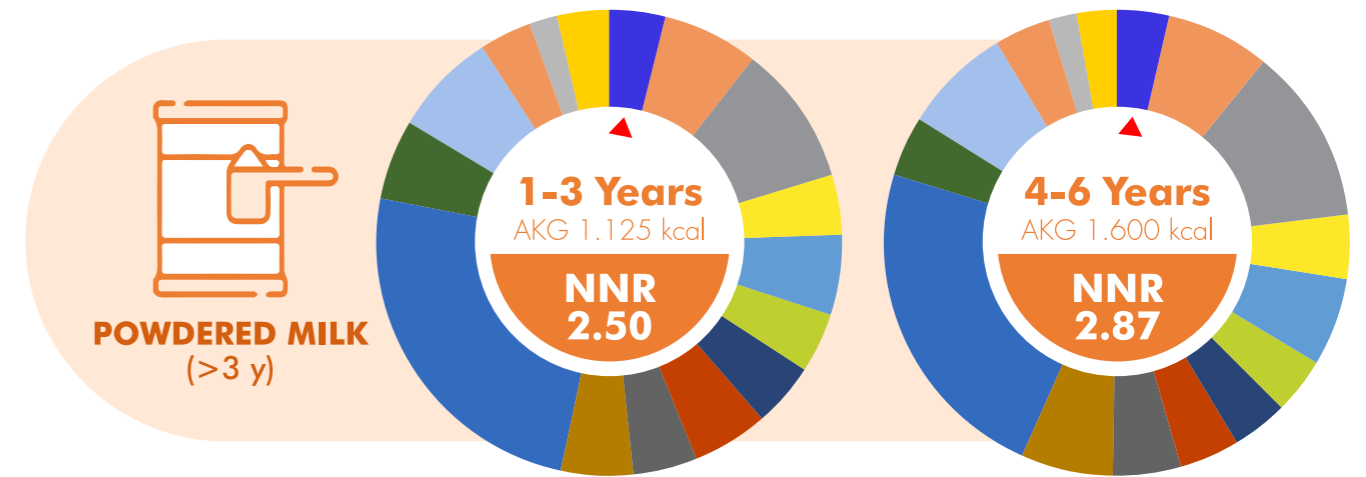
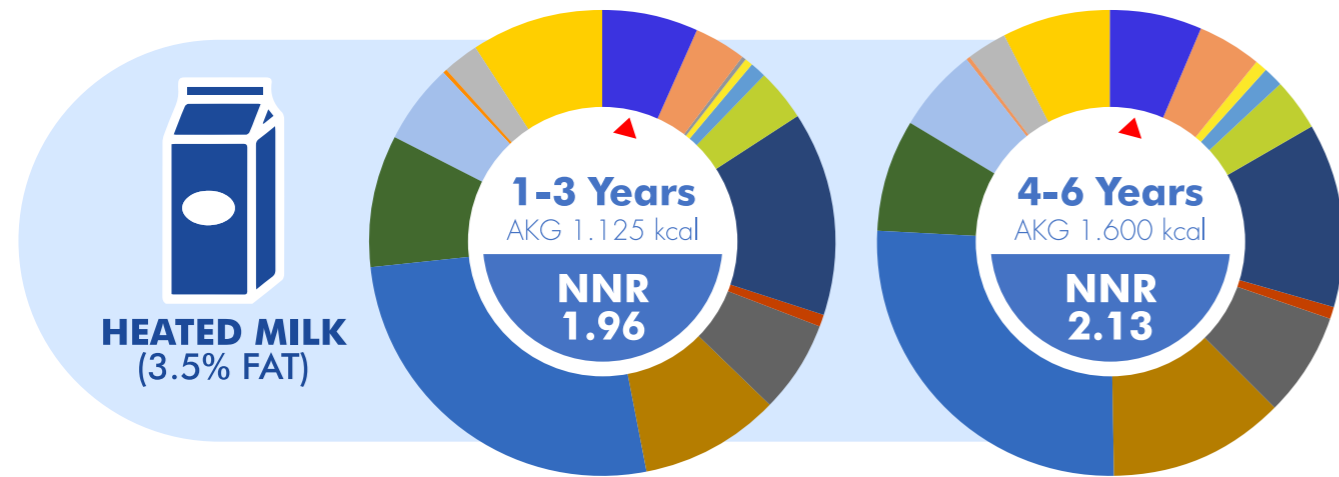
Usual daily milk intake at the age of 5-6 years (mL/day) by nutritional status (BMI-for-age-z-score)



NOTE: BMI: body mass index in kg/m²; N: number of respondents; BMI_{fz}: BMI-for-age z-score; SAM: severe acute malnutrition (BMI_{fz} < -3, N=60); MAM: moderate acute malnutrition (-2 < BMI_{fz} ≤ -3, N=61); Normal: -2 ≤ BMI_{fz} ≤ 1, N=163; Overweight: 1 < BMI_{fz} ≤ 2, N=43; Obesity: BMI_{fz} > 2, N=60; Mean: usual daily intake of milk calculated by the multiple source method (MSM).

The BMI_{fz} of children at ages 5-6 years had positive associations with daily formula and reconstituted milk consumption but have negative associations with SCM and breastmilk intake. SCM could hardly be a full substitute for any other milk across different nutritional status groups, but it is consumed more by undernourished group.

Based on its naturally nutrient rich (NNR) score, **SCM has the lowest nutritional value as compared with the other types of milk**, which makes it less ideal for young children to consume (Palupi E., 2015).



▶ Protein Vit.A Vit.D Vit.E Vit.C Vit.B1 Vit.B2 Vit.B3
 Vit.B6 Vit.B5 Vit.B12 Ca Zn Fe K Mg

▶ Protein Vit.A Vit.D Vit.E Vit.C Vit.B1 Vit.B2 Vit.B3
 Vit.B6 Vit.B5 Vit.B12 Ca Zn Fe K Mg

Health risks of SBB or SCM consumption by young Indonesian children aged less than 5 years:

1. As a product with low nutritional value but with high added sugar, SCM may be associated with the risk of undernutrition among young children with poor dietary patterns if the energy from sugar causes “voluntary reduction in the intake of other foods/drinks.” Further study must be conducted better understand the direction of the association: whether SCM intake increases the risk of undernutrition or whether undernourished children consume SCM more due to other reasons (i.e., poverty, poor feeding, energy compensation, or maternal education).
 - SSB in any form might also be one of the major sources of free sugar for children aged less than 5 years because 43.6% of them have been exposed to it (Ruswandi RBI, 2017).
 - Children aged < 5 years who consumed SSB (not specifically SCM) had a 3.8-fold higher risk of being underweight than those who did not consume SSB after controlling for mother’s education, total child energy intake, and the interaction between SSB consumption and mother’s education (Ruswandi RBI, 2017).
2. As one of the SSB variants, the health risks of high SCM consumption might also be linked to its high sugar content. The public health recommendation to limit free sugar consumption from any sources is fundamental for the prevention of health disorders, such as type 2 diabetes mellitus and dental caries.
3. Conclusions could not be drawn for risk factors; health outcomes; measures such as HDL-cholesterol, body weight, weight gain, body fat percentage, fat distribution, and energy intake (children); and conditions including coronary events, stroke, incident hypertension, glycemia, insulinemia, insulin resistance/sensitivity, and oral cancer due to insufficient evidence for the relationship with SSB (WHO, 2015).

EXISTING POLICIES THAT REGULATE THE MARKETING AND PROMOTION, INCLUDING RISK COMMUNICATION, OF SCM FOR CHILDREN

PerkaBPOM No. 1 Year 2015 & PerkaBPOM No. 21 Year 2016 (Food Category)

- SCM with milk fat content <8% and protein content not less than 6.5% is further classified into four product analogs: [1] sweetened skimmed milk (fat content not less than 8%), [2] vegetable-fat SCM (milk fat content not more than 1%), [3] creamed SCM (milk fat content not less than 45% and total solid not less than 65%), and [4] creamer SCM.
- These products, with the exception of creamer SCM, were regulated for milk fat and protein contents, but not for total fat content.

Circular Letter No. HK.06.5.51.511.05.18.2000 Year 2018 (Label and Advertisement of Condensed Milk and the Analogue Food Category 01.3)

- National polemics of 2017 and 2018 resulted in the issuance of a circular letter followed by a new Indonesian FDA regulation.

PerkaBPOM No. 31 Year 2018 (Processed Food Label)

- New regulation reinforces the correct labeling and advertisement of SCM (including its analogs) as “not suitable product for infant.”
- Product labeling follows the Codex Alimentarius. However, information on the content of sugar used as the product preservative is not mandatory in labelling.
- Monitoring of products post marketing still relies on the provision of an external official complaint by consumers to enable a special team within the FDA to react to the problem of product overclaims.

RECOMMENDATIONS TO CONTROL SCM CONSUMPTION

1. The behavior of reading food labels by caregivers should be promoted to correctly understand which products are safe to be consumed by young children.
2. Limiting free sugar consumption from any sources, including SSB and SCM, is still highly recommended despite the lacking evidence.
3. Understanding and applying a balanced diet as the core of young child feeding.
4. Active monitoring of product advertisements, enforcement of regulations, and provision of effective customer education as corrective measures to the nonideal SCM consumption among young children in Indonesia.

List of Abbreviations

- BMI_z : Body Mass Index-for-age-z-score
BPOM : Badan Pengawas Obat dan Makanan /
The National Agency of Drug and Food Control
DRI : Dietary Reference Intake
GF : Growing-up Formula
IFCS : Individual Food Consumption Survey
LM : Less Milk
MAM : Moderate Acute Malnutrition
NNR : Naturally Nutrient Rich
RMW : Regional Minimum Wage
SAM : Severe Acute Malnutrition
SCM : Sweetened Condensed Milk
SSB : Sugar-Sweetened Beverages
WMP : Whole Milk Powder

ACKNOWLEDGMENT

The Indonesian Danone Institute Foundation is an independent non-profit organization that was established in 2007 (No.: C-3394.HT.01.02. TH 2007) and operates in accordance to the laws of the Republic of Indonesia.



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