

Malnutrition among children in Indonesia: It is still a problem

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Targeting the prevalence of infant malnutrition, frequently resulting in morbidity and mortality of children under five years, has been an ongoing public health priority in Indonesia.¹ In particular, within Indonesia, malnutrition is associated with stunting, underweight and overweight. Hence the country is experiencing a double burden of malnutrition.²⁻⁴ The rise of the double malnutrition is due to a rapid transition in economy, industrialisation, urbanisation and political decentralisation along with the rising income inequality that has contributed to widening the gap in disparities.⁵

Indonesia has been on a trajectory in development where there is a lower rate of mortality for children under five from 85 out of 100 births in 1990, dropping to 31 in 2012.⁶ In parallel to the reduced rates of mortality is a reduction in one of its major contribution, severe underweight, where the prevalence is at 5.4% in children under the age of 5. Despite the reduction in underweight prevalence, the incidence of stunting has increased from around 35% to 37% in 2010-2013.^{6,7} Malnutrition is predominant among populations who are living in rural areas or in cities which are at high risk of experiencing natural disasters.^{1,8}

In Indonesia, there are 7 provinces which have very high prevalence ($\geq 40\%$) and 17 provinces that have a high prevalence (30-39%) of stunting.⁹ Provinces including Tenggara, Papua and West Java have been identified as most vulnerable to poverty and food insecurity.⁸ In particular published literature have reported that the prevalence of stunted children in Tenggara (58%) is more than double than the province Yogyakarta, central Indonesia (23%) which has the lowest prevalence of stunting in Indonesia.^{1,9} One of the contributing factors to this disparity includes the occurrence of natural disasters, such as the recently reported 6.4 magnitude earthquake in Tenggara in July 2018 which has affected approximately 102,717 people.¹⁰ Natural disasters can lead to unmet vital humanitarian needs including access to adequate food, safe shelter, non-food items, access to health services and facilities, safe drinking water and sanitation and hygiene infrastructure.¹⁰

Malnutrition begins utero up to 2 years of age as growth and healthy development depend on adequate and balanced nutrition in the first 1000 days of life.^{9,11,12} However, past two years of age, it becomes too late to undo the damage of the early years. Hence, the mother's health and nutritional status is a crucial determinant of stunting in children.^{13,14} Stunting has negative effects on children's health and development. Due to this, it has ongoing negative effects on the child's life and is highly associated with poor educational performance, low number of schooling years and lower income as adults. These factors are likely to persist into adulthood which in turn leads to higher risk of health issues and poor human quality.^{7,13}

The causes of child malnutrition include household factors (e.g. mother's health status, food insecurity and hygiene practices), breastfeeding and inadequate complementary foods. Poor maternal health at

preconception, during pregnancy and lactation, can lead to increased risk of maternal anaemia, preterm birth and low infant birth weight.^{12,13,15} Further low birth weight and nutrient inadequacies can lead to higher risk of metabolic diseases and adiposity in the abdomen as well as delayed development later in life.^{5,16}

The World Health Organization recommends that mothers should exclusively breastfeed for the first six months then to introduce complementary foods while continuing to breastfeed their child on-demand until two years of age or beyond.¹⁷ The rate of exclusive breastfeeding in Indonesia is 41.5% and is globally ranked as 54/141 (Highest to lowest).¹⁸ Inadequate breastfeeding practices such as non-exclusive or early cessation of breastfeeding also contribute to stunting in children. Inadequate breastfeeding can increase the risks of infections such as enteric, diarrhoeal, helminthic and respiratory which in turn can lead to stunted development.^{19,20} There are further risks associated with stunting and inadequate complementary feeding. This includes introducing food earlier or later than six months and lack of dietary variety which leads to inadequacies in nutrient requirements for optimal growth and immunity protection. Also, a lack of safe food and water which includes poor hygiene practices including poor food preparation and storage. Further, food insecurity which includes the inaccessibility to adequate food and inconsistency in the consumption of food based on a child's appetite and satiety cues.¹⁷

Factors which lead to these causes of malnutrition are multifaceted including a lack of education and knowledge, income poverty, unsafe water, an unsanitary environment and food insecurity.^{1,21,22} The United Nations and the Indonesian Government have prioritised the agenda for the development of nutrition programs across all sectors of the country to fully utilise their potential to contribute to the reduction of child malnutrition in Indonesia.¹

The Indonesian Government have already demonstrated their capacity to address malnutrition by immensely reducing the rates of food insecurity and improve nutrition over the past decade.⁵ To tackle the double-malnutrition phenomenon, the Indonesian government have aligned their Country Strategic Plan (2017-2020) by the United Nations Partnership for Development Framework (2016-2020).⁸ This includes targeting Sustainable Development Goals 2, End hunger, achieve food security and improved nutrition and promote sustainable agriculture.²³

One suggested research to understand the disparities includes conducting a policy and program mapping across each province to identify the current strategies implemented to address malnutrition.²⁴ Also, as overnutrition has recently been recognised as a growing issue in Indonesia, there is potential to leverage off existing successful obesity prevention programs which have been implemented to target the high rates of overweight and obesity in developed countries. For instance, over the past decade several programs have been implemented to educate parents and carers from pregnancy through to the first few years of the child's life on healthy feeding behaviours and activity.²⁵⁻²⁷ In particular, some of these programs have leveraged off the growing rates of technology used as a low-cost mode to deliver health information.²⁶⁻²⁸ As Indonesia is the 3rd-largest smartphone market in the Asia Pacific, and smartphone ownership has increased from 55 million in 2015 to 92 million in 2019, it demonstrates the potential to implement similar programs within Indonesia.²⁹

Overall, there are promising outcomes on the reduction of malnutrition in Indonesia. However, as there are ongoing, inevitable changes across the globe such as the occurrence of natural disasters and growth in urbanisation, it is crucial to also continuously analyse the rates of malnutrition and effectiveness of programs while also considering new innovative methods that will help address societal needs.

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