SOCIAL ANALYSIS OF CHILDHOOD STUNTING IN INDONESIA

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Abstract. Indonesia is on its way to reducing stunting, yet the marked gap in stunting prevalence across the regions urges further investigation. This review aimed to provide a social analysis of stunting in Indonesia and propose recommendations for supporting the attempts at stunting reduction. A set of themes was used in analyzing evidence and continued with narrative analysis following a social analysis framework. This analysis highlighted the gap in stunting prevalence across provinces and described the relationship between stunting and social determinants of health, *eg* maternal nutrition knowledge and poverty. Poverty has significantly affected stunting, and the pandemic might worsen it. However, stunting might also happen among affluent households with misinformation and a lack of nutrition knowledge. We found that the short average of Indonesians' height and unclear signs of stunting have caused public unawareness of stunting as an undernutrition issue. It was exacerbated by limited access to health and nutrition information among mothers. The government has been regulating a set of interventions through the National Strategy to Accelerate Stunting Prevention, yet more support is still required at the structural and intermediary levels. Thus, given the current social context of Indonesia's health and nutrition, these measures are recommended: 1) improving central-local governments' coordination and multisectoral collaboration; 2) integrating nutrition interventions with poverty reduction actions; 3) building the nutrition capacity of mothers and local community health workers; 4) promoting local foods to support children's nutritional adequacy; and 5) strengthening community engagement in addressing stunting at the local level.

Keywords: child, malnutrition, Indonesia, poverty, social determinants of health

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INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic has disrupted Indonesia's economy and affected Indonesia's attempts to reduce stunting, though this country has successfully decreased its stunting prevalence from 30.8% in 2018 to 24.4% in 2021 (Ministry of Health Republic of Indonesia, 2018; Ministry of Health Republic of Indonesia, 2021). Indonesia targets a stunting prevalence of 14% by 2024 and 10% by 2030; thus, a greater decrease in stunting prevalence is urgently required (National Development Agency, 2019). Aiming for a stunting prevalence of 10% in the next seven years, at least Indonesia needs to escalate its stunting decline rate from 3.7% in the 2013-2018 period to 8.9% in the 2018-2030 period (National Development Agency, 2019). For 2022 only, Indonesia has targeted a 2.7% decrease in stunting prevalence through its acceleration scenario of the national development plan (The Habibie Center, 2022).

Despite Indonesia's decreased stunting prevalence, there is still a significant gap in stunting prevalence among Indonesian provinces with diverse socioeconomic statuses, indicating the social determinants' influence on child nutrition. For example, Bali as one of the provinces with a low percentage of poverty has the lowest prevalence of stunting (ie 10.9%), while at least 37% of children in East Nusa Tenggara are stunted, and this province is one of the poorest Indonesian provinces (Ministry of Health Republic of Indonesia, 2018; Statistics Indonesia, 2022). Moreover, up to half of stunting cases are those with a disadvantaged background (Wirakartakusumah, 2018). Stunting is getting more complicated in rural areas due to poor maternal nutrition knowledge and the existing food taboos, particularly among children and mothers (SMERU Research Institute, 2012).

Social inequalities have also caused children's prolonged nutritional adequacy (de Onis and Branca, 2016). Consequently, stunting has not only reflected inadequate food intake among Indonesian children but also reflected inequalities across other social determinants, such as low economic status and poor education (Bloem *et al*, 2013). Thus, understanding the complex situation of stunting in Indonesia and its social determinants is important for supporting national attempts in reducing stunting. This social analysis discusses the social determinants of stunting, their influence on Indonesia's maternal and child nutrition, and what attempts are recommended to support the current attempts in dealing with stunting.

MATERIALS AND METHODS

A narrative review was conducted to provide a social analysis of childhood stunting in Indonesia. This social analysis referred to the conceptual framework of the World Health Organization's Commission on Social Determinants of Health, comprising both structural and intermediary determinants (WHO, 2010). Journal articles were searched on Scopus using the terms "stunting", "socioeconomic", "social determinant(s)", and "Indonesia". The grey literature search with the same keywords was started from Google and followed by identifying the non-governmental organizations and government's websites concerning stunting in Indonesia, such as the Ministry of Health and the United Nations Children's Fund. The obtained literature, both journal articles and grey literature, were narratively reviewed and written into a set of themes. The themes used in this analysis consisted of social determinants, socioeconomic and political impacts, social construction, and assessment of available responses.

Social determinants in this review described how stunting is socially distributed in the locality and which social determinants are linked to stunting among Indonesian children. The impacts of stunting were later written under the theme of socioeconomic and political impacts, covering

the potential consequences both at the downstream and upstream levels. The third theme, social construction, explains how stunting is socially constructed among the population, such as the public perspective towards stunting. Furthermore, the fourth theme was focused on assessing the available responses to stunting.

RESULTS

The literature search and selection resulted in a total of 38 journal articles and grey literature comprising 24 journal articles and book chapters, and 14 grey literatures being included in this review. The findings were later reported under different themes and followed by recommendations comprising nutrition research and public health responses.

Theme 1: Social determinants

Stunting and food insecurity in Indonesia is strongly associated with poverty, which leads to the weak purchasing power of disadvantaged households (Schröders *et al*, 2015). Food insecurity refers to the limited food availability and inadequate access to nutritious and safe foods (Tanumihardjo *et al*, 2007). Rather than a simple causality, the relationship between poverty and stunting has served as a complicated cycle among Indonesia's disadvantaged families. Low income has become a predictor of childhood stunting and other health issues (Schröders *et al*, 2015), while stunting is a potential poverty indicator at the country level (Setboonsarng, 2005).

The local stunting-poverty correlation is also observed, of which stunting prevalence is commonly higher in the provinces with a high level of poverty, such as in East Nusa Tenggara (Hanandita and Tampubolon, 2015). Getting an adequate food and nutrient intake is not easy for children in East Nusa Tenggara because of their parents' low purchasing power, and the high costs of food distribution (Ashmad *et al*, 2012; Baldi *et al*, 2013).

On the other hand, most urban households, such as in Java and Bali islands, have the stronger spending power to afford high-quality diets (Baldi *et al*, 2013).

Food taboos might hinder children and mothers from obtaining a healthy diet. For example, pregnant women of the Sasak Tribe in West Nusa Tenggara are not allowed to consume seafood and fish in order to protect themselves and their babies from skin itches and fishy odor (Nurbaiti *et al*, 2014). Bananas and fish are also prohibited for lactating women because of oral candidiasis and odor reasons (Nurbaiti *et al*, 2014). Meanwhile, food-related traditions from the rural population in Timor Tengah Utara, East Nusa Tenggara might impact children's food consumption (Nabuasa *et al*, 2013). Children in this area usually have meals twice a day, which only contain staples (*eg* rice or maize) with fish or vegetables only (Nabuasa *et al*, 2013). Fish consumption is not permitted in some households and many stunted children still eat rice only, or rice with vegetables. (Nabuasa *et al*, 2013).

Stunting has also reflected poor maternal knowledge related to mothers' education level and, most importantly, nutrition knowledge on preparing high-quality diets for children to address stunting (Schröders *et al*, 2015; Hidayat and Prasetyo, 2018). Insufficient time in gaining nutrition knowledge has contributed to this poor maternal knowledge, particularly among rural women (Ashmad *et al*, 2012). For example, the social value in some part of East Nusa Tenggara tended to tell women to be inside and quiet, meaning that women's roles are mainly related to domestic work and they are not allowed to leave home without their spouse's permission (Ashmad *et al*, 2012). Similarly, female adolescents are likely to stay and take care of their siblings at home, leading to reduced study time, and adolescent girls tend to leave school earlier (Ashmad *et al*, 2012). Consequently, women with low levels of knowledge might not have the power and capacity within the family to change existing social values (Lawrence and Worsley, 2007). The women's low power might also lead them to obey the existing food taboos (Wulandari and Whelan, 2011), although these women might have understood the disadvantages of the taboos for child growth.

Theme 2: Socioeconomic and political impacts

Stunting can lead to various irreversible consequences. First, stunting might decrease physical stamina and cognitive performance, which can lead to decreased productivity among adults (Prendergast and Humphrey, 2014). Stunted adults earned 50% less than non-stunted people's salary, and it might contribute to at least a 10% of gross domestic product (GDP) loss (Prendergast and Humphrey, 2014; Blaney *et al*, 2015). Second, stunting children are more vulnerable to communicable diseases, which can lead to increased healthcare expenditure by up to 11% (Bloem *et al*, 2013; Schröders *et al*, 2015; Prendergast and Humphrey, 2014). A higher obesity risk, as well as a risk to develop non-communicable diseases (NCDs) (*eg* type 2 diabetes mellitus), can be faced by stunted children, and steady stunting prevalence potentially makes Indonesia facing the diabetes epidemic (Prendergast and Humphrey, 2014). Third, stunted children might experience low self-esteem due to lower intelligence and shortness, compared to non-stunted children (Wirakartakusumah, 2018). Fourth, stunted mothers are likely to deliver stunted babies (Haddad, 2015), which may become the starting point of the child's undernutrition cycle. Lastly, short stature is prevalent in society, so stunting is considered normal (de Onis and Branca, 2016) and many are unaware of stunting consequences due to this culturally-inherited understanding.

Political instability is one of the stunting causes at the upstream level (Bloem *et al*, 2013), while the remaining stunting problem is likely to weaken national politics in the future due to the potential of stunted growth in widening socioeconomic gap through low-income and productivity (Prendergast and Humphrey, 2014). In other words, socioeconomic inequality is likely to disturb political stability unless narrowing socioeconomic disparity is brought into real political decisions (Haddad, 2015). The causal stunting-politics relationship also indicates the need for multisectoral initiatives across different levels of health governance.

Theme 3: Social construction

In spite of the worldwide perspective on stunting as a 'disease of poverty' (Hanandita and Tampubolon, 2015), many were still unaware of this problem in the Indonesian community (UNICEF Indonesia, 2012). People were more aware of wasting, which drove national policies to prioritize tackling severe wasting (United Nations Children's Fund Indonesia, 2012), rather than improving nutrition for addressing stunting. Wasting-oriented actions have also led to a lack of awareness of other stunting determinants. Addressing wasting can be attempted by improving food provision, but it is not the same as stunting, which involves many determinants, such as maternal nutrition (UNICEF Indonesia, 2012; Bloem *et al*, 2013). The social context of child growth was not considered until Indonesia's involvement in the Scaling Up Nutrition (SUN) Movement in 2011, which is an international initiative to address both stunting and wasting (Ministry of Agriculture Republic of Indonesia, 2013).

Poor maternal knowledge of nutrition has also led to the unawareness of stunting (UNICEF Indonesia, 2012). It was not uncommon that women are not aware of nutrition during pregnancy and the first thousand days of life (UNICEF Indonesia, 2012). The low chance of rural women obtaining nutrition information and the lack of nutrition education from health workers have contributed to this issue (Ashmad *et al*, 2012; UNICEF Indonesia, 2012). Furthermore, mothers tended to not worry about their children's low stature as long as children look healthy, which is likely due to their unfamiliarity with the issue of stunting, and monitoring child stature is still not considered important (UNICEF Indonesia, 2012; Margawati and Astuti, 2018).

Theme 4: Assessment of available response

A set of interventions has been initiated to address stunting in Indonesia, including nutrition-sensitive and nutrition-specific interventions. For this section, the assessment was focused on the policy level and mothers' responses.

Policy-level response

Nutrition interventions are seen as the most cost-effective attempts for national development as these interventions can prevent more negative impacts on health (Shekar *et al*, 2016). Several nutrition interventions in Indonesia are intended for children and mothers (Ministry of Agriculture Republic of Indonesia, 2013). For example, the government distributed nutrient supplementation for children and pregnant women, improved access to clean water and hygiene facilities, and attempted to address poverty and food insecurity (Ministry of Agriculture Republic of Indonesia, 2013; National Team for the Acceleration of Poverty Reduction, 2017). Amid the pandemic, Indonesia renewed its National Strategy for Accelerating Stunting Reduction covering political commitment, behavior change, convergent actions of nutrition interventions, food and nutrition security, and data and research development (Republic of Indonesia, 2021). The strategy implementation has been hindered by several issues, such as the inability to conduct anthropometric measurements due to social mobility restrictions during the pandemic (The Habibie Center, 2022). However, this pandemic has also encouraged health workers to commence online nutrition education and consultation (The Habibie Center, 2022).

Stunting prevalence is likely to decrease after the combination of nutrition interventions; however, undernutrition prevalence is still stagnant in some circumstances. A significant decline in national stunting prevalence was also observed, but only among households at the highest quintiles of SES (SMERU Research Institute, 2012). Meanwhile, stunting prevalence still increased by 6.4% among those in the 1st quintile (SMERU Research Institute, 2012). The disparity also appeared between rural-urban disparity areas, where stunting prevalence decreased in urban populations but increased in rural areas (SMERU Research Institute, 2012). The ineffective nutrition policies, as suggested by the gap in stunting prevalence, might be associated with poor regulation among governments. In spite of the excellent national plan to address stunting, it is not well-implemented yet at the local level (National Team for the Acceleration of Poverty Reduction, 2017), and further

monitoring and evaluation are urgently needed to measure the effectiveness of nutrition policies (The Habibie Center, 2022). For example, the success of supplementary feeding distribution at the local level should not only be based on its coverage but also needs to assess whether the food is consumed as suggested.

The available policies regulating nutrition interventions sometimes lead to unclear coordination between governments (*eg* ministries and national agencies) (National Team for the Acceleration of Poverty Reduction, 2017). Furthermore, corruption has hindered money distribution for nutrition interventions or healthcare facilities (Schröders *et al*, 2015), and it also hinders the national reduction of stunting prevalence (SMERU Research Institute, 2012). The more recent report highlighted the adequate budget allocation for stunting reduction in Indonesia (World Bank, 2020). Nonetheless, some resource utilization issues hinder the measures, such as a lack of data for policy advocacy, fragmented funding, and unclear task distribution between central and local governments (World Bank, 2020). Those issues suggest the need for strong leadership and political commitment as a means of creating a supportive environment and clear coordination to deal with stunting and other nutrition issues (The Habibie Center, 2022).

Mothers' response

Mothers play significant roles in managing children's food intake (Schröders *et al*, 2015), and this also implies mothers' roles in stunting prevention. Some mothers reported their attempts for exclusive breastfeeding and nutritious foods (Margawati and Astuti, 2018); however, poor nutrition knowledge among mothers might result in neglect of child nutrition and health (The Habibie Center, 2022). This poor knowledge might be caused by various determinants, including a lack of nutrition education (The Habibie Center, 2022).

In Indonesia, integrated community healthcare (Posyandu) is the only grass-roots initiative for child nutrition, covering both growth monitoring

and nutrition education (Ministry of Agriculture Republic of Indonesia, 2013). Mothers usually bring their children to integrated community healthcare monthly, aiming at monitoring the children's weight and height (UNICEF Indonesia, 2012). Mothers can also join nutrition education programs in this integrated community healthcare (Ministry of Agriculture Republic of Indonesia, 2013). Unfortunately, low attendance in integrated community healthcare was still found, with only 64% of mother-children pairs coming in 2013 (National Team for the Acceleration of Poverty Reduction, 2017). Low attendance can be associated with the belief among mothers that their child's health is not only after good health and nutritious foods as recommended by health workers, but most importantly, God will determine their children's health (Wulandari and Whelan, 2011). The latter potentially leads to mothers becoming apathetic to nutrition interventions unless the mothers understand the significance of addressing stunting. Therefore, it is important to deliver nutrition education for mothers on stunting prevention and consequences without necessarily underestimating their religious beliefs. Nonetheless, virtual nutrition education has been initiated during the pandemic, though poor internet connection still serves as a significant barrier (The Habibie Center, 2022).

DISCUSSION

This social analysis highlighted the likelihood of disadvantaged children getting stunted, the need for nutrition education to improve mothers' nutrition knowledge, and the need for integrating the government's attempts at the national and local levels to reduce stunting. In addition to negative health impacts on children, stunting might lead to unwanted socioeconomic and political consequences. Accounting for the current social context of Indonesia's health, several further research opportunities and public health responses are proposed in this section to support current measures in addressing stunting.

Further research

At the downstream level, research on food and nutrient is needed to support child nutrition. Stunting prevention needs adequate food intake provision; however, nutritious foods (*eg* fruits and protein foods) are expensive (Faharuddin *et al*, 2017). As a result, it is common for children from disadvantaged families to consume a low-quality diet (Widodo *et al*, 2017). Thus, the research underpinning high-quality and affordable diets for children is urgently needed. For example, providing food subsidies and initiating home gardening are potential for improving children's diets yet those are still under-researched in Indonesia (Fountaine *et al*, 2016). Research on the potential of local food in supporting children's nutrient adequacy is also recommended, considering the various food sources available across the country (The Habibie Center, 2022).

In terms of policy research and evaluation, it is important to understand the issues of intergovernmental coordination and the local context underpinning stunting. Lack of national-local governments coordination has negatively impacted the national action plan's effectiveness to address stunting (UNICEF Indonesia, 2012), therefore, it is essential to analyze why this poor coordination happened. The analysis can be done in a separate study, or as a part of nutrition programs monitoring and evaluation. Furthermore, addressing stunting with a lack of attention to the local context may hinder stunting prevention (UNICEF Indonesia, 2012). Ignoring socioeconomic context at the community level might also result in ineffective nutrition actions due to the unsolved basic causes of stunting. The neglected local context may also result in low community engagement with the programs, potentially leading to a lack of interest in supporting the programs themselves. Thus, more information on the social context at a local level is required for providing evidence to policymakers in arranging local nutrition policies, as well as to gain more support from the community.

Proposed public health response

Despite the existing attempts to reduce stunting through nutrition interventions, improvement in the implementation is encouraged. Most nutrition programs only focus on "reaching a scale", rather than considering "what affects the scale" (Neufeld *et al*, 2016). In other words, the implementation of nutrition actions pays more attention to the reduction of national prevalence, rather than addressing the social determinants (*eg* gender, socioeconomic status) that lead to the high stunting prevalence. These unaddressed constraints will likely hinder the program from reaching an optimum impact (Neufeld *et al*, 2016).

It is also critical to develop nutrition capacity in order to achieve the expected impacts of nutrition interventions (Neufeld *et al*, 2016). Capacity building in nutrition can be initiated by mapping the existing nutrition capacity (Shrimpton *et al*, 2014), such as the number of public health nutritionists and the availability of local foods in a region. A mix of upstream and downstream strategies can be planned following the identification of nutrition capacity (Shrimpton *et al*, 2014). For example, promoting locally grown foods to improve children's diets (Fountaine *et al*, 2016) is likely accepted at the downstream level because of its potential to provide affordable and nutritious foods. Furthermore, delivering nutrition education regularly to mothers on unwanted consequences of obeying food taboos and providing unhealthy foods for their children through integrated community healthcare in rural areas can be conducted at the midstream level (Ruel and Alderman, 2013). In order to support this attempt, nutrition capacity building for community health workers and cadres is also suggested.

The greater government's ambition to reduce income inequality is likely to mitigate stunting prevalence significantly (Nisbett *et al*, 2014). Thus, integrating nutrition interventions with poverty reduction programs, and accounting for the existing social determinants, are required at the upstream level. Furthermore, the improved local-national governments' coordination and integration of nutrition actions with community services are important

to increase the effectiveness of stunting reduction programs (Nisbett *et al*, 2014). To support this intergovernmental coordination, strong leadership, and political commitment are essential. For instance, regents' commitment to addressing stunting is needed to lead stunting reduction programs in their regions with a clear coordination mechanism (The Habibie Center, 2022).

In conclusion, Indonesian under-five children will face a high risk of developing NCDs unless social contexts are more considered in nutrition policy implementation. Both nutrition research and public health responses at the downstream to upstream levels will be needed to strengthen Indonesia's current attempts to reduce stunting prevalence.

ACKNOWLEDGMENTS

The authors would like to thank Associate Professor Lisa Fitzgerald for her guidance in conducting the social analysis. We would also like to thank all colleagues at The Habibie Center for their advice and support in our writing process.

Most of this work was conducted with the support of the Australia Awards Scholarship, with some additional inputs supported by The Habibie Center.

CONFLICT OF INTEREST DISCLOSURE

The authors declared no potential conflicts of interest with respect to the publication of this article.

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