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**AN ANALYSIS OF NATIONAL POLICY IN INDONESIA:
ADDRESSING CHRONIC ENERGY DEFICIENCY
AMONG ADOLESCENTS**

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ABSTRACT

Background: Chronic energy deficiency (CED) remains a major public health issue among Indonesian adolescents, particularly girls aged 15–19 years. CED contributes to reproductive health risks and intergenerational stunting, reflecting persistent nutritional inequities. This study examines the national policy framework concerning adolescent CED in Indonesia, pinpointing deficiencies in policy implementation and offering suggestions for enhancement. **Method:** A qualitative content analysis was conducted on seven national policy documents related to adolescent health and nutrition, including Law No. 36/2009, Presidential Instruction No. 1/2017, and ministerial regulations issued between 2014 and 2019. The analysis applied the Walt and Gilson (1994) policy triangle to examine policy content, actors, process, and context. **Result:** Indonesia possesses a strong legal foundation and multisectoral initiatives such as UKS/M and Aksi Bergizi. But there are still gaps in implementation, especially in rural areas. Key challenges include weak monitoring and evaluation, limited adolescent engagement, inadequate cross-sector coordination, and insufficient focus on gendered vulnerabilities. Despite the introduction of Law No. 17/2023, which expands adolescent health provisions, operational mechanisms and budget allocation remain underdeveloped. **Conclusion:** Bridging the policy–practice gap requires a holistic approach that combines early detection, cross-sector collaboration, gender-responsive education, and digital innovations for monitoring and outreach. Strengthening implementation of adolescent nutrition policies is essential not only for improving individual health outcomes but also for enhancing human capital and long-term national productivity.

Keywords: adolescent nutrition, chronic energy deficiency, policy implementation

INTRODUCTION

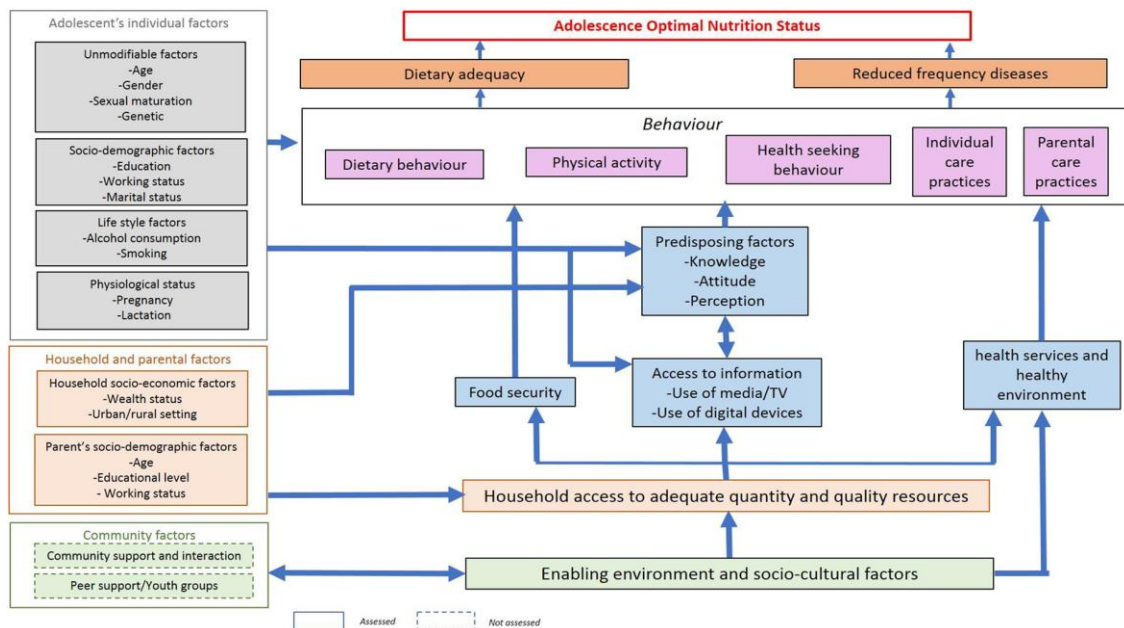
The health and nutrition of teenagers are critical for a country's human capital. Adolescence is a crucial period for biological and social change; it provides a second window of opportunity to break the intergenerational cycle of malnutrition after the first 1,000 days of life (Patton et al., 2016). Improving adolescent nutrition will enhance their future health and job prospects and help Indonesia maximize its demographic dividend. However, persistent nutritional problems, particularly chronic energy deficiency (CED), have the potential to persist throughout this period.

A mid-upper arm circumference (MUAC) of less than 23.5 cm signifies CED. While global nutrition initiatives predominantly emphasize early children, adolescent malnutrition persists as a significant and underappreciated issue (Black et al., 2013). The 2018 Basic Health Research (Riskesdas) indicated that teenage females aged 15–19 years had the highest frequency of CED among women of reproductive age (Ministry of Health, 2018). This syndrome presents significant concerns, including anemia, negative pregnancy outcomes, and low birth weight (LBW), which subsequently sustain the stunting cycle (Christian et al., 2013). Consequently, tackling CED throughout adolescence is a crucial upstream intervention in the national strategy for reducing stunting.

Suboptimal dietary choices alone do not solely cause CED in adolescents; rather, interrelated variables at multiple causal levels contribute to the condition. While the immediate causes are behavioral, they include dietary behavior, physical activity, health-seeking behavior, individual care practices, and parental care practices. These concerns are fundamentally linked to larger structural challenges, including persistent poverty, gender inequalities that limit girls' access to resources, and sociocultural norms that shape body image and dietary preferences. Unless we address these structural factors, changing behavior is unlikely to yield long-term benefits.

The Indonesian government has responded with several policy instruments, including Minister of Health Regulation No. 41 of 2014 concerning Guidelines for Balanced Nutrition and the National Strategy for Accelerating Stunting Reduction 2018–2024. The Nutrition Action Program is an example of a school-based program that includes various activities, such as iron supplementation, nutrition education, and group exercise. However, the implementation of these policies still results in disparities. Despite a seemingly complete policy framework, measurements of adolescent malnutrition only show minimal growth and development in adolescents' bodies.

The gap between the content and implementation of this policy illustrates a policy formulation intended for national and regional application that differs in terms of implementation capabilities. Most studies examine program outcomes or individual risk factors but rarely assess how well policies work together across sectors. As a result, understanding of the impact of governance, resource allocation, and cross-sectoral coordination on adolescent nutrition outcomes is still lacking. We present a conceptual model from UNICEF Indonesia (Figure 1) to illustrate the various levels of factors contributing to teenage CED, ranging from the individual to the policy level.



Source: (Maehara et al., 2019)

Figure 1. Conceptual model of nutritional status among adolescents

METHOD

This study uses a qualitative approach by conducting a review of policies (qualitative policy review), specifically using the method of document content analysis. The review was conducted by critically examining and evaluating the national policy landscape relevant to the prevention of CED in adolescents. This approach is used with the justification that the complexity of the policy environment in Indonesia as a developing country makes the issue of addressing malnutrition in adolescents require cross-sectoral synergy. The purpose of this review is to map the existence of policies and understand how these policies are implemented and interact with each other and whether these policies can address nutritional vulnerabilities in adolescents, particularly adolescent girls in Indonesia (Walt and Gilson, 1994).

Document Search and Selection

A systematic search was conducted to identify national-level documents issued between 2009 and 2024, covering the period from the enactment of the Health Law No. 36/2009 to the most recent National Strategy for Stunting Reduction (2024). Official documents were retrieved from the The government utilizes various portals, including the Ministry of Health (Kemenkes), the National Development Planning Agency (Bappenas), the Coordinating Ministry for Human Development and Cultural Affairs (Kemenko PMK), and other relevant ministries.

Documents were included if they met the following criteria: (1) the documents explicitly or implicitly addressed issues related to adolescent health or nutrition; (2) they provided guidance, strategy, or implementation framework at national or subnational levels; and (3) they were officially endorsed, published, or publicly available through government sources. Documents were excluded if they (1) only talked about nutrition for mothers or young children and not for teens, (2) were unofficial drafts, press releases, or media coverage, or (3) were copies of or replaced by newer rules.

Procedures for Extracting and Coding Data

The included documents were reviewed and coded manually using thematic content analysis. Coding followed a two-step process:

1. Deductive coding was based on predefined categories derived from the Walt and Gilson framework, which includes policy content, actors, process, and context.
2. We used inductive coding to identify emerging subthemes, including policy coherence, cross-sectoral collaboration, resource allocation, and monitoring mechanisms. Themes were compared across time and sectors to trace the evolution of adolescent nutrition policy and identify consistency or divergence in government priorities. Data management was performed using Microsoft Excel matrices to map each document against its thematic categories.

Triangulation and Validation

To enhance analytical rigor, triangulation was conducted by comparing policy findings with secondary data from the 2023 Indonesian Health Survey (SKI), which highlighted persistent geographic and socioeconomic disparities in CED prevalence among adolescent girls aged 15–19 years. This integration allowed an assessment of whether existing policy commitments correspond with population-level needs. Content validity was ensured through the use of primary policy sources—official regulations, decrees, and national strategies that are verifiable and traceable. Peer review within the research team and repeated checks of coding consistency made analytical transparency stronger.

Ethical Consideration

As this study analyzed publicly available policy documents and secondary data, no ethical approval was required. Nevertheless, all document sources were cited and acknowledged to maintain research integrity and transparency.

RESULT

Indonesia has seven legal bases for school and adolescent health policies, including those for CED prevention strategies for adolescents issued from 2009 to 2019, which focus on the adolescent population aged 10–24. From the several legal bases for policies on school-age and adolescent health in Indonesia, some of the main focuses for implementing these programs are (1) Healthy Living Community Movement, (2) National Action Plan for School-Age and Adolescent Health, (3) Healthy: Physical, Mental, Social, (4) Minimum Service Standards for Districts/Cities, and (5) Child Health Efforts (Direktorat Kesehatan Keluarga, 2022). Next, we will explain the legal basis for this policy by examining its objectives, profile, key actors, and target achievements.

Law No. 36 of 2009, concerning Health

Law No. 36/2009 outlines several provisions on health, nutrition, and adolescents, emphasizing holistic well-being encompassing physical, mental, and social aspects (Government of Indonesia, 2009): (1) article 79 mandates school health programs to promote healthy lifestyles and create supportive environments for students' optimal growth and development; (2) article 136 ensures that children and adolescents, both in and out of school, can achieve healthy, harmonious, and optimal development through structured health and development efforts; (3) article 142 promotes an integrated approach among government, local authorities, and communities to improve nutrition across the life cycle, prioritizing vulnerable groups such as infants, toddlers, adolescent girls, pregnant women, and breastfeeding women. It assigns responsibilities for setting nutrition standards, ensuring access for poor families, and providing public education on

nutrition; (4) article 143 emphasizes the government's duty to enhance public awareness of nutrition and its impact on health, particularly for vulnerable populations.

Presidential Instruction No. 1 of 2017 for the Healthy Living Community Movement

This instruction's goal is to boost health promotion and disease prevention to make people more productive and lower the costs of healthcare (Government of Indonesia, 2017). In relation to chronic energy deficiency (CED), the policy adopts a promotive–preventive approach by (1) educating adolescents on balanced nutrition to prevent CED and its long-term impacts, such as growth disorders, low productivity, and reproductive health risks; and (2) implementing nutrition interventions through the provision of supplementary nutritious foods in schools and iron tablet supplementation for adolescent girls to prevent anemia. Cross-sectoral collaboration is central to this policy: (1) the Ministry of Education and Culture integrates health and nutrition education into the school curriculum; (2) the Ministry of Health conducts nutrition screening through puskesmas and school health programs (UKS); (3) the Ministry of Home Affairs instructs local governments to support Germas and adolescent nutrition programs.

Local governments are encouraged to conduct regular nutrition surveys and screenings for early detection of CED, using the results to inform local interventions. The policy also promotes community and adolescent empowerment by encouraging healthy lifestyles—regular exercise, balanced diets, and active participation in Germas—while involving families and communities in fulfilling adolescents' nutritional needs.

Government Regulation No. 2 of 2018 concerning Minimum Service Standards

In Government Regulation No. 2 of 2018 concerning Minimum Service Standards (MSS), the issue of CED in adolescents is included in the focus of basic services in the health sector, specifically in promotive and preventive health services. This regulation ensures that local governments have full responsibility for protecting adolescent health, including systematically addressing chronic energy deficiency. This policy emphasizes rural health screening, which should be conducted by local governments at least once a year in schools, madrasas, boarding schools, or other educational institutions. This screening aims to detect early nutritional problems, including CED, in adolescents. Indicators of CED can be seen from two indicators: (1) a body mass index (BMI) below normal; and (2) physical signs of malnutrition, such as a thin and weak body (or CED).

Joint Regulation of Four Ministers in 2014 regarding UKS/M

This regulation establishes cross-sector collaboration to improve school health services through promotive and preventive activities (Government of Indonesia, 2014). It highlights the UKS/M triad: (a) health education, (b) health services, and (c) a healthy school environment. In relation to CED prevention, schools integrate nutrition education into curricula and conduct counselling on balanced diets, particularly for adolescent girls at higher nutritional risk. Regular screening of weight, height, and BMI is conducted, with results reported to puskesmas for monitoring and follow-up. Students identified with CED receive supplementary feeding and weekly iron tablets (TTD). The creation of a healthy school environment is supported through canteen supervision—restricting foods high in sugar, salt, or fat—and health campaigns such as National Nutrition Day or cooking competitions to promote healthy eating habits among students.

Regulation of the coordinating minister for National Action Plan No. 1 of 2018 concerning the Health of School-Age Children and Adolescents

This policy promotes a holistic approach to improving the health of children and adolescents aged 6–24 through disease prevention, quality of life improvement, and adolescent empowerment (Coordinating Ministry for Human Development and Culture,

2018). Its objectives include reducing malnutrition, including CED, and strengthening adolescent physical, mental, and social health. Key strategies are (1) health education on balanced nutrition, physical activity, and disease prevention through schools and media platforms; (2) adolescent empowerment by improving access to accurate health information and services; and (3) School-based health services that ensure regular checkups and nutritious meals. The policy engages the central and local governments, schools, and community organizations, aiming to enhance nutritional status, prevent lifestyle diseases, and promote adolescent well-being nationwide.

Minister of Health Regulation No. 25 of 2014 concerning Child Health Efforts

This regulation promotes a comprehensive approach to child health, covering prevention, treatment, and health promotion (Ministry of Health, 2014). It aims to improve nutritional status by reducing malnutrition and undernutrition and preventing CED, stunting, and obesity. Key measures include immunization, regular health checks, early detection, and supplementary feeding for malnourished children. The Ministry of Health leads policy and evaluation, while local governments and health facilities implement programs and monitor nutritional status. Schools support these efforts by integrating health education into their curricula. The policy targets reducing malnutrition and preventing CED through nutritional supplements, counselling, and parent education programs.

The Minister of Health Regulation No. 4 of 2019 provides guidelines for the Health Sector's Minimum Service Standards (MSS)

This regulation ensures equitable and high-quality basic health services, particularly to address nutritional problems such as CED (Ministry of Health, 2019). Its goals are to lower the number of cases of CED in at-risk groups—especially pregnant women and teenage girls—by making it easier to get early detection, nutritional help, and information about healthy eating. Key mechanisms include MUAC and BMI screening, iron supplementation, supplementary feeding, and nutrition counseling for at-risk groups, implemented through puskesmas and posyandu on the frontlines of primary care. Main actors include the Ministry of Health (policy oversight), local governments (budget and implementation), and health workers (screening, education, and intervention). Families and communities are expected to help with these efforts. The policy aims to strengthen early detection, increase iron tablet adherence, improve nutrition literacy, and enhance the capacity of healthcare workers to manage CED effectively.

Situation Analysis of Stunting in Adolescents after Policy Implementation

MUAC is used to identify the prevalence of the risk of CED in female members of a household aged 10-54 years, both pregnant and non-pregnant women. CED is a condition in which a person experiences a chronic lack of macronutrient and micronutrient energy intake. This measurement of MUAC can be determined using a MUAC tape measuring tool with an accuracy of 1 mm.

Table 1. Distribution of Average, Standard Deviation (SD), and Risk of CED by Age and Pregnancy Status in Women Aged 10-19 Years.

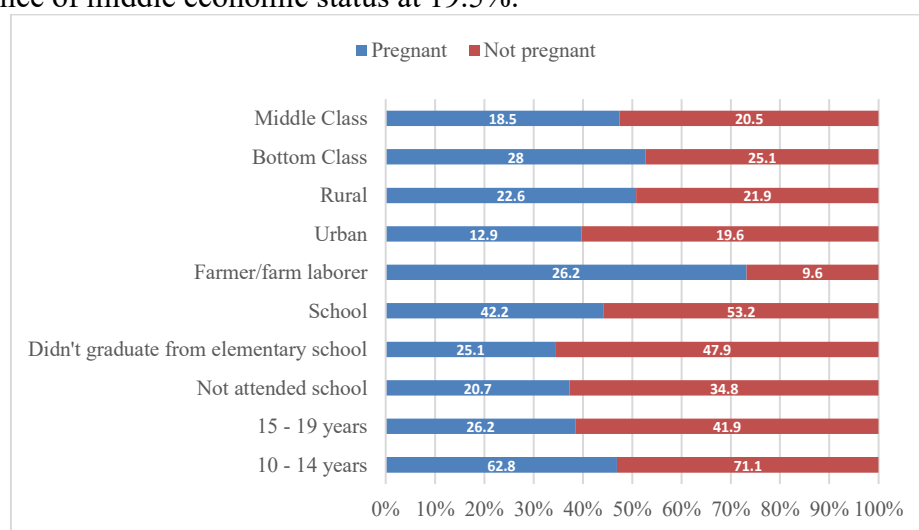
Age	Pregnant			Not Pregnant		
	Average	Risk of CED	SD	Average	Risk of CED	SD
10	21.8	At risk of CED	3.9	20.7	At risk of CED	3.1
11	22.6	At risk of CED	2.7	21.3	At risk of CED	3.1
12	22.9	At risk of CED	4.1	22.0	At risk of CED	3.3
13	22.7	At risk of CED	3.9	22.7	At risk of CED	3.3

Age	Pregnant			Not Pregnant		
	Average	Risk of CED	SD	Average	Risk of CED	SD
14	24.1	Not at risk of CED	2.3	23.4	At risk of CED	3.4
15	24.6	Not at risk of CED	3.3	24.0	Not at risk of CED	3.3
16	25.9	Not at risk of CED	3.2	24.2	Not at risk of CED	3.2
17	26.6	Not at risk of CED	2.2	24.5	Not at risk of CED	3.3
18	25.0	Not at risk of CED	2.9	24.8	Not at risk of CED	3.3
19	25.9	Not at risk of CED	4.4	25.2	Not at risk of CED	3.7

Source: (Kemenkes, 2023)

Table 1 shows that the risk of chronic energy deficiency (CED) can occur in adolescents. For pregnant adolescents, the age group at risk of CED is 10 to 13 years old because the average Mid-Upper Arm Circumference (MUAC) measurement obtained is still below the normal MUAC size (<23.5 cm), while for non-pregnant adolescents, the age group at risk of CED is 10 to 14 years old. Next, when comparing the two categories based on age group, education, occupation, place of residence, and economic status against the prevalence of chronic energy deficiency (CED), it can be seen in the following graph 1.

The age group with the highest prevalence of chronic energy deficiency (CED) is 10-14 years old, with 67.0% prevalence and a proportion of pregnant and non-pregnant individuals of 62.8% and 71.1%, respectively. The prevalence of CED in other adolescent age groups, specifically 15-19 years old, is 34.1%, with a proportion of pregnant and non-pregnant individuals of 26.2% and 41.9%, respectively. Regarding education, the prevalence of CED in the category of those who did not complete primary school/Islamic elementary school is 36.5%, while for those who did not attend school or never attended school, it is 27.8%. In terms of occupation, the prevalence of CED is highest among school-aged children at 47.7%, compared to those who work as farmers/agricultural laborers at 17.9%. For place of residence, the prevalence of CED is higher in rural areas than in urban areas, with proportions of 22.3% and 16.3%, respectively. For economic status, the prevalence of the lowest economic status is higher at 26.6%, compared to the prevalence of middle economic status at 19.5%.



Source: (Kemenkes, 2023)

Figure 3. Diagram of CED Prevalence by Socio-Demographic Factors in Indonesia

Nutritional deficiencies in adolescents, particularly among females, may result in diminished cognitive function, impaired learning capacity, stunted physical development, compromised immune responses, decreased occupational productivity, and lowered physical fitness. Additionally, malnutrition can also lead to long-term risks during adulthood, especially during pregnancy. Nutritional problems in adolescents can have long-term effects, such as bleeding before or after delivery, low birth weight, and severe anemia, which can lead to maternal and infant death.

Analysis of Strengths, Gaps, and Actionable Policy Alternatives

Table 2. Policy Mapping and Gap Analysis for CED Prevention in Indonesia

Existing Policies	Policy Strength	Policy Gap
Law No. 36 of 2009, concerning Health	<i>Implementation of the National Health Insurance System</i> This law strengthens equitable access to affordable healthcare for all Indonesians, including vulnerable groups. It supports nutritional improvement through (1) Article 141: promoting balanced diets, healthy lifestyles, and enhanced nutrition services and surveillance; (2) Article 142: ensuring nutrition improvement across the life cycle, prioritizing infants, adolescent girls, and pregnant or breastfeeding women; and (3) Article 143: mandating government efforts to raise public awareness of nutrition's importance.	<i>Lack of Specific Programs for Preventing CED</i> The law talks about nutrition, but it doesn't have any specific rules for stopping CED. The focus remains on maternal and child health, with limited attention to adolescent nutrition and community-based dietary interventions. As a result, poor dietary patterns—especially in low-income areas—persist, increasing long-term CED risks due to limited access and nutrition awareness. <i>There is still inequality in access to nutritious food</i> Although Law No. 36/2009 ensures equitable health services, disparities in access to nutritious food persist. Many remote and disaster-prone areas face limited food availability, worsening CED among low-income populations. The law still lacks attention to equitable food distribution, which is essential for preventing CED in vulnerable regions.
Presidential Instruction No. 1 of 2017 on the Healthy Living Community Movement	<i>Holistic Approach thru Multi-sector</i> This presidential instruction engages multiple ministries and local governments to implement GERMAS and improve nutrition. Ministry of Health: promotes balanced nutrition education. Ministry of	<i>Limited Focus on Physical Activity and Healthy Lifestyle</i> Presidential Instruction No. 1 of 2017 emphasizes promoting physical activity and preventing disease rather than directly addressing nutritional problems and CED. GERMAS advises the public to be more active, exercise, and generally adopt a

Existing Policies	Policy Strength	Policy Gap
	Religious Affairs: provides premarital nutrition guidance. Ministry of Agriculture: ensures food safety and boosts fruit and vegetable production. Ministry of Marine Affairs and Fisheries: promotes fish consumption (Gemarikan) and ensures fish product safety. Ministry of Trade: promotes healthy, locally produced food and beverages. Food and Drug Supervisory Agency: oversees the safety and quality of food in circulation.	healthy lifestyle. Although physical activity is important for health, this policy does not specifically focus on the problem of malnutrition, which is the main cause of CED. <i>Lack of Direct Intervention in Ensuring Adequate Nutrition</i> The presidential instruction fails to regulate the provision of nutritious food in sufficient detail, which is one of Germas' main shortcomings. Despite efforts to encourage people to consume healthy foods, this policy does not provide concrete solutions or interventions to address CED, which is commonly caused by nutritional inadequacy.
Government Regulation No. 2 of 2018 concerning Minimum Service Standards	<i>Integration with Basic Services at Community Health Centers</i> Healthcare services for adolescents, including early detection of CED, can be provided through community-based health efforts programs such as adolescent <i>posyandu</i> or services at <i>puskesmas</i>. <i>Strengthening the Focus on Vulnerable Groups</i> Healthcare services target priority groups such as children, pregnant women, and adolescents as part of preventive and promotive efforts.	<i>Lack of an Effective Monitoring System</i> There is no strong mechanism to monitor and evaluate the implementation of SPM regularly, particularly regarding adolescent nutritional health, which makes it difficult to assess policy effectiveness and take corrective action based on data. <i>Limitations of Local Government Capacity</i> Not all regions have sufficient resources (healthcare personnel, facilities, and budget) to meet the established minimum service standards, resulting in disparities in healthcare services between developed and underdeveloped regions, especially in remote areas.
Joint Regulation of 4 Ministers in 2014 regarding UKS/M	<i>Cross-Sector Collaboration</i> A collaborative approach is emphasized in this policy, involving 4 ministries (Ministry of Education and Culture, Ministry of Health, Ministry of Religious Affairs, and Ministry of Home Affairs), which are crucial for UKS/M to	<i>Lack of Specific Focus on the Problem of CED</i> This policy does not provide specific technical guidance for managing CED in adolescents. The nutritional interventions carried out are general, such as promoting balanced nutrition health. Additionally, this policy has

Existing Policies	Policy Strength	Policy Gap
	focus not only on health (health promotion) but also on educational and regional regulatory aspects.	not prioritized at-risk groups such as adolescent girls.
	<i>Policy Implementation and Support</i> The implementation of these regulations requires financial, administrative, and legal support. The involvement of local governments is considered effective because they can allocate a small amount of village funds or BOS for the implementation of UKS/M.	<i>Low Capacity and Understanding of UKS Teachers</i> Teachers or school staff assigned to handle UKS often lack specialized training in addressing health issues, including CED. The scope of UKS/M training modules for teachers is still limited.
	<i>Integrated Collaboration</i> The implementation of this UKS/M policy clearly outlines the work duties of four ministries for the guidance and development of UKS/M, as follows: (1) Article 11 for the Ministry of Education and Culture, with 10 activities; (2) Article 12 for the Ministry of Health, with 12 activities; (3) Article 13 for the Ministry of Religious Affairs, with 9 activities; (4) Article 14 pertains to the Ministry of Home Affairs, which encompasses five activities.	<i>Monitoring and Evaluation Challenges</i> The regulation lacks a robust mechanism for monitoring and evaluating the effectiveness of school health programs. This results in inconsistent implementation and difficulty in measuring the impact of health initiatives. Without proper evaluation tools and processes, it's difficult to identify areas needing improvement and ensure compliance with health standards.
Regulation of the Coordinating Minister for RAN No. 1 of 2018 concerning the Health of School-Age Children and Adolescents	<i>Increasing Nutritional Awareness and Education Among Adolescents</i> A key strength of this regulation is its focus on nutrition education for adolescents, improving their understanding of balanced diets and healthy food choices. This knowledge helps them manage energy intake, avoid unhealthy eating habits, and prevent CED.	<i>Budgetary and Resource Constraints</i> Implementing school-based programs requires adequate funding for nutrition education, food provision, and health personnel. Limited budgets—especially in resource-poor areas—hinder effective implementation and may worsen adolescent malnutrition.

Existing Policies	Policy Strength	Policy Gap
	<i>School-Focused Health Intervention Program</i> This policy positions schools as key settings for health interventions, enabling regular monitoring of adolescent nutrition. Through nutrition education, physical activity, and access to health services, schools help promote healthy eating, provide nutritious meals, and prevent CED that can affect learning and growth.	<i>Uneven Implementation</i> Although this policy includes school health programs, implementation remains uneven, especially in remote or resource-limited areas. Limited access to nutritious food and health services keeps adolescents in these regions at high risk of stunting and CED.
	<i>Integrated Approach between Health and Education</i> This policy brings together health and education aspects, enabling a more comprehensive approach to preventing health issues, including stunting. Adolescents without stunting are more likely to have enough energy to learn and participate in school activities, leading to improved educational and health quality. School health programs involving teachers, healthcare workers, and students in activities that support health and nutrition can raise awareness about the importance of sufficient energy intake and a balanced diet. This supports broader efforts to prevent stunting.	<i>Lack of Specific Focus on Preventing CED</i> This regulation covers various aspects of adolescent health, but it does not provide sufficient in-depth attention or specific interventions for CED, which is a major issue related to malnutrition in adolescents. CED is more common among adolescents with limited access to sufficient nutritious food, but this regulation focuses more on general health programs without emphasizing energy needs. Without a more detailed focus on balanced nutrition and sufficient energy intake, this policy may overlook the fundamental need to address CED issues in at-risk adolescents. A too-general approach may not be sufficient to address the underlying causes of stunting related to unbalanced diets.
Minister of Health Regulation No. 25 of 2014 concerning Child Health Efforts	<i>Integrated Child Nutrition Program</i> One important part of this regulation is the emphasis on providing proper nutrition during a child's growth phase, including through supplementary feeding programs and nutritional status monitoring at healthcare	<i>Limitations in Focusing on Adolescents</i> This regulation focuses more on the health of young children, while the increasing problem of CED in adolescents may not receive sufficient attention. CED in adolescents is often linked to poor eating habits or a lack of nutritional knowledge, which can affect their

Existing Policies	Policy Strength	Policy Gap
	facilities. This directly contributes to the prevention of stunting by ensuring that children receive sufficient energy intake for their growth, as stated in the following articles: Article 6 outlines the provision of communication, information, and education about balanced nutrition specifically for pregnant individuals. Article 34 addresses the delivery of communication, information, and education materials tailored to the growth stages and developmental needs of school-age children and adolescents.	growth and development. Adolescents suffering from CED may not be reached by programs more focused on younger children, potentially leading to their neglect in CED management efforts.
Minister of Health Regulation No. 4 of 2019 concerning the Technical Guidelines for the Health Sector MMS	<i>Establishing Clear Service Standards</i> This regulation provides structured technical guidance for the implementation of early detection, nutritional intervention, and community education. These service standards serve as a reference for local governments and healthcare facilities in implementing programs to address chronic energy deficiency.	<i>Suboptimal Monitoring and Evaluation</i> Although there are monitoring mechanisms, their implementation is often inconsistent across regions. This makes data collection on the prevalence of CED or the success of interventions less accurate.

DISCUSSION

This policy review highlights the persistent policy-implementation gap in addressing chronic energy deficiency (CED) among Indonesian adolescents, especially girls. Despite a strong legal foundation—through Law No. 36/2009, Presidential Instruction No. 1/2017, and Ministerial Regulations from 2014–2019—the prevalence of CED remains high, with 41.9% among non-pregnant adolescent girls aged 15–19 years (Kemenkes, 2023). This reflects that well-intentioned national commitments have not been fully translated into equitable, context-sensitive implementation.

Several systemic barriers explain this gap. First, although most policies emphasize promotive and preventive approaches, few provide operational guidance or dedicated

funding for adolescent-focused nutrition interventions. School-based initiatives such as UKS/M and Aksi Bergizi are promising, yet their reach and effectiveness are constrained by uneven implementation, limited educator capacity, and weak intersectoral coordination (Akseer et al., 2020; Direktorat Kesehatan Keluarga, 2022). Second, while policies like the National Action Plan (RAN) and Government Regulation No. 2/2018 mandate nutrition screening, implementation varies widely due to disparities in infrastructure, personnel, and budgets, especially in rural areas (OECD, 2021).

Behavioral and social dimensions further compound these gaps. Existing policies underutilize digital and peer-based communication platforms that could effectively reach adolescents (Salam et al., 2016; Chandra-Mouli et al., 2019). Moreover, CED cannot be separated from broader social determinants—poverty, gender norms, food insecurity, and limited education (Sawyer et al., 2018; UNICEF, 2020). Policies must therefore go beyond health service delivery to integrate structural interventions, including food subsidies, gender-sensitive education, and youth empowerment.

Law No. 17/2023 introduces a broader mandate for adolescent health, explicitly addressing nutrition-related vulnerabilities. However, translating this into measurable progress requires clear technical guidelines, dedicated budget lines, and strong accountability systems (Nasional (Bappenas), 2023). To close the policy–practice gap, a whole-of-government and whole-of-society approach is essential—linking schools, puskesmas, and communities in implementing localized, gender-responsive nutrition interventions.

Persistent challenges also stem from decentralized governance and institutional fragmentation. Subnational governments vary in capacity, leading to inconsistent program delivery and poor recording of key indicators like MUAC and BMI (Rokx et al., 2018). Coordination between health, education, and women’s empowerment sectors remains weak. Joint planning and budgeting at the district level, through integrated platforms such as Posyandu Remaja or UKS, could help harmonize implementation (Alia, Saleha, & Diarfah, 2024).

Gender norms require explicit attention. Adolescent girls often face disproportionate nutritional risks linked to body image, menstruation, early marriage, and pregnancy (Christian et al., 2013; Aulia et al., 2024). Social and behavior change communication (SBCC) strategies that challenge stereotypes have proven effective in improving adolescent dietary diversity and self-efficacy (Mistry & Puthussery, 2019).

Emerging opportunities exist in digital innovation. Mobile-based nutrition platforms can enhance adolescent engagement through gamified education, iron tablet reminders, and electronic health records (Kemenkes, 2023). However, to address privacy, misinformation, and digital inequities, safeguards are necessary (WHO, n.d.). Economic interventions are also important. For example, changing Program Keluarga Harapan (PKH) to include nutrition indicators for teens could connect better nutrition outcomes with less poverty (Gelli et al., 2019).

Monitoring and evaluation (M&E) systems remain heavily reliant on periodic surveys such as SKI and Riskesdas, which are insufficient for real-time responsiveness. Developing dynamic, localized M&E frameworks—tracking iron consumption, MUAC/BMI trends, and school nutrition program coverage—would enhance accountability and enable adaptive policy management (Plesons et al., 2021).

This review is limited by its reliance on national policy documents and secondary data; it does not capture subnational policy implementation or adolescent experiences directly. Future research should combine policy analysis with field-based evaluation to

assess implementation fidelity, equity gaps, and adolescent perspectives. Incorporating participatory research and longitudinal tracking of policy impact would provide stronger evidence to guide policy reform.

CONCLUSION

CED in adolescents is a significant health problem that requires serious attention. The existing policies provide a strong foundation, but there are still challenges in effective implementation and monitoring. Interventions based on education, early detection, and extra feeding can be smart ways to deal with this problem. The successful management of CED will not only improve adolescent health but also the quality of Indonesia's human resources in the future. The recommendations from this policy paper are as follows: (1) enhanced monitoring and evaluation capacity: develop a digital system that allows for real-time tracking of adolescent nutritional status; (2) cross-sectoral collaboration: integrate school health programs with the education, health, and local community sectors; (3) adequate resource provision: allocate a dedicated budget for early detection and nutritional intervention programs, especially in remote areas; (4) education and social campaigns: utilizing social media and digital platforms to raise awareness about healthy eating patterns; (5) local-based program development: utilizing local food sources for supplementary feeding programs, in accordance with the potential and needs of each region; and (6) focus on adolescent girls: prioritizing interventions for adolescent girls to prevent future health complications.

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