



# Triple Burden Trends among Indonesian Children Under Five: Stunting, Wasting, and Overweight from 2013 to 2024

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## Abstract

Indonesia has made sustained progress in reducing child malnutrition, yet the coexistence of stunting, wasting, and overweight remains an important concern for child nutrition policy. This study aimed to describe national trends in the triple burden of malnutrition among Indonesian children under five from 2013 to 2024 using secondary data from UNICEF Indonesia's Update Gizi Volume 6, April-June 2025, and related national nutrition sources. A secondary descriptive analysis was conducted using aggregate prevalence values for stunting, wasting, and overweight presented in the UNICEF trend chart, which compiles data from Riskesdas 2013 and 2018 and SSGI 2019, 2021, 2022, 2023, and 2024. The results showed that stunting declined from 37.6% in 2013 to 19.8% in 2024, representing an absolute reduction of 17.8 percentage points. Wasting decreased from 12.1% to 7.4%, although the trend fluctuated after 2021. Overweight declined from 11.8% to 3.4%, showing the largest relative reduction among the three indicators. Despite this progress, stunting remained below but close to 20%, wasting returned to the same level as 2019, and overweight continued to coexist with undernutrition. The findings indicate that Indonesia's child nutrition agenda should continue to address multiple forms of malnutrition simultaneously through integrated interventions involving maternal and child nutrition, complementary feeding, acute malnutrition management, healthy food environments, and continuous surveillance.

**Keywords:** Child Malnutrition, Stunting, Wasting, Overweight, Triple Burden, Indonesia, SSGI, Riskesdas

## 1. Introduction

Child malnutrition remains a major public health challenge because it includes multiple and sometimes overlapping forms of nutritional problems. In children under five, stunting, wasting, and overweight represent different dimensions of growth and nutritional status. Stunting reflects chronic growth failure, wasting reflects acute undernutrition, and overweight reflects excess body weight relative to height [7], [8]. These indicators are central to national and global monitoring because they are associated with child survival, physical development, cognitive outcomes, and long-term health risks [8], [14]. Therefore, understanding changes in these indicators is important for evaluating the direction of child nutrition progress and identifying remaining public health priorities.

Indonesia has experienced important progress in reducing undernutrition during the last decade. UNICEF Indonesia's Update Gizi Volume 6 reported that stunting among children under five declined from 37.6% in 2013 to 19.8% in 2024 [1]. The same report showed that wasting declined from 12.1% to 7.4% during the same period [1]. Overweight also decreased from 11.8%

in 2013 to 3.4% in 2024, indicating improvement not only in undernutrition indicators but also in excess weight among children under five [1]. These trends suggest that Indonesia has made measurable progress in addressing several forms of child malnutrition through sustained national nutrition monitoring and policy attention.

However, progress in one indicator does not automatically mean that all forms of malnutrition have been resolved. Wasting may fluctuate because it is sensitive to short-term food insecurity, illness, poor dietary intake, and disruption in access to health and nutrition services [11], [12]. Overweight may also remain relevant because changing food environments, dietary transitions, unhealthy food availability, and reduced physical activity can influence child nutrition outcomes [11], [18]. At the same time, stunting remains important because it reflects long-term exposure to inadequate nutrition, repeated infections, poor sanitation, and broader socioeconomic constraints [15], [19]. Therefore, monitoring stunting, wasting, and overweight together is necessary to understand the broader pattern of child nutrition change in Indonesia.

The concept of a triple burden in this article refers to the simultaneous policy relevance of chronic undernutrition, acute undernutrition, and excess weight among children under five. Although these indicators do not necessarily occur in the same child, their coexistence at the population level requires integrated nutrition planning. A narrow focus on only one indicator may lead to incomplete policy interpretation because each indicator reflects a different pathway of nutritional risk [7], [8]. The double and triple burden of malnutrition has become increasingly relevant in many low- and middle-income countries where undernutrition and overweight may exist within the same population or health system [14], [18]. For this reason, descriptive trend analysis can help identify which indicators have improved strongly and which indicators still require continued attention.

This study aimed to describe trends in stunting, wasting, and overweight among Indonesian children under five from 2013 to 2024. The analysis used real secondary data from UNICEF Indonesia's Update Gizi Volume 6 and related national nutrition sources, including Riskesdas, SSGI, and SKI reports [1], [6]. The study focused on national-level trends because these data provide a useful overview of long-term progress and remaining challenges in child nutrition. By comparing the direction and magnitude of change across three indicators, this article provides a descriptive basis for discussing Indonesia's child nutrition agenda. The findings are expected to support public health discussion on integrated strategies for sustaining progress in stunting reduction while continuing to prevent wasting and overweight among children under five.

## 2. Materials and Methods

This section describes the methodological approach used to analyze trends in stunting, wasting, and overweight among Indonesian children under five from 2013 to 2024. The study relied on publicly available aggregate data and was therefore designed as a descriptive analysis rather than a causal investigation. The section explains the study design, data sources, variables, data extraction and analysis procedures, and ethical considerations. This structure ensures that the analysis is transparent and consistent with the use of secondary trend data for public health policy discussion.

### 2.1 Study Design

This study used a secondary descriptive analysis design based on aggregate national trend data. The design was selected because the objective was to describe progress and remaining challenges in child malnutrition indicators, rather than to test causal relationships or estimate individual-level determinants. A descriptive analysis is suitable when the available data are presented as national prevalence values from official reports, public nutrition updates, and national health survey summaries [1], [2]. This approach allows the study to summarize long-term patterns in child nutritional status using existing published data. Therefore, the findings are interpreted as descriptive evidence for nutrition policy discussion.

The study did not involve primary data collection, anthropometric measurement, interviews, or household-level surveys conducted by the authors. Instead, the analysis relied on secondary data that had already been collected and published by official institutions. The main source was



UNICEF Indonesia's Update Gizi Volume 6, which summarized national trends in stunting, wasting, and overweight among children under five from 2013 to 2024 [1]. Additional national sources, including Riskesdas, SSGI, and SKI reports, were used to support the interpretation of child nutrition trends [2], [6]. This design was considered appropriate because the article aimed to synthesize available evidence rather than generate new field data.

The analysis focused on three indicators: stunting, wasting, and overweight among children under five. These indicators represent different forms of malnutrition and are commonly used in global and national child nutrition monitoring [7], [8]. Stunting reflects chronic growth failure, wasting reflects acute undernutrition, and overweight reflects excess body weight relative to height [7]. Stunting and wasting represent undernutrition, while overweight reflects the growing relevance of excess weight and nutrition transition among young children [8], [11]. Examining these indicators together helps describe the multiple burden of malnutrition in Indonesia.

The descriptive design was also relevant because Indonesia has experienced simultaneous changes in undernutrition and overweight indicators over the last decade. The national trend shows that stunting and wasting have declined, while overweight has also decreased substantially among children under five [1]. However, improvements across indicators may occur at different rates and may reflect different policy challenges. For example, stunting reduction is often linked with long-term nutrition, health, sanitation, and socioeconomic interventions, while wasting may be more sensitive to acute food insecurity and illness [12], [15], [19]. Therefore, a descriptive trend design helps compare the direction and magnitude of change across these indicators.

This study should be understood as a national-level trend analysis rather than an explanatory epidemiological study. Because the data were aggregate prevalence values, the study could not examine individual risk factors, household characteristics, regional disparities, or causal pathways. The analysis also did not apply inferential statistics or regression models because the main objective was to describe observed changes across time. Nevertheless, the design provides a useful basis for discussing public health progress and policy priorities in child nutrition. In this context, secondary descriptive analysis can support evidence-based reflection on Indonesia's efforts to address the triple burden of malnutrition among children under five.

## 2.2 Data Sources

The main data source for this study was UNICEF Indonesia's *Update Gizi* Volume 6, April, June 2025. Page 1 of the bulletin presents a national trend chart titled "Status Gizi Anak Balita di Indonesia, 2013, 2024," which reports the prevalence of stunting, wasting, and overweight among children under five [1]. The chart provides a concise overview of changes in the three indicators across multiple national survey years. It also identifies the data sources used to construct the trend series, namely Riskesdas 2013 and 2018, and SSGI 2019, 2021, 2022, 2023, and 2024 [1]. Therefore, the UNICEF bulletin was used as the primary reference because it integrates official national data into a single comparable trend visualization.

Additional national documents were used to support interpretation and strengthen the credibility of the trend analysis. These included the *Survei Status Gizi Indonesia 2024 dalam Angka*, *Riset Kesehatan Dasar 2013*, *Laporan Nasional Riskesdas 2018*, the *Buku Saku Hasil Studi Status Gizi Indonesia 2021*, and the *Survei Kesehatan Indonesia 2023 dalam Angka* [2], [6]. These documents are important because they represent the official national health and nutrition survey system used to monitor child nutritional status in Indonesia. The use of these sources also helps ensure that the article is grounded in real national data rather than estimates from non-official sources. In this study, these documents were used mainly to support contextual explanation, indicator interpretation, and citation of the national nutrition monitoring framework.

Global and international references were also used to support the conceptual interpretation of the indicators. The WHO Child Growth Standards were used as the main reference for understanding anthropometric indicators such as height-for-age, weight-for-height, and body mass index-for-height among children under five [7]. The UNICEF/WHO/World Bank joint malnutrition estimates were used to place Indonesia's child malnutrition trends within the broader global nutrition monitoring context [8]. UNICEF's nutrition strategy and WHO guidance on complementary feeding were also used to support discussion on nutrition policy, prevention, and child feeding practices [9], [10]. Together,



these national and international sources provided the empirical and conceptual basis for analyzing triple burden trends among Indonesian children under five.

### 2.3 Variables and Indicator Definitions

The variables analyzed in this study were the national prevalence of stunting, wasting, and overweight among children under five. These three indicators were selected because they represent different dimensions of child nutritional status and are reported consistently in the UNICEF trend chart for 2013, 2024 [1]. Stunting and wasting were used to represent undernutrition, while overweight was used to represent excess body weight among young children [7], [8]. The use of these indicators together allows the study to describe the changing pattern of malnutrition in Indonesia more comprehensively. Therefore, the analysis did not focus only on undernutrition but also included overweight as part of the broader child nutrition agenda.

Stunting refers to low height-for-age and reflects chronic growth failure among children under five. This condition is commonly associated with long-term nutritional deprivation, repeated infections, poor sanitation, inadequate care, and broader socioeconomic constraints [7], [15], [19]. Because stunting develops over a prolonged period, it is often used as an indicator of accumulated disadvantage during early childhood. In this study, stunting was interpreted as a marker of chronic undernutrition at the population level. The prevalence values were taken from the national trend series reported in UNICEF Indonesia's *Update Gizi* Volume 6 [1].

Wasting refers to low weight-for-height and reflects acute undernutrition among children under five. Unlike stunting, wasting may change more rapidly because it is influenced by recent food deprivation, illness, infection, or disruption in health and nutrition services [7], [12]. Wasting is important because it is associated with immediate health risks and requires early detection and appropriate management. In this study, wasting was interpreted as an indicator of acute nutritional vulnerability at the national level. The trend was analyzed together with stunting to distinguish long-term growth failure from short-term nutritional stress.

Overweight refers to excess weight relative to height and indicates the presence of overnutrition among young children. This indicator is increasingly relevant in countries experiencing dietary transition, changing food environments, and increased availability of energy-dense foods [11], [18]. Although overweight is different from undernutrition, it remains part of the broader malnutrition spectrum because malnutrition includes both deficiency and excess. In this study, the term "triple burden" was used in a population-level descriptive sense to refer to the coexistence of stunting, wasting, and overweight as policy-relevant nutrition challenges. The analysis did not examine whether the same individual children experienced more than one condition because only aggregate national data were available [1].

### 2.4 Data Extraction and Analysis

Data were extracted from the UNICEF Indonesia *Update Gizi* Volume 6 trend chart titled "Status Gizi Anak Balita di Indonesia, 2013, 2024" [1]. The chart presents national prevalence values for stunting, wasting, and overweight among children under five. The years included in the analysis were 2013, 2018, 2019, 2021, 2022, 2023, and 2024. No 2020 value was included because the UNICEF chart did not present a national estimate for that year. All extracted values were treated as percentages and organized by year and indicator.

The extracted data were tabulated to allow comparison across time and across indicators. Tabulation was conducted to show how stunting, wasting, and overweight changed from the baseline year of 2013 to the most recent year of 2024. The use of a tabular format was important because it allowed the study to compare both the direction and magnitude of change. The data were then used to construct a descriptive trend interpretation for each indicator. This approach follows the study objective, which was to describe national trends rather than conduct inferential statistical testing.

Data analysis was conducted descriptively by calculating absolute and relative changes between 2013 and 2024. Absolute change was calculated as the 2024 prevalence minus the 2013 prevalence. Relative change was calculated as the absolute change divided by the 2013 prevalence and then expressed as a percentage. Negative values indicated reductions over time, while positive values would indicate increases. This calculation was used to identify which indicator



showed the greatest improvement over the observed period.

The analysis also compared the annual pattern across indicators to identify whether the decline was steady or fluctuating. Stunting was examined as a chronic undernutrition indicator, wasting as an acute undernutrition indicator, and overweight as an overnutrition indicator [7], [8], [11]. The interpretation considered both national nutrition progress and remaining public health challenges. Because the data were aggregate prevalence values, the study did not estimate associations between variables or examine individual-level risk factors. The findings were therefore presented as descriptive evidence to support policy discussion on the triple burden of malnutrition in Indonesia.

## 2.5 Ethical Considerations and Limitations

Ethical approval was not required for this study because it used publicly available aggregate data from published institutional sources. The analysis did not involve primary data collection, direct interaction with respondents, anthropometric measurement by the authors, individual-level records, personal identifiers, or household information. All data used in the study were already summarized and published by official national or international institutions [1], [6]. Therefore, the study did not pose risks related to privacy, confidentiality, or human subject protection. The analysis was conducted solely for descriptive academic and policy discussion purposes.

The first limitation of the study is that it used aggregate national prevalence values. Because the data were presented at the national level, the study could not identify individual, household, provincial, or district determinants of malnutrition. This means that the analysis cannot explain why some children experience stunting, wasting, or overweight. It also cannot examine differences by sex, age group, socioeconomic status, residence, maternal education, or region. Therefore, the findings should be interpreted as national trend evidence rather than determinant analysis.

The second limitation is related to the use of multiple survey rounds and data sources across the 2013, 2024 period. The UNICEF trend chart combines data from Riskesdas 2013 and 2018 and SSGI series from 2019, 2021, 2022, 2023, and 2024 [1]. Although these sources are official national nutrition monitoring instruments, differences in survey timing, sampling procedures, field conditions, and operational implementation may affect direct year-to-year comparability. The study did not adjust for these methodological differences because raw survey microdata were not analyzed. As a result, the trend should be interpreted cautiously as a descriptive national pattern.

The third limitation is that the study did not conduct statistical testing, uncertainty estimation, or regression modeling. The analysis was limited to tabulation, absolute change, relative change, and descriptive comparison across indicators. Despite these limitations, the data provide useful evidence for monitoring national child nutrition progress. The use of official sources strengthens the relevance of the findings for policy discussion and program planning [1], [6]. Future studies should use individual-level SSGI, SKI, or other national microdata to examine determinants, regional disparities, and program-related factors associated with stunting, wasting, and overweight among Indonesian children under five.

## 3. Results

This section presents descriptive findings on national trends in stunting, wasting, and overweight among Indonesian children under five from 2013 to 2024. The results are organized into five subsections covering the overall trend, stunting, wasting, overweight, and comparative changes across indicators. The detailed prevalence values are presented after the three indicators have been described so that the table supports the interpretation. Figure 1 is then used to visualize the direction and magnitude of change.

### 3.1 Overview of Triple Burden Trends

The national trend data show that all three child malnutrition indicators declined between 2013 and 2024. Stunting decreased from 37.6% in 2013 to 19.8% in 2024, indicating a substantial reduction in chronic undernutrition among Indonesian children under five [1]. Wasting declined from 12.1% to 7.4% during the same period, showing improvement in acute undernutrition [1]. Overweight also decreased from 11.8% in 2013 to 3.4% in 2024, suggesting progress in reducing



excess weight among young children [1]. These findings indicate that Indonesia experienced measurable improvement across both undernutrition and overnutrition indicators.

Although all indicators declined, the magnitude and pattern of improvement differed across the three forms of malnutrition. Stunting remained the highest indicator throughout the observation period, even though it showed a strong downward trend [1]. Wasting was consistently lower than stunting, but its pattern was less stable after 2021, reflecting the more dynamic nature of acute undernutrition. Overweight showed the largest relative decline, but it remained relevant because overnutrition is part of the broader malnutrition spectrum [7], [8]. This pattern suggests that progress in child nutrition has been substantial but uneven across indicators.

The trend also confirms that the burden of child malnutrition in Indonesia remains multidimensional. Stunting reflects chronic growth failure and is often associated with long-term exposure to inadequate nutrition, repeated infection, poor sanitation, and socioeconomic constraints [7], [15], [19]. Wasting reflects acute undernutrition and may be affected by recent food shortage, illness, or disruption in access to health and nutrition services [7], [12]. Overweight reflects excess body weight relative to height and is increasingly linked with dietary transition, unhealthy food environments, and changes in child feeding patterns [11], [18]. Therefore, the three indicators should be interpreted as complementary measures rather than separate or competing policy concerns.

Overall, the decline in stunting, wasting, and overweight indicates positive progress in Indonesia's child nutrition agenda. However, the continued presence of all three indicators shows that the country still faces a triple burden of malnutrition at the population level. A policy focus on only one indicator may overlook other important nutrition risks affecting children under five. National monitoring should therefore continue to track undernutrition and overnutrition together using official nutrition surveillance data [1], [2], [8]. This integrated approach can help ensure that future programs sustain stunting reduction while also preventing wasting and overweight.

### 3.2 Trend in Stunting

Stunting showed a clear downward trend across the observed period. The prevalence decreased from 37.6% in 2013 to 30.8% in 2018 and 27.7% in 2019 [1]. It then continued to decline to 24.4% in 2021, 21.6% in 2022, 21.5% in 2023, and 19.8% in 2024 [1]. The total reduction from 2013 to 2024 was 17.8 percentage points, indicating substantial progress in reducing chronic undernutrition among children under five. This trend suggests that Indonesia has made measurable gains in improving child growth outcomes over the last decade.

The reduction in stunting is important because stunting reflects long-term growth failure rather than a short-term nutritional condition. According to the WHO child growth framework, stunting is assessed using height-for-age and indicates impaired linear growth when a child is too short for their age [7]. At the population level, stunting is commonly associated with prolonged exposure to inadequate dietary intake, repeated infection, poor sanitation, and limited access to health services [14], [15], [19]. Therefore, the decline from 37.6% to 19.8% may indicate improvement in several underlying determinants of child growth. However, because this study used aggregate trend data, the analysis cannot determine which specific factors contributed most to the decline.

Despite this progress, stunting remained close to 20% in 2024. This means that a substantial proportion of children under five still experienced impaired linear growth. The persistence of stunting is important because early childhood linear growth failure is associated with long-term consequences for health, development, learning capacity, and future productivity [14], [15]. The relatively small change between 2022 and 2023 also suggests that further reduction may become more difficult as prevalence declines. Therefore, continued stunting reduction requires stronger targeting and sustained implementation of nutrition interventions.

The stunting trend shows that Indonesia should continue prioritizing interventions during the first 1,000 days of life. Maternal nutrition, breastfeeding, complementary feeding, infection prevention, sanitation improvement, and access to quality health services remain important components of stunting prevention [10], [16], [17]. National policy efforts should also continue to strengthen convergence across health, food, water, sanitation, education, and social protection sectors [13]. Since stunting reflects chronic and cumulative disadvantage, reduction efforts must be sustained over time



rather than treated as short-term programs. Thus, the decline shown in the national trend is encouraging, but continued policy commitment is still required to reduce stunting further.

### 3.3 Trend in Wasting

Wasting declined between 2013 and 2024 but showed a more fluctuating pattern than stunting. The prevalence decreased from 12.1% in 2013 to 10.2% in 2018, then fell to 7.4% in 2019 and 7.1% in 2021 [1]. However, wasting increased to 7.7% in 2022 and 8.5% in 2023 before returning to 7.4% in 2024 [1]. The total reduction from 2013 to 2024 was 4.7 percentage points, indicating improvement in acute undernutrition over the long term. Nevertheless, the year-to-year movement shows that the decline was not fully stable.

The fluctuating pattern of wasting is important because wasting reflects acute nutritional stress rather than long-term growth failure. According to the WHO child growth framework, wasting is assessed using weight-for-height and indicates that a child is too thin for their height [7]. This condition can develop rapidly when children experience recent food shortage, illness, infection, or inadequate nutrient intake [7], [12]. For this reason, wasting may be more sensitive to short-term shocks than stunting. The increase in 2022 and 2023 suggests that progress in reducing acute undernutrition can be reversed when household, food, or health conditions become less favorable.

The return of wasting to 7.4% in 2024 is encouraging, but it should not be interpreted as complete resolution of the problem. Wasting remains a serious child nutrition concern because it is associated with increased vulnerability to illness and mortality among children under five [12], [14]. Unlike stunting, which usually reflects cumulative deprivation, wasting often requires rapid identification and immediate response. Therefore, reductions in wasting depend not only on long-term nutrition improvement but also on the capacity of health services to detect and manage acute malnutrition early. This makes wasting prevention and management an essential component of child health and nutrition programming.

The wasting trend indicates that Indonesia needs to maintain strong surveillance and response systems for acute malnutrition. Key actions include regular growth monitoring, early detection of weight loss, timely referral, treatment of childhood illness, and provision of nutritional support for children at risk [12]. Preventive efforts should also address household food insecurity, quality of complementary feeding, sanitation, and access to basic health services [10], [16], [17]. Because wasting can fluctuate over time, programs should be designed to respond quickly to local shocks such as disease outbreaks, food price increases, or service disruptions. Thus, even though the national trend shows improvement, wasting requires continuous policy attention alongside stunting and overweight.

### 3.4 Trend in Overweight

Overweight showed the largest relative reduction among the three indicators. The prevalence declined from 11.8% in 2013 to 8.0% in 2018 and 4.5% in 2019 [1]. It then changed to 3.8% in 2021, 3.5% in 2022, 4.2% in 2023, and 3.4% in 2024 [1]. The total reduction from 2013 to 2024 was 8.4 percentage points. This indicates substantial improvement in reducing excess weight among children under five.

Although the decline is notable, overweight remains relevant for child nutrition policy because unhealthy food environments and dietary transitions can increase future risks. WHO emphasizes that prevention of overweight and obesity among children requires attention to diet quality, food environments, physical activity, and health services [13]. The temporary increase from 3.5% in 2022 to 4.2% in 2023 also suggests that overweight should continue to be monitored. Therefore, child nutrition policies should not focus only on undernutrition but should also prevent excess weight gain.

The detailed national prevalence values for stunting, wasting, and overweight are presented in Table 1. The table confirms that all three indicators declined between 2013 and 2024, but their trajectories differed across the period. Stunting showed a steady decline, wasting fluctuated after 2021, and overweight decreased strongly with a small increase in 2023. This tabulated pattern provides the empirical basis for the comparative analysis in the next subsection.



Table 1. National prevalence of stunting, wasting, and overweight among children under five in Indonesia, 2013-2024

| Year | Stunting (%) | Wasting (%) | Overweight (%) |
|------|--------------|-------------|----------------|
| 2013 | 37.6         | 12.1        | 11.8           |
| 2018 | 30.8         | 10.2        | 8.0            |
| 2019 | 27.7         | 7.4         | 4.5            |
| 2021 | 24.4         | 7.1         | 3.8            |
| 2022 | 21.6         | 7.7         | 3.5            |
| 2023 | 21.5         | 8.5         | 4.2            |
| 2024 | 19.8         | 7.4         | 3.4            |

### 3.5 Comparative Changes across Indicators

To compare the magnitude of progress, Table 2 summarizes absolute and relative changes between 2013 and 2024. Stunting declined by 17.8 percentage points, wasting declined by 4.7 percentage points, and overweight declined by 8.4 percentage points [1]. In relative terms, overweight showed the largest reduction, followed by stunting and wasting. This means that the indicator with the largest absolute decline was stunting, while the indicator with the largest proportional decline was overweight.

Table 2. Absolute and relative changes in child nutrition indicators, 2013-2024 [1]

| Indicator  | 2013 (%) | 2024 (%) | Absolute change (pp) | Relative change (%) |
|------------|----------|----------|----------------------|---------------------|
| Stunting   | 37.6     | 19.8     | -17.8                | -47.3               |
| Wasting    | 12.1     | 7.4      | -4.7                 | -38.8               |
| Overweight | 11.8     | 3.4      | -8.4                 | -71.2               |

Figure 1 visualizes the different trajectories of the three indicators. The figure shows a strong downward trend for stunting, a fluctuating but lower trend for wasting, and a substantial decline in overweight. The visual pattern reinforces the finding that Indonesia's progress in child nutrition has been multidimensional but uneven. It also shows why national monitoring should continue to include indicators of both undernutrition and overnutrition.

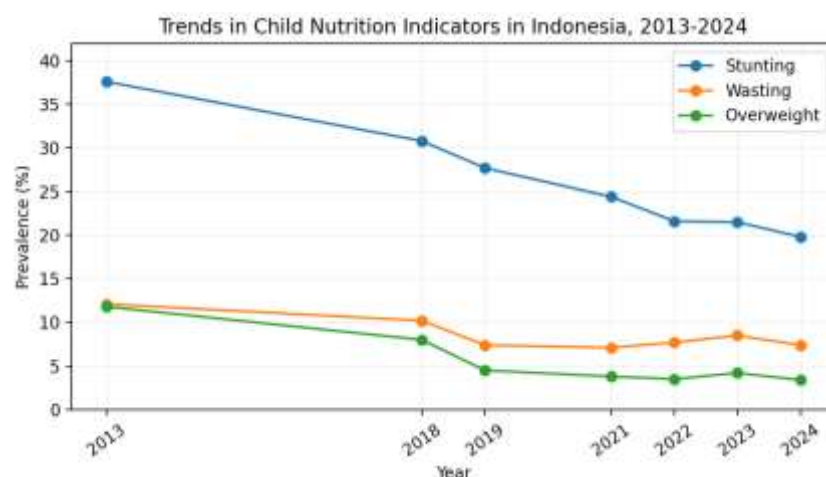


Figure 1. Trends in stunting, wasting, and overweight among Indonesian children under five, 2013-2024

Table 3. Summary of 2024 nutritional status indicators among children under five

| Indicator  | 2024 prevalence (%) | Interpretation                                                          |
|------------|---------------------|-------------------------------------------------------------------------|
| Stunting   | 19.8                | Chronic undernutrition remains an important public health issue         |
| Wasting    | 7.4                 | Acute undernutrition remains present and requires continuous monitoring |
| Overweight | 3.4                 | Excess weight is lower but should remain part of nutrition surveillance |

Table 3 summarizes the 2024 situation. Stunting remained the highest indicator at 19.8%, while wasting was 7.4% and overweight was 3.4% [1]. These values show that the burden of undernutrition remained more prominent than overweight in 2024. However, the continued presence of all three indicators supports the need for a comprehensive child nutrition strategy. Therefore, future policy should sustain stunting reduction while preventing both acute malnutrition and unhealthy weight gain.

#### 4. Discussion

The findings show that Indonesia achieved substantial progress in reducing multiple forms of child malnutrition between 2013 and 2024. Stunting declined by 17.8 percentage points, wasting declined by 4.7 percentage points, and overweight declined by 8.4 percentage points [1]. This pattern indicates that national child nutrition outcomes improved across both undernutrition and overnutrition indicators. The progress is consistent with global and national emphasis on early-life nutrition, maternal and child health services, and multisectoral nutrition action [9], [10], [17]. However, the remaining prevalence of stunting and wasting indicates that child malnutrition has not been fully resolved.

Stunting remained the most prominent indicator throughout the observed period. Although the decline from 37.6% to 19.8% is substantial, the 2024 value still indicates that many children continue to experience chronic growth failure [1]. Stunting is influenced by multiple determinants, including poor dietary intake, repeated infection, inadequate sanitation, maternal factors, and socioeconomic disadvantage [14], [19]. Therefore, further reductions will require continued investment in nutrition-specific and nutrition-sensitive interventions. These include maternal nutrition, complementary feeding, sanitation, health service access, and poverty-sensitive social support [10], [17].

Wasting showed improvement but fluctuated after 2021. This pattern suggests that acute undernutrition may respond more rapidly to short-term shocks than stunting. Wasting can increase when children experience illness, inadequate food intake, or limited access to timely health and nutrition services [7], [12]. The increase in 2022 and 2023 followed by a decrease in 2024 indicates that wasting prevention requires continuous monitoring rather than periodic intervention. Strengthening growth monitoring, early detection, referral, and treatment of acute malnutrition remains essential [12].

The decline in overweight is also important because it shows improvement in an indicator related to excess weight. However, the persistence of overweight, even at a lower level, indicates that Indonesia should continue to address food environments and dietary quality among young children. Prevention of child overweight requires attention to healthy feeding practices, reduced exposure to unhealthy foods and beverages, and supportive household and community environments [13], [18]. In this sense, child nutrition policy should not separate undernutrition and overweight as unrelated problems. Both should be addressed within a broader strategy for healthy growth.

The study also highlights the value of using secondary national trend data for public health monitoring. Aggregate trend analysis helps show progress and identify remaining challenges, but it cannot explain causal mechanisms or individual-level determinants. Differences across survey years may also reflect differences in survey design, timing, and measurement context. Future research should use SSGI or SKI microdata to examine regional, socioeconomic, dietary, and service-related determinants of stunting, wasting, and overweight [2], [6]. Such analysis would help identify priority groups and support more targeted nutrition interventions.

#### 5. Conclusions

Indonesia made important progress in reducing the triple burden of malnutrition among children under five between 2013 and 2024. Stunting declined from 37.6% in 2013 to 19.8% in 2024, wasting declined from 12.1% to 7.4%, and overweight declined from 11.8% to 3.4% [1]. These findings show that national child nutrition outcomes improved across multiple indicators, including chronic undernutrition, acute undernutrition, and excess body weight. The decline is consistent with



broader national efforts to strengthen nutrition surveillance, maternal and child health services, and child nutrition programs [2], [13]. However, progress was uneven across indicators and did not eliminate the remaining burden of malnutrition among Indonesian children under five.

Stunting remained the highest indicator in 2024, indicating that chronic undernutrition continues to require sustained policy attention. This is important because stunting reflects long-term growth failure and is associated with inadequate nutrition, repeated infection, poor sanitation, and broader socioeconomic constraints [7], [15], [19]. Wasting declined over the long term but fluctuated during the observed period, showing that acute undernutrition remains vulnerable to short-term shocks such as illness, food insecurity, and disruption in health service access [7], [12]. Overweight declined substantially, but it should remain part of nutrition surveillance because dietary transitions, unhealthy food environments, and changes in child feeding patterns can affect future child health [11], [18]. Therefore, national monitoring should continue to include undernutrition and overnutrition indicators together.

The findings support the need for integrated child nutrition programs. Continued stunting reduction should be combined with stronger prevention and management of wasting and sustained prevention of unhealthy weight gain. Priority actions include improved maternal nutrition, high-quality complementary feeding, growth monitoring, management of childhood illness, healthy food environments, sanitation improvement, and protection of vulnerable households [10], [12], [16], [17]. These actions are important because different forms of malnutrition may have different immediate causes but often share overlapping social, dietary, health, and environmental determinants [14], [18]. Therefore, integrated interventions should be guided by reliable national and local data to ensure that program priorities match the specific nutrition problems faced by children.

Because this study used aggregate secondary data, the findings should be interpreted as descriptive trends rather than causal evidence. The analysis could not identify individual, household, provincial, or district determinants of stunting, wasting, and overweight. Future studies should use individual-level SSGI or SKI microdata to examine determinants of child malnutrition in greater detail [2], [6]. Province- and district-level analysis would also help identify areas where interventions should be prioritized and where multiple forms of malnutrition coexist. A broader evidence-based approach can help Indonesia sustain progress, reduce remaining nutrition inequalities, and accelerate improvement in child health outcomes.

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