



(REVIEW ARTICLE)



## The incidence of *stunting* based on gender in Indonesia: A literature review

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### Abstract

**Background:** Stunting is a chronic malnutrition issue caused by insufficient nutritional intake over a prolonged period, resulting in growth disturbances in children, such as a height that is shorter than the standard for their age. Stunting is always preceded by weight faltering, which refers to inadequate weight gain when compared to the standard weight gain for age and sex. Other factors associated with the occurrence of stunting include exclusive breastfeeding, the age at which complementary feeding (MP-ASI) is introduced, the child's age, parenting practices, and gender. One study indicates that in Indonesia, boys are at a much higher risk of stunting than girls. Another study states that it is difficult to draw conclusions about whether girls or boys are more at risk of stunting, as the prevalence of stunting is equally high in both genders. This difference in opinions is what led the author to be interested in conducting this research.

**Objective:** The aim of this study is to understand why gender is associated with the occurrence of stunting.

**Method:** The results of this literature review are based on observations from various journals that meet the inclusion criteria.

**Conclusion:** Based on the results observed, it was concluded that boys are more likely to experience stunting than girls.

**Keywords:** Stunting; Gender; Boys; Girls; *Weight Faltering*

### 1. Introduction

**Stunting** is a chronic malnutrition problem caused by insufficient nutritional intake over a prolonged period, leading to growth disturbances in children, such as having a height shorter than the standard for their age (Ministry of Health, 2018) [7]. Stunting can occur as early as the first 1000 Days of Life, which begins in the womb and continues until the child is born (Schmidt. C., W, 2014) [11]. The first 1000 days are referred to as the "golden age" because during this period, brain and other organ development occurs very rapidly (Martorell, R, 2017) [10]. Stunting is always preceded by weight faltering, which refers to insufficient weight gain when compared to the standard weight gain for age and sex (Ministry of Health, 2022) [6]. In addition to weight faltering, there are several other factors associated with stunting, including exclusive breastfeeding, the age at which complementary feeding (MP-ASI) is introduced, the child's age, parenting practices, and gender (Aridiyah *et al.*, 2015) [1]. A study conducted by Torlesse *et al.*, (2016) [14] found that in Indonesia, boys are at much higher risk of stunting than girls. Another study by Gusnedi *et al.*, (2023) [5] concluded that it is difficult to determine whether girls or boys are more at risk of stunting because the prevalence is similarly high in both genders.

The explanation of why gender is associated with the occurrence of stunting, along with differing opinions on the matter, is what motivated the author to conduct this study.

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## 2. Material and Methods

This literature review is based on observations from various journals that meet the inclusion criteria. The inclusion criteria for this literature review are studies published between 2014 and 2024, obtained from journals discussing the gender of patients experiencing stunting and the factors contributing to stunting in general. In the process of searching for studies that meet the inclusion criteria, the author searches for various research with titles "stunting," "relationship between stunting and gender," and "factors causing stunting." The literature search was conducted by looking for relevant journals or online databases that fit the inclusion criteria on Google Scholar, PubMed, or BMC Pediatrics.

## 3. Results and discussion

### 3.1. Stunting

#### 3.1.1. Diagnosa of Stunting

The assessment of stunting nutritional status can be determined through anthropometric measurements of height-for-age (H/A) or length-for-age (L/A), which can be seen on the Z-score. A child is considered to be stunted if the Z-score value is  $<-2$  standard deviations (Vonaesch *et al.*, 2017) [15].

#### 3.1.2. Etiologi of Stunting

Stunting is always preceded by weight faltering, which refers to inadequate weight gain when compared to the standard weight gain for age and gender (Ministry of Health, 2022) [6].

#### 3.1.3. Assessment of Weight Faltering

There is a minimum standard for weight gain in children under the age of 2, which can be seen on the Growth Monitoring Chart (KMS) in the Maternal and Child Health (KIA) book, used by healthcare providers to monitor the child's weight growth every month. The result of calculating the difference in weight each month that does not meet the minimal weight gain (MWG) in several measurements is an indication of weight faltering (Chionardes *et al.*, 2017) [4].

**Table 1** Minimal Weight Gain in Boys Aged 0-24 Months

Age	Minimal Weight Gain
1 months old	800 gram
2 months old	900 gram
3 months old	800 gram
4 months old	600 gram
5 months old	500 gram
6 to 7 months old	400 gram
8 to 11 months old	300 gram
12 to 24 months old	200 gram

Source: KIA Book, Ministry of Health

**Table 1** Minimal Weight Gain in Girls Aged 0-24 Months

Age	Minimal Weight Gain
1 months old	800 gram
2 months old	900 gram
3 months old	800 gram
4 months old	600 gram

5 months old	500 gram
6 months old	400 gram
7 to 10 months old	300 gram
11 to 24 months old	200 gram

Source: KIA Book, Ministry of Health

### 3.2. Gender of Children Experiencing Stunting

In addition to weight faltering, there are several other factors associated with the occurrence of stunting, including exclusive breastfeeding, the age at which complementary feeding (MP-ASI) is introduced, the child's age, parenting practices, and gender (Aridiyah *et al.*, 2015) [1].

A study conducted by Yuningsih *et al.*, (2022) [16] showed that the majority of children experiencing stunting, whether with short or very short stature, were boys. This finding is in line with the research by Torlesse *et al.*, (2016) [14], which stated that in Indonesia, boys are at a much higher risk of stunting compared to girls. Similar results were also reported by Sekarini (2022) [12], who stated that the incidence of stunting in boys is higher than in girls, although there was no correlation between gender and stunting in the Kepanjen Health Center, Malang Regency.

A similar statement was made by Bork *et al.*, (2017) [3], where the study explains that in developing countries, boys are generally more vulnerable to stunting than girls, although the mechanism behind this phenomenon is not yet fully understood. Furthermore, a study in Semarang City explained that the number of boys affected by stunting is higher compared to girls, but there is no direct correlation between the two (Setyawati, 2018) [13]. This may be due to differences in nutritional needs and the variety of foods provided to boys and girls. This statement suggests that boys have a higher likelihood of experiencing stunting compared to girls (Asfaw *et al.*, 2015) [2]. A similar reason can also be found in a study conducted by Larasati (2017) [9], which states that gender determines an individual's nutritional needs. A male requires more energy and protein to meet his nutritional needs compared to a female.

The study described above is somewhat different from the research conducted by Gusnedi *et al.*, (2023) [5] on the relationship between children's gender and the occurrence of stunting. The study stated that it is difficult to draw a conclusion about whether girls or boys are more at risk of stunting because the prevalence is equally high in both genders.

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## 4. Conclusion

From several journals that have been reviewed, the conclusion was drawn that the majority of children experiencing stunting are more likely to be boys than girls. This view is somewhat different from the author's perspective, where the author believes that gender is not related to the occurrence of stunting. Stunting is a chronic malnutrition problem caused by inadequate nutrition intake over a prolonged period, either during pregnancy or after birth, and this is not related to gender. It is hoped that this writing can broaden readers' understanding and awareness of the importance of proper nutrition, especially during the child's growth period in the first 1000 days of life, along with early detection of inadequate weight gain to prevent stunting.

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## Compliance with ethical standards

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### *Disclosure of Conflict of interest*

No conflicts of interest to be disclosed.

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