

## Analysis of the Influence of Environmental Health Workers on Stunting Incidence

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DOI: <https://doi.org/10.52060/hmaps.v2i2.2611>

### ABSTRAK

Tenaga kesehatan lingkungan berperan penting dalam faktor lingkungan yang dapat mempengaruhi kesehatan, seperti air bersih, sanitasi, udara bersih, dan pengelolaan sampah. Penelitian ini bertujuan untuk melakukan telaah sistematis guna mengetahui dampak tenaga kesehatan lingkungan terhadap kejadian stunting. Artikel lengkap yang mencakup studi observasional (cross-sectional, cohort, dan case-control) yang diterbitkan antara tahun 2012 dan 2024 akan disertakan. Pengumpulan data artikel dilakukan dengan mencari artikel dalam basis data pencarian Google Scholar, PubMed, dan Science Direct. Data yang relevan tentang peran tenaga kesehatan lingkungan dan kejadian stunting akan diekstraksi, disajikan secara sistematis, dan dianalisis untuk mengidentifikasi pola atau hubungan. Penelitian ini menunjukkan adanya hubungan yang signifikan antara peran tenaga kesehatan lingkungan dengan kejadian stunting pada anak. Dapat disimpulkan bahwa ada pengaruh tenaga kesehatan lingkungan terhadap kejadian stunting.

**Kata Kunci :** Stunting, Petugas Kesehatan Lingkungan, Pencegahan, Kesehatan Masyarakat

### ABSTRACT

Environmental health workers play an important role in environmental factors that can affect health, such as clean water, sanitation, clean air, and waste management. This study aims to conduct a systematic review to investigate the impact of environmental health workers on stunting incidence. Full articles covering observational studies (cross-sectional, cohort, and case-control) published between 2012 and 2024 will be included. Article data collection was carried out by searching for articles in the Google Scholar, PubMed, and Science Direct search databases. Relevant data on the role of environmental health workers and stunting incidence will be extracted, presented systematically, and analyzed to identify patterns or relationships. This study showed there is a significant relationship between the role of environmental health workers and the incidence of stunting in children. It's can be conclude that the influence of environmental health workers on the incidence of stunting.

**Keywords:** Stunting, Environmental Health Officer, Prevention, Public Health

## BACKGROUND

Stunting, a serious public health problem in Indonesia, is a condition in which a child's physical growth is stunted so that their height does not reach their genetic potential. The high prevalence of stunting in Indonesia is a serious concern because its impacts can last a lifetime, including decreased quality of life, cognitive limitations, and the risk of chronic diseases later in life. Provinces such as Jambi, which often have inadequate sanitation and environmental hygiene conditions, tend to have higher stunting rates. In an effort to overcome the problem of stunting, the role of environmental health officers or sanitation workers is becoming increasingly important. They are responsible for improving environmental sanitation and hygiene, as well as educating the community about the importance of clean and healthy living behaviors. However, despite their crucial role, there has not been much research that specifically analyzes the impact of interventions carried out by environmental health officers on the incidence of stunting, especially at the local level, such as Jambi Province (Minahasa, K. 2017).

Stunting, or dwarfism, is a condition of growth failure in children due to inadequate nutrition and care from pregnancy to the age of two. In Indonesia, the problem of stunting has become a serious health issue. According to data from the Indonesian Ministry of Health and the Central Statistics Agency, the prevalence of stunting in Indonesia is quite high. In 2018, the prevalence of stunting in Indonesia was around 30.8%, meaning that almost one in three children under the age of five is stunted. Although there has been a decrease from the previous year, this figure is still above the regional average in Southeast Asia. The causes of stunting are complex and include poor nutrition, inadequate access to clean water and sanitation, inappropriate feeding practices, and socio-economic factors such as poverty and lack of education. The impact of stunting on children's physical and cognitive development can have long-term impacts on their learning ability, productivity, and health as adults (Hutasoit, M., et al., 2020).

The Indonesian government has taken steps to address the problem of stunting, including supplementary feeding programs, nutrition education, increasing access to clean water and sanitation, and promoting good feeding for pregnant women and toddlers. However, efforts to reduce the prevalence of stunting require cross-sectoral collaboration and support from various parties, including the government, community, and private sector.

According to nutrition practitioner of Jambi Provincial Health Office, Fery T. Sihotang, today, the stunting rate in Jambi Province in the last two years has continued to decline. From the results of the 2021 Indonesian Nutritional Status Survey (SSGI) study, the stunting rate in Jambi Province reached 21.8 percent, and the results of the 2022 SSGI showed that the stunting rate fell to 18 percent. Fery explained that the results of the 2023 survey have not yet been released, but it is hoped that the figure will be at 14 percent. Meanwhile, in 2024 the stunting rate is targeted at 12 percent or below the national figure. Reducing stunting rates is one indicator of the success of the regional government. And the 2024 target is 12 percent. To achieve this target, even harder efforts are needed in preventing and overcoming stunting. Efforts to reduce stunting are carried out through two nutritional interventions, namely specific interventions and sensitive interventions. Specific interventions are activities that directly address the causes of stunting and are generally provided by the health sector, including through food intake, infection prevention, maternal nutritional status, infectious diseases, and environmental health. Meanwhile, sensitive interventions are activities related to indirect causes of stunting that are generally outside the authority of the Ministry of Health. In addressing nutritional problems, sensitive interventions contribute 70 percent. While specific interventions cover around 30 percent.

The Bungo Regency Stunting Rate in 2023 has successfully decreased to 15.4 percent from the previous stunting rate of 22 percent. This was stated by the Deputy Regent of Bungo after attending the Regional Working Meeting of the Bangsa Kencana Program and the Acceleration of Stunting Reduction (PPS) of Jambi Province in 2023, which took place at the Aston Hotel, Jambi City. Deputy Regent of Bungo, Syafrudin Dwi Apriyanto, said that the reduction in stunting rates in Bungo Regency was the role of all parties, not only OPD, but Muara Bungo Regency prioritized the principle of collaboration by involving Forkompinda, community leaders, and traditional leaders, not only the Stunting Reduction Acceleration Team (TPPS). The Deputy Regent for two terms said that the Bungo Regency community also understood the dangers of stunting so that the Bungo Regency Government was able to reduce the stunting rate (Sumarni, D., et al., 2022). Thus, this study aims to conduct a comprehensive analysis of the influence of environmental health workers on stunting incidents, focusing on the context of Jambi Province, Indonesia. Through a deeper understanding of the factors that influence the relationship between environmental health worker actions and stunting incidents, it is hoped that this study can provide valuable insights for the development of more effective policies and intervention programs in

addressing stunting problems at the local level.

## METHOD

### 1. Research Design

This study uses a systematic review design. The articles used in this study are articles that have been published from 2012-2024 and obtained from Google Scholar, PubMed, Science Direct, PLOS One, EBSCO, and ProQuest. Those used in searching for articles are stunting, environmental health workers, prevention, and public health. The study was conducted in March-May 2024.

### 2. Population and Sample

The articles used in this study are article texts with observational study designs (cross-sectional, cohort, and case control) published from 2012 to 2024. The selected articles are articles that use Indonesian and English that discuss the impact of the influence of environmental health workers on stunting. The final results of the study are the influence of environmental health workers on stunting. The final results of the study are reported descriptively.

### 3. Research Variables

The dependent variable in this study is the incidence of stunting, and the independent variable in this study is health workers.

### 4. Operational Definition

- a. **Stunting** is a chronic malnutrition problem caused by insufficient nutritional intake for a long time due to the provision of food that does not meet nutritional needs. Stunting can occur from when the fetus is still in the womb and only appears when the child is two years old (Ministry of Health of the Republic of Indonesia, 2016).
- b. **Health workers** are anyone who devotes themselves to the health sector and has a professional attitude, knowledge, and/or skills through higher education, which for certain types requires the authority to carry out health efforts (Law No. 36 of 2014).

## RESULT

Search for articles related to the influence of environmental health workers on stunting incidence using Stunting, Environmental Health Workers, Prevention, and Public Health. Bringing up 7151 articles on Google Scholar, PubMed, Science Direct, PLOS One, EBSCO, and ProQuest. The articles were then selected according to the inclusion criteria, namely: the influence of environmental health workers on stunting incidence, using an observational

study design (cohort, cross-sectional, case control), discussing the influence of health workers, and having outcomes on stunting incidence. 13 articles were found that met these criteria.

**Table 1. Selected Articles for Systematic Review**

<b>Authors (Year)</b>	<b>Title</b>	<b>Research Method</b>	<b>Results</b>
Wela Fitriana et al (2023)	Survey Indicate Factor Relationship In Stunting Reduction	Cross Sectional Study	There is a relationship between health service programs and efforts to prevent stunting in toddlers.
Deasy Sumarni et al (2022)	The Relationship Between Sanitation Facilities, Occupant Behavior, and Handwashing Habits with Soap (CTPS) by Mothers with Short Events (Stunting) in Toddlers Aged 6-24 Months in the Harapan Baru Health Center Work Area,	Case Control Study	There are several characteristic factors of cadres who know and understand Stunting 5 through identification of several categories of statements, namely problems during pregnancy and active participation in Posyandu activities for toddlers.
Fifi Dwijayanti et al (2016)	Prenatal Factors of Sanitation Workers on the Incidence of Stunting in Children Aged 6-24 Months	Case Control Study	Efforts to accelerate the improvement of prenatal factors is still lacking.
YK Alim et al (2018)	Pesticides as a Risk Factor for Stunting in Children Aged 2-5 Years in Agricultural Areas	Case Control Study	Support from health workers is still lacking in preventing stunting in the agricultural sector.
Nisa Nugraheni et al (2023)	Potential Association Of Sanitation Factors On Stunting Incidences Among Children 2023 Under Age 5 In Bali Province Indonesia Tahun 2023	Case Control Study	The role of integrated health post cadres is a vital part in increasing participation in improving nutrition in children under 5 years.
Lis Vizianti. (2022)	Improved Sanitation Is Associated With Posyandu on Stunting Amongst Indonesian Children Under 3	Cross Sectional Study	Posyandu plays a role in preventing stunting

	Years Of Age Tahun 2022		
Ginna Megawati et al (2019)	The Role Of Improving posyandu cadres, Sanitation, Management In Reducing Childhood Stunting In Indonesia Tahun 2019	Cross Sectional Study	Training to increase the capacity of Posyandu cadres as nutrition-aware cadres is one of the activities in a series of community service activities integrated with KKNM Unpad.
Sri Astuti et al (2018)	Impact of Promotion of Stunting Prevention Related to Integrated Card Media in 2018	Cross Sectional Study	Promotion of stunting prevention using integrating card media for integrated health post cadres
Irma Afifa (2019)	The influence of Posyandu cadres in increasing participation in improving nutrition for mothers and toddlers 2019	Cross Sectional Study	The role of integrated health post cadres is a vital part in increasing participation in improving nutrition for mothers and toddlers.

## DISCUSSION

Stunting is a shorter height compared to the height of other people of the same age. Stunting is one of the nutritional problems due to chronic malnutrition. This is confirmed by the TB/U indicator with a Z-score value (Z-score) of <-2. Environmental health is one of the risk factors for stunting in toddlers, which is a health problem in Indonesia. The environmental health factors that cause stunting were analyzed in this study, namely drinking water sources, physical quality of drinking water, drinking water treatment, toilet ownership, waste management, waste treatment, and hand washing habits (Astuti, S. 2018). Health workers in the context of stunting are health professionals who are involved in efforts to prevent, detect, and treat stunting problems. Stunting itself is a condition of growth failure in children due to chronic malnutrition during early growth. Health workers involved in overcoming stunting can include:

- a. General Practitioners or Pediatricians: They are responsible for examining and diagnosing children who experience stunting. They also provide advice and treatment as needed.
- b. Nutritionists: Nutritionists provide consultation and guidance on healthy and nutritious diets to prevent and overcome stunting. They can also provide nutritional supplements if needed.

- c. Nurses: Nurses assist in monitoring child growth regularly, administering vaccinations, and educating parents or guardians about healthy child care.
- d. Midwives: Midwives play an important role in providing care to pregnant and postpartum women, as well as providing counseling on the importance of adequate nutrition during pregnancy and breastfeeding.
- e. Community Health Workers: They are involved in educating the community about the importance of adequate nutrition for children and pregnant women, as well as in organizing public health programs to prevent stunting. The main tasks of health workers in handling stunting include diagnosing stunting in childrens are:
  - 1) Providing necessary medical care and suggesting appropriate nutritional treatment programs.
  - 2) Providing counseling and education to parents or guardians about the importance of good nutrition during a child's growth period.
  - 3) Conducting regular monitoring of child growth.
  - 4) Organizing public health programs aimed at preventing stunting.
  - 5) Coordinate with various related parties to improve efforts to prevent and handle stunting.

The role of environmental health workers is very important in preventing stunting. A clean and healthy environment has a direct impact on children's health, including preventing stunting. Here are some of the influences of environmental health workers on stunting:

- a. Clean Water Management: Environmental health workers are responsible for ensuring an adequate and safe supply of clean water for consumption by the community. Clean water that is available in sufficient quantities and is clean will help prevent diseases that can cause malnutrition and stunting in children.
- b. Environmental Sanitation: Environmental health workers work to ensure adequate sanitation facilities, such as proper latrines and good waste management. Poor sanitation can increase the risk of infection and disease, which in turn can lead to stunting.
- c. Eradication of Communicable Diseases: Environmental health workers are involved in programs to eradicate infectious diseases that can affect the nutritional status of children. Diseases such as diarrhea, respiratory infections, and parasites can interfere with the absorption of nutrients and growth of children, thereby exacerbating the risk of stunting.
- d. Community Empowerment: Environmental health workers also have a role in empowering

communities to adopt healthy sanitation practices and keep their environment clean. By providing education and training on the importance of sanitation and environmental hygiene, they can help communities reduce the risk of stunting.

- e. Surveillance and Intervention: Environmental health workers are also involved in monitoring and surveillance of environmental conditions that have the potential to affect children's health. They can detect potential environmental risks that can contribute to stunting and provide timely interventions. Overall, environmental health workers have a very important role in creating an environment that supports the healthy growth and development of children, as well as in preventing stunting by ensuring access to clean water, good sanitation, and eradication of infectious diseases.

Some other factors that contribute to stunting include: Diet and Nutrition: Inadequate nutritional intake, lack of food variety, and deficiencies in nutrients such as protein, iron, and vitamins can cause stunting. Access to Health Services: In addition to health workers, limited access to basic health services such as routine health checks, immunizations, and treatment of infectious diseases can also contribute to stunting. Environmental Hygiene: Poor sanitation, limited access to clean water, and poor hygiene can increase the risk of infection, which in turn can hinder children's growth. Child Care Practices: Ineffective child care practices, such as lack of exclusive breastfeeding, lack of monitoring of child growth, and lack of developmental stimulation, can result in stunted growth. Economic Factors: Economic instability, poverty, and inability to meet basic needs such as food, health care, and education can also be risk factors for stunting. Access to Education and Knowledge: Lack of knowledge about proper nutrition, good child care practices, and the importance of child developmental stimulation can also influence the incidence of stunting. Genetic Factors: Genetic factors can also play a role in child growth, although their influence may not be as great as environmental and social factors. Growth During Pregnancy: Maternal health conditions during pregnancy, nutrition during pregnancy, and access to antenatal care also influence fetal growth and the risk of stunting in children. It is important to understand that stunting is the result of a complex interaction between these factors, and efforts to prevent it require a holistic approach involving various sectors and stakeholders (I., Batubara 2018).

Efforts to prevent stunting involve a series of holistic and integrated interventions, covering various sectors and stakeholders. Some preventive measures that can be taken include:



- a. Improving Access and Quality of Nutrition: Ensuring adequate access to nutritious food and food variety and promoting the practice of exclusive breastfeeding for the first six months of a baby's life.
- b. Improving Access to Health Services: Improving access and quality of basic health services, including antenatal care for pregnant women, infant and child health checks, and immunization. With a comprehensive and coordinated approach, it is hoped that stunting prevention efforts can succeed in reducing the prevalence of stunting and improving children's welfare.

### AUTHOR CONTRIBUTIONS

Nadiatul Husna is the main researcher who plays a role in collecting research data, formulating research articles, and processing data. Shahrudin Mohd Sham plays a role in the procedures for writing journals and discussing research.

### CONFLICT OF INTERESTS

There is no conflict of interest in this study.

### ACKNOWLEDGMENTS

Thank you to all parties who have contributed and supported the smooth writing of this review literature.

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