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Analysis of Factors Associated with the Incidence of Stunting in Toddlers: Factor Analysis of Family Support, Health Worker Support, Insurance Participation, and Income

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Abstract

Indonesia shows a high stunting rate among middle-income countries, with the World Health Organization reporting in 2020 that 149.2 million children under five worldwide (22%) experienced stunting, and Southeast Asia contributing 30.01%. Indonesia ranks third in Southeast Asia for stunting, with an average rate of 36.4% from 2005 to 2017. In 2023, South Kalimantan reported a stunting prevalence of 24.6%, and the Liang Anggang health facility showed the highest incidence in Banjarbaru City at 20.75%, underscoring a substantial occurrence of short and very short newborns. This study conducts a bibliometric analysis of literature from 2019 to 2024 on stunting risk factors among children under five. Using Google Scholar and the Garuda Portal, relevant articles were collected and analyzed for type, citation count, origin, publisher, and year. Findings underscore several prominent risk factors, including family support, health worker assistance, insurance coverage, and income level. Four articles met the inclusion criteria and were evaluated with the Critical Appraisal Approach, focusing on stunting prevalence in toddlers; of these, two examined family support, three highlighted health worker support, and two investigated insurance's impact on stunting. All articles indicate a strong correlation between household income and stunting prevalence, suggesting low-income families are particularly vulnerable. The study recommends that Puskesmas provide comprehensive education on stunting prevention, especially targeting low-income families.

Introduction

Indonesia exhibits a significant frequency of stunting relative to other middle-income nations. If unaddressed, this condition may adversely impact Indonesia's developmental performance regarding economic growth, poverty, and inequality.

In 2020, the World Health Organisation reported that 149.2 million children under five years old, representing 22% of all children, experienced stunting globally, with 30.01% of this population located in Southeast Asia. National statistics from the 2023 Indonesian Nutrition Status Survey (SSGI) indicated that Indonesia's stunting rate reduced from 24.4% in 2022 to 21.6%, a reduction of 2.8% (Azarine et al., 2023). Although there has been a decrease in prevalence over the last two years, the central government continues to prioritise the reduction of stunting prevalence as a strategic initiative in the 2020-2024 Medium-Term Development Plan, aiming to enhance public health and nutrition with a target of achieving a stunting prevalence of 14% by 2024 (Sari et al., 2023).

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The Indonesian Nutrition Status Survey (SSGI) indicates that the prevalence of stunting (very short + short) in South Kalimantan Province was 24.6% in 2023. The highest prevalence of stunting (very short + short) is found in Hulu Sungai Utara District at 20.3%, followed by Banjar District at 19.7%, and Balangan District in third place at 17.8%. Banjarbaru City had a rate of 13.94% in 2023, ranking fourth in South Kalimantan (Sari & Zelharsandy, 2022).

The implementation of stunting may more effectively mitigate the effects of stunting. Stunting denotes the condition of children who are disproportionately short for their age. It delineates chronic malnutrition resulting from inadequate nutritional quality in utero, throughout infancy, and/or owing to infection or illness. Stunting is a significant problem due to its long-term consequences, which inhibit children from achieving optimal growth, result in diminished cognitive capacities, and increase susceptibility to illness (Palowa et al., 2023).

The immediate effects of stunting encompass heightened susceptibility to illness and mortality, diminished child development, and impaired performance and learning ability during childhood. The long-term consequences of stunting encompass diminished social and economic standing, decreased productivity that may impede economic progress, heightened poverty and inequality, greater susceptibility to infections, metabolic disorders, and degenerative illnesses, as well as reduced productivity in adulthood (Nurva & Maharani, 2023).

Multiple theories pertain to the utilisation of health services concerning the prevalence of stunting in toddlers. According to Andersen's theory, these factors include predisposing elements such as demographics, social structure, and belief systems; enabling factors encompassing family resources (support), community resources, health worker assistance, and organisational models (insurance membership); and need factors involving individual assessments and clinical diagnoses (Pemerintah RI, 2010). Dever's theory encompasses socio-cultural and organisational factors, including the availability of health services, geographic accessibility, social affordability, characteristics of service structure, sociodemographic and socioeconomic factors (income), sociopsychological aspects, and provider-related elements (Nurmalasari et al., 2020).

Stunting needs special attention because it can increase the risk of child mortality, as well as hamper children's physical and mental development. Stunting can result in children not being able to reach their genetic potential, indicating long-term events and the impact of inadequate nutrient consumption, health conditions and inadequate care (Mujadillah & Alnur, 2024). The policy on reducing stunting issued by the government is expected to be able to overcome the problem of stunting, but in fact the stunting rate is still high or it can be said that it has not decreased steadily in the last ten years (Bukit et al., 2021).

Based on the above background, researchers are interested in identifying and analysing factors related to the incidence of stunting in toddlers based on the results of the literature review.

Methods

Research publications on the examination of toddler stunting incidence are gathered and examined using this approach. The approach of writing is a literature review of the kind of Systematic Literature Review (SLR), which is methodically conducted from past studies and derived from earlier study. The goal of the literature review is to clarify the elements related to the stunting incidence in toddlers. Two search engines—Google Scholar and garuda portal—were used to compile these papers. Articles utilised in this study from 2019–2024 that address the use of the puskesmas management information system in a manner that is publicly accessible, unpaid and available in full text.

Result and Discussion

The results of this study revealed various trends, distributions, and collaboration patterns in research related to risk factors that contributed to the selected articles. In this study, the

parameters used were a minimum of 4 occurrences and a term count of 19. VOS viewer allows visualisation of the relationships between different elements in the scientific literature, such as authors, articles, or keywords that frequently co-occur. This tool can help researchers to map emerging research trends, identify prominent groups or clusters, and understand patterns of collaboration between researchers or institutions within a field of study (Maulida et al., 2023).

In the analysis process using VOSviewer, there are several types of visualisations produced, including Network Visualisation, Overlay Visualisation, and Density Visualisation. Network Visualisation is used to illustrate the relationship between the elements studied, such as keywords that often appear together or collaboration between authors. Overlay Visualization provides an overview of the development of research trends over time, by displaying colour changes that indicate the time of publication or intensity of research on a topic. Meanwhile, the Density Visualisation displays the density of terms in the literature, allowing researchers to identify the most and least researched topic areas (Lestari et al., 2022; Wahyudi et al., 2022).

This approach allowed us to gain a comprehensive picture of the direction of research in the area of risk factors for stunting, identify unexplored research gaps, and uncover patterns of collaboration between researchers and institutions around the world. As such, this study makes an important contribution in mapping and guiding the future of research on under-five stunting and its contributing factors. Based on the search that has been carried out by researchers, there are 4 journals that have been well selected(Wahyudi et al., 2022).

The relationship between family support and the incidence of stunting in toddlers

The analysis of the collected literature indicates that two publications, representing 50%, concentrate on the prevalence of stunting in toddlers. Contends that the examined journals demonstrate a correlation between household size and the prevalence of malnutrition (undernutrition or malnutrition) in children under five years old. This result is corroborated by, whose analysis indicates that while the majority of mothers possess enough social support, they exhibit a tendency towards negativity towards certain nutritional treatments (Pemerintah RI, 2018).

This study validates Sari's (2022) research in Morombuh Village, Kwanyar Bangkalan District, demonstrating a substantial correlation between familial support and the prevalence of stunting in toddlers. The findings of this study align with Basuki's theory, which posits that essential family support encompasses informational and instrumental assistance, enabling families to allocate time, manage costs, and acquire information regarding toddler health to ensure appropriate and effective treatment of issues (Sari & Zelharsandy, 2022).

Family support encompasses the acceptance and actions of family members, manifested through informative, evaluative, instrumental, and emotional assistance. Individuals in a nurturing social setting frequently exhibit improved well-being relative to those lacking such support, since familial help is believed to mitigate the impact of personal mental health challenges.

The relationship between health worker support and the incidence of stunting in toddlers

Analysis of the gathered publications reveals that 75% of them, or three articles, examine the correlation between health worker support and the prevalence of stunting. This research is in line with research conducted by dhany syahputra et al (2020) conducted in tuntungan village, deli serdang district which states that there is a relationship between health worker support and the incidence of stunting in toddlers. Health workers serve as motivators within the community, namely by promoting health awareness among inhabitants. The final duty of health workers is that of a facilitator. The facilitator pertains to the accessibility of current facilities and infrastructure, enabling individuals to access available health treatments. The significant

influence of current health workers will impact the community's comprehension and health behaviours.

Stunting is attributed to both direct and indirect influences. Direct factors encompass maternal nutritional deficits, premature gestation, suboptimal feeding practices, non-exclusive breastfeeding, and infections. Concurrently, indirect influences include healthcare services, education, socio-cultural elements, and environmental cleanliness. The primary causes of stunting are dietary intake and the occurrence of infectious illnesses, but the secondary reasons include education, family economic situation, maternal nutritional status during pregnancy, water and environmental sanitation, low birth weight, and the knowledge of the mother and family.

The function of health professionals is to deliver input, oversight, and assessment in the comprehensive domain of health. To enable them to offer feedback to the family about their monitoring activities. Monitoring health issues within the village community offers insights into the prevailing difficulties faced by the populace. Monitoring may be conducted by direct visits to individuals' residences. Health workers that regularly engage with the community by visiting residents' homes and delivering pertinent information to moms regarding family health for the promotion of healthy living practices (Apriyanti et al., 2021).

The relationship between insurance membership and the incidence of stunting in toddlers

Analysis of the collected articles reveals that 50% of them examine the correlation between insurance membership and the prevalence of stunting in toddlers, with all articles unanimously concluding that insurance membership is a significant factor influencing the occurrence of stunting in this demographic (Fitriani et al., 2021).

This research is supported by research health insurance ownership affects LBW, prematurity and stunting. The prevalence of sickness in toddlers impacts nutritional status; when toddlers get infectious illnesses, their hunger diminishes, resulting in inadequate food intake and subsequent deterioration of nutritional status. Child health insurance enables parents to circumvent out-of-pocket expenses for treatment and facilitates access to healthcare services for ailing toddlers. The multifactorial nature of familial economic conditions may result in inadequate treatment of infectious illnesses due to unaffordable medical expenses. Consequently, possessing kid health insurance addresses this issue (Agustin & Rahmawati, 2021; BKKBN, 2021).

The relationship between income and the incidence of stunting in children under five

Analysis of the collected articles reveals that 100% of them, totalling four, examine the correlation between income and the prevalence of stunting in toddlers. All articles concur that income serves as a significant factor influencing the incidence of stunting in this demographic (Yogaswara et al., 2021).

Toddlers from homes with low socioeconomic level exhibit greater stunting compared to those from families with high socioeconomic status. This study's findings are corroborated by Sari's research (2022), which demonstrates a correlation between family economic level and the prevalence of stunting in toddlers. Toddlers from homes with poor economic position are 1.29 times more likely to have stunting compared to those from families with high economic standing (Bukit et al., 2021).

The results of this study correspond with the research conducted by Ulfa Malika Putri Raharja entitled ‘Parents’ Economic Status and Family Food Security as Risk Factors for Stunting in Toddlers in Bejiharjo Village’. The results of her research reveal a bivariate analysis illustrating the economic status of parents (p=0.002; OR=3.182) and family food security (p=0.007; OR=3.164). The economic status of parents and family food security are risk factors for stunting in toddlers in Bejiharjo Village (Heriyani et al., 2022).

The hypothesis posits that parents with sufficient family money can fulfil all primary and secondary requirements of their children. Families with favourable economic position possess superior access to health treatments. Children from economically disadvantaged homes often exhibit deficiencies in dietary quantity, quality, and diversity. Elevated economic standing enables an individual to select and purchase healthier and diverse dietary options (Pemerintah RI, 2018).

Conclusion

The literature research revealed that four publications, constituting 100%, address the occurrence of stunting in toddlers. The gathered publications indicate a strong correlation between household income and the prevalence of stunting. The literature research indicates that family support, health worker assistance, insurance participation, and public opinion are variables influencing the prevalence of stunting in toddlers, as corroborated by many publications addressing similar issues. Suggestions include the necessity for preventative and promotive initiatives to enhance nutritional status. Engage with officials and residents to actively participate in initiatives aimed at decreasing the prevalence of stunting within the community. Puskesmas are anticipated to deliver more extensive education about stunting prevention initiatives, particularly to families identified as low-income. The City Health Office is anticipated to collaborate more closely with sectors like the Village Government by offering financial aid to low-income families to enhance the quality of children's nutrition as a measure to avoid stunting.

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