Correlation between Basic Immunization Status and IHC Visits to Stunting Incidents on Toddlers

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Abstract

Stunting could be found in a circumstance where children's height is unusual compared to their age. There are multifactor that cause stunting which some of them are repeated infections and the utilization of health services. Recurrent infections can be prevented if the child's basic immunization is complete. A complete history of immunization status can lower the incidence of recurrent infections. In addition, ANC examinations and measurements of weight and height as the form of the utilization of health services are perceivable by the frequency of visits of mothers and toddlers to integrated healthcare. The more frequently mothers and toddlers go to integrated healthcare, the faster stunting symptoms will be detected thus the toddler is less likely to experience stunting. This study aims to examine associations between toddlers' basic immunization status and visits to integrated healthcare regarding the stunting incidence among toddlers at the stunting locus in Sukamulya Village, Bandung Regency. The study used a quantitative correlation design with a secondary data approach. Respondents are acquired from secondary data, which is the society in Sukamulya Village, Bandung Regency. Samples were selected through purposive sampling technique with specific criteria which is mother with children under five, resulting 96 people in total. The variables in the study consisted of basic immunization status, visits to integrated healthcare, and stunting. Data processing uses univariate and bivariate analysis. The instrument consists of a toddler's immunization history, ANC examination, also toddler's weight and height measurement. Statistical test using Chi square with 5% significance level. This study results that there are no associations between basic immunization status (p value = 0.284) with stunting incident and visits to integrated healthcare is associated with (p value = 0.001) the incidence of stunting. These findings are caused by the variety of immunity levels of toddlers and there are multifactor that cause infectious diseases.

Keywords: antenatal care, basic immunization, integrated healthcare, stunting, toddlers.

Introduction

Stunting is an incident that often befalls toddlers in various countries. The WHO page with the title "Joint Child Malnutrition Estimates" in 2020 states that there are 149.2 million or 22% of stunted children under five in the world. WHO defines Indonesia as a stunting prevalence area in the Southeast Asia region with a prevalence rate of 36.4% (WHO, 2018). Nonetheless, the prevalence of stunting in Indonesia is at 24.4%, which is still above the WHO limit, which is less than 20% (Teja, 2022). The West Java Provincial Health Office released the SSGI 2021 survey data which shows that there are 24.5% of toddlers stunting in West Java, with the third highest contributor to the stunting rate being the Bandung district, which is 31.1% (Kusnandar, 2021). In view of this, the Province of West Java pays special attention by setting a target of achieving a stunting prevalence rate in West Java of 19.2% in 2023.

Stunting is commonly known to lay people as dwarfism. Stunting itself refers to children who are less tall than their age (UNICEF/ WHO/WORLD BANK, 2021). Stunting is a disturbance in physical growth which can be seen from the decreased speed of growth and is caused by a lack of nutritional intake in children for a long time (Sutio, 2017). In addition, stunting can also cause difficulties in achieving optimal cognitive abilities in children (Teja, 2022). In general, the first 1.000 days of life is the time when a child can suffer from stunting caused by multifactor such as socioeconomic conditions, infection, food consumed, nutritional status of pregnant women, micronutrient deficiencies, and the environment (WHO, 2018). Furthermore, stunting is also caused by health service factors (TNP2K, 2017).

Infectious diseases are referred to as a direct factor in the incidence of stunting because they can reduce the appetite of toddlers where in these conditions, nutrients that should be allocated for growth, turn into substances the body needs to deal with infections (Khairani & Effendi, 2020). Infectious diseases related to stunting include diarrhea, ISPA, and tuberculosis (Hidayani, 2020). Quoted from the same study, it was stated that infectious diseases can cause stunting based on the frequency and duration of these infections. The thing that can be done to minimize the number of infectious diseases is to give immunizations to toddlers. Immunization which functions as an immune booster can reduce the risk of infectious diseases in toddlers so that the nutritional status of toddlers will be better maintained and can indirectly reduce the incidence of stunting (Mashar et al., 2021).

Immunization is an activity of administering vaccines to increase toddler immunity and is carried out according to a predetermined schedule. Immunization is an effort in the form of injecting a vaccine to increase a person's immunity so that the risk of exposure and the severity of certain infectious diseases can be minimized (Dillyana & Nurmala, 2019). Basically, the body has its own way of defending against pathogenic infection attacks, namely the immune system which will then secrete antibodies (WHO, 2020). However, the immune system is not fully perfect in infants so that they are at high risk of exposure to infectious diseases, so immunization or vaccination still needs to be done on time to provide immunity and reduce the risk of infection (CDC, 2019). Research on 80 countries by Wendt et al. (2022) stated that children with incomplete immunization status are at high risk of experiencing stunting. This is in line with Fajariyah and Hidajah's research (2020) which states that children with incomplete immunization status are 1.78 times more likely to experience stunting. This is reinforced by the statement of Juwita et al. (2019), namely infectious diseases due to incomplete immunization can directly affect the nutritional status of children, which in turn will increase the risk of children getting stunted.

Health services are a form of service provided to the public with the aim of improving and maintaining health, with one example being the integrated healthcare (IHC). Integrated healthcare (IHC) or integrated service post is a form of seeking health that is integrated in the community and aims to empower mothers and children (Ministry of Health of the Republic of Indonesia, 2012). The Ministry of Health of the Republic of Indonesia on its website

states that stunting prevention can be done by monitoring the development and growth of toddlers regularly at the integrated healthcare (IHC) (P2PTM Ministry of Health of the Republic of Indonesia, 2018). There are research results that strengthen this statement, namely, routine control of toddler height and weight measurements carried out by health services can also identify early stunting in toddlers, so visits to integrated healthcare (IHC) are a risk factor for stunting events (Destiadi et al., 2015).

In addition, the Ministry of Health of the Republic of Indonesia (2021) states that stunting symptoms can be identified as early as possible and prevented if mothers routinely check their womb to health services. The ANC implementation program can be carried out at integrated healthcare (IHC) with the aim of identifying from the start the factors that can cause stunting (Darmawan et al., 2022). As is well known, ANC examination activities and measuring the weight and height of toddlers are included in the integrated healthcare (IHC) 5 table service program, namely the registration table; table for measuring body weight and height or length; results recording table; counseling table and nutrition services for toddlers, pregnant women, and breastfeeding mothers; and a health service table in which there are health checks and administration of deworming drugs (Ministry of Health of the Republic of Indonesia, 2018). This shows that health services are an important determinant of stunting (Darmawan et al., 2022).

Nurses are health workers who professionally have a role in helping clients achieve and maintain health. In general it is explained in the Law of the Republic of Indonesia Number 38 of 2014, nurses have a role in carrying out nursing practice, providing nursing care, counselors and client counselors, managing nursing services, and as researchers. In line with this, community nurses have a duty to identify needs, abilities and weaknesses in the community and aim to improve and maintain public health status by improving health (promotive) and preventing disease (preventive) (Kholifah & Widagdo, 2016). In this case, nurses can act as educators or educators by carrying out health promotion to increase parents' awareness of the importance of immunization and the use of integrated healthcare (IHC) as a form of stunting prevention in toddlers. Health promotion has a significant effect on increasing mothers' knowledge of the importance of immunization (Lisma et al., 2020). This is done as a form of primary prevention, namely preventing disease in the community and helping the community maintain a healthy life (Kholifah & Widagdo, 2016). In addition, community nurses can collaborate with the community in its implementation. Kholifah and Widagdo (2016) explained that community nurses can apply the concept of primary health care by empowering communities and partners. This is further explained in the commitment of community nurses to take part in fulfilling PHC which includes identifying and preventing problems, supplying food and nutrition, clean water and sanitation, caring for mothers and children, immunization, accuracy of treatment, promotion of mental health, and administering drugs. basis (Pakpahan et al., 2020).

Based on data from integrated healthcare (IHC) in Sukamulya Village, there were 36 toddlers or 26.8% of toddlers experiencing stunting in February 2022. Sukamulya Village has 13 integrated healthcare (IHC) scattered in every RW. Based on data obtained from Sukamulya Village cadres, basic immunization activities are always carried out every month at each integrated healthcare (IHC). In the last 3 months, from June to August, there were 26 toddlers with complete basic immunization status out of a total of 188 toddlers. Furthermore, with regard to routine visits to integrated healthcare (IHC), the number of integrated healthcare (IHC) visits in June-October was fluctuating with the highest number of 213 people being in September. Therefore, the researchers aim to conduct deeper and focused research on the stunting locus related to the relationship between basic immunization status and visits to integrated healthcare (IHC) to the incidence of stunting in toddlers at the stunting locus in Sukamulya Village, Bandung Regency.

Research Methods

The design in this study is a quantitative correlation and secondary data analysis (ADS) approach to determine the relationship between the variables that have been determined. The data obtained were analyzed univariately to describe the characteristics of the respondents regarding the incidence of stunting, basic immunization status, and visits to integrated healthcare (IHC) as seen from the ANC examination and measurements of weight and height. Data were also analyzed bivariately to identify the relationship between basic immunization status and visits to integrated healthcare (IHC) (ANC examination and measurement of weight and height) on the incidence of stunting. The method in this research analysis uses a non-parametric Chi square correlation test with a significance level of 5% which is presented in the table.

The population of this study was obtained from secondary data, namely people who live in Sukamulya Village, Rancaekek District, Bandung Regency. The purposive sampling technique was used to select the research sample, where the sample in the study was not randomly selected and adjusted according to the required inclusion criteria. Respondents' inclusion criteria included parents with toddlers (babies under five years); residing in Sukamulya Village, Rancaekek District, Bandung Regency; and voluntarily engage in research. The number of samples obtained from secondary data and used in this study were 96 parents with toddlers who live in Sukamulya Village, Rancaekek District, Bandung Regency.

The UNPAD Lecturer Competency Research Instrument (RKDU) has been tested for validity using computational calculations and is valid with a value of r count ≥ r table. The instrument was also declared reliable based on the results of the Cronbach Alpha reliability test which showed a strong reliability value (> 0.800), namely 0.859 on instrument question items. The research produced data listed in excel format containing demographic data, stunting risk factor data, immunization history data, and integrated healthcare (IHC) visit data as seen from examinations of pregnant women and measurements of weight and height of children under five. This research uses secondary data from a study entitled "Environmental Modification Through Sanitation, Clean Water, Hygiene, and Nutrition for Stunting Prevention" which was conducted from August to September 2022. This research is based on secondary data that has passed ethical clearance from the University Research Ethics Committee Padjadjaran with ethical number 739/UN6. KEP/EC/2022 so that the research conducted is voluntary, confidential, useful, and fair.

Results

This research was conducted in one of the villages in Bandung Regency, namely Sukamulya Village. Sukamulya Village, which is located in Rancaekek District, Bandung Regency, West Java Province, has 3 hamlets, 13 community units and 48 neighborhood units with a total population of 8,435 residents with 4,221 male residents and 4,214 female residents. Based on the research that has been carried out, the demographic data of the respondents is obtained as follows.

Table 1. Demographic Distribution of Respondents (n=96)

Age	Frequency (n)	Percentage (%)
<1 year	**13**	**13.5**
1 year	**24**	**25**
2 years	**22**	**22.9**
3 years	**23**	**23.9**
4 years	**14**	**14.5**

Based on table 1 it can be concluded that the most respondents from a total of 96 respondents under five in this study were respondents aged 1 year where there were a total of 24 under five. Furthermore, toddlers are then categorized into 2 groups, namely stunting and not stunting.

Table 2. Frequency Distribution of Respondents Characteristic (n=96)

Stunting	Frequency (n)	Percentage (%)
Stunting	**31**	**32.3**
Not stunting	**65**	**67.7**

Based on table 2, it can be seen that the proportion of stunting is 31 toddlers (32.3%) and there are mostly 65 toddlers (67.7%) who are not stunted out of a total of 96 toddlers in Sukamulya Village, Rancaekek District, Bandung Regency. Toddlers who have been categorized are then studied in relation to basic immunization status. Based on the data collected, the basic immunization status of toddlers looks as follows.

Tabel 3. Frequency Distribution of Basic Immunization Status (n=96)

Basic Immunization Status	Frequency (n)	Percentage (%)
Complete	**84**	**87.5**
Incomplete	**12**	**12.5**

Based on table 3, as many as 84 toddlers (87.5%) received the complete immunization dose. Meanwhile, respondents with incomplete basic immunization status or did not receive 1 or more of the prescribed immunization doses, namely 12 toddlers (12.5%). According to the Indonesian Pediatrician Association (IDAI) (2020), basic immunization is categorized as complete if a toddler gets one dose of BCG immunization, four doses of HB, three doses of DPT-Hib, four doses of polio, and one dose of measles. Conversely, immunization is said to be incomplete if a toddler does not get one dose of immunization, one dose of BCG, four doses of HB, three doses of DPT-Hib, four doses of polio, and one dose of measles (Indonesian Pediatrician Association (IDAI), 2020). In addition to basic immunization status, data on routine visits to integrated healthcare (IHC) was obtained as seen from antenatal care (ANC) examinations and measurements of weight and height.

Table 4. Frequency Distribution of ANC Examination and Measurements of Weight and Height (n=96)

Variables	Frequency (n)	Percentage (%)
ANC Examination		
Routine	**91**	**94.8**
Frequently	**5**	**5.2**
Pengukuran Berat dan Tinggi Badan		
Routine	**94**	**97.9**
Frequently	**2**	**2.1**

Table 4 illustrates that most of the total 96 respondents carried out routine ANC examinations, namely 91 respondents (94.8%) and a small portion, namely 5 respondents (5.2%) did not routinely carry out ANC examinations. Most of the respondents who measured their height and weight were 94 toddlers (97.9%). Even so, there were 2 respondents (2.1%) who did not carry out routine height and weight measurements at the integrated healthcare (IHC). Next, the two data were combined and categorized for visits to integrated healthcare (IHC).

ANC examinations are categorized as routine if ANC examinations are carried out at least four times during the mother's womb, namely once in the first trimester, once in the second trimester, and twice in the third trimester (Eryando et al., 2022). In the same article, the ANC examination category is said to be non-routine if the ANC examination is not carried out at least four times during the mother's womb, namely once in the first trimester, once in the second trimester, and twice in the third trimester. Furthermore, measuring the weight and height of

a toddler is said to be routine if the toddler is brought at least once a month to the integrated healthcare (IHC) for checking (Ministry of Health of the Republic of Indonesia, 2019). In the same source, it was found that toddlers are said to not routinely measure their weight and height if they are not routinely taken every month to an integrated service post to have their height and weight measured.

ANC examinations and measurements of weight and height were then grouped into regular and non-routine visits to integrated healthcare (IHC). Routine visits indicate that ANC checks and measurements and height are carried out. Meanwhile, it is said that the visit to the integrated healthcare (IHC) is not routine if the respondent does not routinely carry out one or both of the ANC examinations and measurements of weight and height.

Table 5. Distribution of Integrated Healthcare (IHC) Visits (n=96)

IHC Visits	Frequency (n)	Percentage (%)
Routine	**90**	**93.7**
Frequently	**6**	**6.3**

Based on table 5, it can be seen that routine visits to integrated healthcare (IHC) are carried out regularly by 90 respondents (93.7%). Meanwhile, there were 6 respondents (6.3%) who did not visit the integrated healthcare (IHC) for ANC checks and regular weight and height measurements. After all the data is obtained, the data is then tested by cross-tabulation to determine the relationship between variables as shown in the following table.

Table 6. Correlation Analysis of Basic Immunization Status to Stunting Incidents in Sukamulya Village, Bandung Regency (n=96)

Basic Immunization Status	Stunting				Chi- Square	p-Value
	Stunting		Not Stunting			
	n	%	n	%		
Complete	**25**	**29.8**	**59**	**70.2**	**1.150**	**0.284**
Incomplete	**6**	**50**	**6**	**50**		

Table 6 describes the relationship between basic immunization status and the incidence of stunting in Sukamulya Village, Bandung Regency. The Chi square test showed the result that toddlers with complete basic immunization status, there were 25 stunting toddlers (29.8%). Furthermore, for toddlers who are not stunted, the distribution table shows that there are 59 toddlers (70.2%) out of 96 toddlers with complete immunization status. Meanwhile, for incomplete basic immunization status, 6 stunted toddlers (50%) were obtained. The same results were seen in non-stunted toddlers with incomplete basic immunization, namely 6 toddlers (50%).

The result of p-value = 0.284 was obtained from data analysis using a statistical correlation test. The test results stated that there was no relationship between basic immunization status and the incidence of stunting in Sukamulya Village, Bandung Regency.

A cross-tabulation test was also carried out to see the link between visits to integrated healthcare (IHC) and the incidence of stunting in five-year-old babies at the stunting locus in Sukamulya Village, Bandung Regency.

Table 7. Correlation Analysis of Integrated Healthcare (IHC) Visits to Stunting Incidents in Sukamulya Village, Bandung Regency (n=96)

IHC Visits	Stunting				Chi square	P value
	Stunting		Not stunting			
	n	%	n	%		
Routine	25	27.8	65	72.2	10.319	0.001
Frequently	6	100	0	0		

Table 7 explains the relationship between visits to integrated healthcare (IHC) and the incidence of stunting. The Chi square test analysis yielded data, namely toddlers who regularly visited the integrated healthcare (IHC), namely 25 respondents (27.8%) experienced stunting. Meanwhile, the table shows 65 toddlers (72.2%) who regularly visit integrated healthcare (IHC) but are not stunted. Furthermore, there were 6 respondents (100%) who did not routinely visit the integrated healthcare (IHC) to carry out examinations. The table shows that there are no toddlers who do not regularly visit the integrated healthcare (IHC) but are not stunted.The result of p-value = 0.001 was obtained from data analysis using a statistical correlation test. The test results show that there is a relationship between visits to integrated healthcare (IHC) and the incidence of stunting in Sukamulya Village, Rancaekek District, Bandung Regency.

Discussion

Correlation between Basic Immunization Status to Stunting Incidents

The data that has been analyzed states that there are 25 stunted toddlers (29.8%) and 59 toddlers who are not stunted (70.2%) with complete basic immunization status. Whereas for toddlers who have incomplete immunization status, there are 6 toddlers (50%) each in both the stunting and non-stunting categories. The Chi square statistical test showed that there was no relationship between basic immunization status and the incidence of stunting in Sukamulya Village, Bandung Regency with a p-value of 0.284.
The results of this study are similar to those of Kurniati et al. (2022) regarding several factors that influence the incidence of stunting under five, where basic immunization status is not related to stunting. Another study conducted by Sutriyawan et al. (2020) also stated that there was no significant association between completeness of basic immunization status and stunting. However, the results of the data analysis obtained are different because this study focuses on the locus of stunting where the two previous studies that have been described have a general population.

Contrary to research which states that there is no link between basic immunization status and stunting, the results of research conducted by Mianna and Harianti (2020) are that basic immunization status is related to stunting. Research conducted by Novianti et al. (2022) also stated that there was a relationship between the basic immunization status of toddlers and the incidence of stunting.

Immunization is a form of providing immunity to toddlers by injecting vaccines against infectious diseases. Therefore, toddlers with complete basic immunization status will experience infectious diseases with symptoms that tend to be milder and less susceptible to infectious diseases (Novianti et al., 2022). On the other hand, if toddlers are not given complete basic immunization, toddlers can get infectious diseases in the future which will interfere with absorption of nutrients and reduce toddlers' appetite, which in turn disrupts the growth process and leads to stunting (Mianna & Harianti, 2020).

Even so, basic immunization is not necessarily certain in helping toddlers prevent infectious diseases. This was mentioned in previous research, namely the level of immunity in each toddler is different, so that toddlers who get complete basic immunization will not necessarily be completely prevented from infectious diseases which will further inhibit nutrient absorption and reduce the nutritional status of toddlers until toddlers experience stunting (Kurniati et al., 2022). This is reinforced by Sutriyawan and Nadhira (2020) who state that giving complete basic

immunization does not mean that toddlers are free from infectious diseases due to multifactorial causes of stunting. In addition, the basic immunization given to toddlers only covers a few infectious diseases, there are other stunting-causing infectious diseases such as diarrhea that occurs due to inadequate environmental sanitation conditions (Irawan & Hastuty, 2022). Furthermore, there are still many other factors that cause stunting related to body immunity such as food quality, food and drink safety, poor environmental sanitation (WHO, 2018).

In this case, nurses can act as educators or educators by carrying out health promotion to increase parents' awareness of the importance of immunization and the use of integrated healthcare (IHC) as a form of stunting prevention in toddlers. Increasing mother's knowledge in knowing the importance of immunization can be significantly influenced by health promotion (Lisma et al., 2020). This is done as a form of primary prevention, namely preventing disease in the community and helping the community maintain a healthy life (Kholifah & Widagdo, 2016).

Correlation between Integrated Healthcare Visits to Stunting Incidents

The results of the cross-tabulation data show that among respondents who routinely visit the integrated healthcare (IHC) to carry out ANC checks and measure weight and height, there are 25 toddlers (27.8%) who are stunted and 65 toddlers (72.2%) toddlers who are not stunted. Respondents who did not visit the integrated healthcare (IHC) regularly, obtained from the results of the study that there were 6 toddlers who were stunted, but there were no toddlers who were not stunted. The Chi square statistical test shows that there is a relationship between visits to the Integrated healthcare (IHC) and the incidence of stunting with a p-value = 0.001.

The results of this study are similar to those of Darmawan et al. (2022) which states that there is a link between visits to integrated healthcare (IHC) which includes at least four ANC visits and monthly measurements of weight and height on the incidence of stunting in toddlers. Similar results were found in other studies which stated that mothers who checked their pregnancies at least four times and toddlers whose weight and height were routinely measured reduced the risk of stunting in toddlers (Fitrotuzzaqiyah & Rahayu, 2022). Nevertheless, there is a difference between this study and previous research, namely the location used in this study is a stunting locus.

Integrated healthcare (IHC) is a health empowerment unit in which there are activities or programs to provide basic social services and focus on maternal and child health. The programs carried out by the integrated healthcare (IHC) include examination of pregnant women or antenatal care (ANC) to determine the nutritional status of the mother which affects the nutritional status of children and measurements of the weight and height of toddlers which are carried out to identify early symptoms of stunting and efforts to prevent it (Darmawan et al., 2022). The ANC examinations carried out included pregnancy checks, monitoring of maternal weight, measuring upper arm circumference, administration of iron tablets, education and counseling on maternal health promotion related to pregnancy planning and nutritional and nutritional needs for pregnant women (Ministry of Health of the Republic of Indonesia, 2021). Furthermore, there is a program for measuring the weight and height of toddlers which is carried out on the second table at five Integrated healthcare (IHC) tables (Ministry of Health of the Republic of Indonesia, 2018).

Previous research shows that there are several factors that cause many parents and toddlers not to visit the integrated healthcare (IHC) regularly, namely cadres who are less skilled, lack of knowledge of cadres, and lack of supporting facilities for the integrated healthcare (IHC) program (Hadi et al., 2022). Furthermore, there are other factors such as the lack of awareness and the desire of respondents to come to the integrated healthcare (IHC) regularly (Darmawan et al., 2022).

The role of the community nurse in this case is to collaborate with the community in its implementation. Kholifah and Widagdo (2016) explained that community nurses can apply the concept of primary health care by empowering communities and partners. This

is further explained in the commitment of community nurses to take part in fulfilling PHC which includes identification and prevention of problems, food and nutrition supplies, sanitation and water hygiene levels, mother and child care, appropriate treatment, immunization, mental health promotion, and provision of basic medicine (Pakpahan et al., 2020).

Conclusion

In this study, 31 toddlers (32.3%) were stunted and 65 toddlers (67.7%) were not stunted. Out of a total of 96 toddlers, 84 toddlers (87.5%) received complete immunization status and 12 toddlers (12.5%) had incomplete immunization status. Furthermore, visits to the integrated healthcare (IHC) as seen from the ANC examination and measurements of weight and height showed that there were 90 toddlers (93.7%) who went to the integrated healthcare (IHC) regularly and 6 toddlers (6.3%) who did not go to the integrated healthcare (IHC) regularly. The results showed that there was no relationship between the basic immunization status of toddlers and the incidence of stunting (p-value = 0.284). Furthermore, research shows that there is a relationship between visits to integrated healthcare (IHC) and the incidence of stunting (p-value = 0.001).

This research can be used as a basis for community nurses in the form of nursing interventions for the community in accordance with their role, namely educators, in the form of providing health education about stunting prevention through counseling about the importance of basic immunization and visits to integrated healthcare (IHC). Community nurses are also expected to be able to work closely with integrated healthcare (IHC) cadres to maximize integrated healthcare (IHC) programs and activities that are beneficial for the health of mothers and toddlers.

Further research is recommended to further investigate infectious diseases and other integrated healthcare (IHC) programs in the incidence of stunting in toddlers. Several factors that can affect infant immunity and their relationship to stunting can be used as new variables in future research to examine factors with a significant relationship, especially in the study area in Sukamulya Village, Rancaekek District, Bandung Regency.

References

CDC. (2019). *Vaccines for your children*. U.S. Department of Health and Human Services Prevention. https://www.cdc.gov/vaccines/parents/why-vaccinate/index.html

Darmawan, A., Reski, R., & Andriani, R. (2022). Visits to ANC, posyandu and immunization with the incidence of stunting in toddlers in Central Buton District. *AcTion: Aceh Nutrition Journal, 7*(1), 33. https://doi.org/10.30867/action.v7i1.469

Destiadi, A., Nindya, T.S., & Sumarmi, S. (2015). Frequency of posyandu visits and history of weight gain as risk factors for stunting in children aged 3-5 years. *Media Gizi Indonesia, 10*(1), 71–75.

Dillyana, T.A., & Nurmala, I. (2019). Correlation between mother's knowledge, attitudes and perceptions with basic immunization status in Wonokusumo. *Jurnal Promkes, 7*(1), 68-78.

Eryando, T., Sipahutar, T., Budiharsana P.M., Siregar N.K., Aidi N.M., Minarto, U.M.D., Rahmaniati, M., & Hendarwan, H. (2022). Spatial analysis of stunting determinants in 514 Indonesian districts/cities: Implications for intervention and setting of priority. Geospatial *Health, 17*(1). https://doi.org/10.4081/gh.2022.1055

Fajariyah, R.N., & Hidajah, A.C. (2020). Correlation between immunization status and mother's height, and stunting in children 2–5 years in Indonesia. Jurnal Berkala *Epidemiologi, 8*(1), 89. https://doi.org/10.20473/jbe.v8i12020.89-96

Fitrotuzzaqiyah, I., & Rahayu, S. (2022). Implementation of specific interventions in efforts to prevent toddler stunting in Gambarsari Village, Pagaden District, Subang Regency. *Journal of Nutrition College, 11*(3), 236–247. https://doi.org/10.14710/jnc.

v11i3.32165

Hadi, Z., Anwary, A.Z., & Asrinawaty, A. (2022). The incidence of stunting under five is reviewed from the aspects of posyandu visits and exclusive breastfeeding behavior. *Jurnal Akademika Baiturrahim Jambi, 11*(1), 01. https://doi.org/10.36565/jab.v11i1.389

Hidayani, W.R. (2020). History of infectious diseases associated with stunting in indonesia: Literature review. *In Jurnal Seminar Nasional, 2*(01), 45-53. http://ejurnal.stikesrespati-tsm.ac.id/index.php/semnas/article/view/247

Indonesian Pediatric Association (IDAI). (2020). *Child immunization schedule.* https://www.idai.or.id/tentang-idai/pernyataan-idai/jadwal-imunisasi-idai-2020

Irawan, A., & Hastuty, H.S.B. (2022). Physical quality of water, incidence of diarrhea with stunting in toddlers at the Arso Health Center. *Jurnal Kesehatan Komunitas, 8*(1), 130–134. https://doi.org/10.25311/keskom.vol8.iss1.1119

Juwita, S., Andayani, H., Bakhtiar, B., Sofia, S., & Anidar, A. (2019). Relationship between total family income and completeness of basic immunization with stunting incidents in toddlers in Pidie District. *Jurnal Kedokteran Nanggroe Medika, 2*(4), 1–10.

Khairani, N., & Effendi, S.U. (2020). Analysis of stunting incidence in toddlers in view of basic immunization status and history of infectious diseases. P*REPOTIF: Jurnal Kesehatan Masyarakat, 4*(2), 228–234. https://doi.org/10.31004/prepotif.v4i2.1030

Kholifah, S. N., & Widagdo, N. W. (2016). *Family and community nursing*. Ministry of Health of the Republic of Indonesia. https://www.ptonline.com/articles/how-to-get-better-mfi-results

Kurniati, R., Aisyah, S., Anggraini, H., Wathan, F. M., Studi, P., Kebidanan, S., Kebidanan, F., Keperawatan, D., Kader, U., & Palembang, B. (2022). Factors that influence the incidence of stunting in toddlers aged 24 – 60 months. *Jurnal 'Aisyiyah Medika, 7*, 11–23. DOI : https://doi.org/10.36729

Kusnandar, V.B. (2021). *The prevalence of stunting in these 6 provinces is still high.* https://databoks.katadata.co.id/datapublish/2020/08//01/prevelansi-balita-stunting-di-6-provinsi-ini-masih-tinggi#:~:text=Prevalensi

Lisma, N., Sembiring, B., Barends, V.H., & Supriyanto, E. (2020). The effect of health promotion about immunization in children aged 0-5 years on increasing mother's knowledge at the Sentani Health Center. *Sentani Nursing Journal, 3*(2), 74–79. https://doi.org/1052646

Mashar, S.A., Suhartono, S., & Budiono, B. (2021). Factors influencing stunting in children: Literature study. *Jurnal Serambi Engineering, 6*(3), 2076–2084. https://doi.org/10.32672/jse.v6i3.3119

Mianna, R., & Harianti, R. (2020). Immunization status and diversity of toddler food consumption against stunting. *Jurnal Kesehatan Komunitas, 6*(2), 225–229. https://doi.org/10.25311/keskom.vol6.iss2.552

Ministry of Health of the Republic of Indonesia. (2018). *Prevent stunting, it's important*. Jakarta: Ministry of Health of the Republic of Indonesia. https://www.kemkes.go.id/download.php?file=download/pusdatin/buletin/Buletin-Stunting-2018.pdf

Ministry of Health of the Republic of Indonesia. (2019). C*ome on, take your children to posyandu routinely every month!.* Jakarta: Ministry of Health of the Republic of Indonesia. https://promkes.kemkes.go.id/ayo-ajak-anak-ke-posyandu-rutin-setiap-bulan

Ministry of Health of the Republic of Indonesia. (2021). P*osyandu serial reading books: Interpersonal communication in accelerating the reduction of stunting*. Jakarta: Ministry of Health of the Republic of Indonesia.

Ministry of Health of the Republic of Indonesia. (2012). Posyandu cadres training.

In Medical Records, 17(3).

Noviana, U., Ekawati, H., & Savira, D. Y. (2022). The relationship between immunization status, environmental sanitation, and parenting patterns with the incidence of stunting in children. Jurnal Ilmiah Obsgin: *Jurnal Ilmiah Ilmu Kebidanan & Kandungan, 14*(1), 122-131.

P2PTM Ministry of Health of the Republic of Indonesia. (2018). *One in three Indonesian toddlers suffers from stunting*. Jakarta: Ministry of Health of the Republic of Indonesia. https://p2ptm.kemkes.go.id/tag/1-dari-3-balita-indonesia-derita-stunting

Pakpahan, M., Hutapea, A.D., Siregar, D., Frisca, S., Sitanggang, Y.F., Manurung, E.I., Pranata, L., Daeli, N.E., Koerniawan, D., Pangkey, B.C., Ikasari, F.S., Hardika, & Dwi, A. (2020). *community nursing* (A. Karim (ed.)). https://books.google.co.id/books?id=VUUQEAAAQBAJ&lpg=PR15&ots=N8qijrZHp1&dq=peran perawat komunitas&lr&pg=PA22#v=onepage&q=peran perawat komunitas&f=false

Sutio, D. (2017). Analysis of risk factors for stunting in toddlers. *Jurnal Departemen Gizi Fakultas Kesehatan Masarakat, Vol. 28* No, 247–256.

Sutriyawan, A., & Nadhira, C.C. (2020). Stunting incidents in toddlers at UPT Puskesmas Citarip, Bandung City. *Jurnal Kesmas (Kesehatan Masyarakat) Khatulistiwa, 7*(2), 79. https://doi.org/10.29406/jkmk.v7i2.2072

Sutriyawan, A., Rahayu, S., Kurniawati, R.D., & Habibi, J. (2020). Correlation between immunization status and history of infectious diseases with stunting in toddlers: A retrospective study. J*ournal of Midwifery, 8*(2), 1–9.

Teja, M. (2022). *Percepatan penurunan prevalensi stunting 14 %.*

TNP2K. (2017). *100 priority regencies/cities for stunting intervention*. jakarta: Sekretariat Wakil Presiden Republik Indonesia. https://www.tnp2k.go.id/images/uploads/downloads/Buku Ringkasan Stunting.pdf

UNICEF/WHO/World Bank. (2021). *Levels and trends in child malnutrition UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates Key findings of the 2021 edition*. World Health Organization, 1–32. https://www.who.int/publications/i/item/9789240025257

Wendt, A., Santos, T.M., Cata-Preta, B.O., Arroyave, L., Hogan, D.R., Mengistu, T., Barros, A.J.D., & Victora, C.G. (2022). Exposure of zero-dose children to multiple deprivation: Analyses of data from 80 low- and middle-income countries. *Vaccines, 10*(9). https://doi.org/10.3390/vaccines10091568

WHO. (2018). *Reducing stunting in children: Equity considerations for achieving the Global Nutrition Targets 2025*. Geneva: WHO. https://www.who.int/publications/i/item/9789241513647%0AAccessed on 18th February 2022

WHO. (2020). *How do vaccines work?*. Geneva: WHO. https://www.who.int/news-room/feature-stories/detail/how-do-vaccines-work?adgroupsurvey=%7Badgroupsurvey%7D&gclid=Cj0KCQiAgribBhDkARIsAASA5bsRuwRO8so5WUNHounHPzbJAz6OOPYI4h2tLEkDRikaAul5EALw_wcB