

Jurnal Info Kesehatan

Vol. 23, No. 4, Desember 2025, pp. 705-717

P-ISSN 0216-504X, E-ISSN 2620-536X

DOI: [10.31965/infokes.Vol23.Iss4.1758](https://doi.org/10.31965/infokes.Vol23.Iss4.1758)

Journal homepage: <https://jurnal.poltekkeskupang.ac.id/index.php/infokes>



RESEARCH

Open Access

Healthcare Support Related to Family Awareness Efforts Towards The Risk of Stunting in Children

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Received: 31 October 2024

Revised: 29 May 2025

Accepted: 9 July 2025

Abstract

Preventing stunting necessitates collaborative efforts from multiple stakeholders, with the family being the most pertinent social unit in guaranteeing adequate nutrition for children. The study aimed to examine the correlation between healthcare supports and family efforts in raising awareness about the risk of stunting in young children. This study used a cross-sectional survey that examined family characteristics and various efforts to prevent stunting in children within the community. In addition, the study investigated healthcare support and family awareness. A total of 200 mothers from families with stunted children participated in the study. Data were collected using questionnaires and analyzed descriptively. Rank Spearman Correlation was used to investigate the correlation between healthcare worker support and the behaviors of mothers of toddlers with stunting before marriage, during pregnancy, and while breastfeeding. The average age of mothers was 29.6 years, with the youngest being 20 and the oldest 46 years. The majority of the mothers had a high school education, were housewives, came from nuclear families, had access to clean drinking water, lived in clean and well-maintained homes, and had incomes below the regional minimum wage. Efforts to prevent stunting were fair before pregnancy, during pregnancy, and while breastfeeding. Most of the support from healthcare workers in preventing stunting were classified as good. The analysis results indicate a significant positive relationship between healthcare worker support and the behaviours of mothers of toddlers with stunting, both before marriage and while breastfeeding ($p < 0.05$). Our findings revealed that stunting was observed in families of productive age, with high school education, nuclear family structures, and low economic income below the regional minimum wage. Preventive efforts have been made since before marriage, during pregnancy, and while breastfeeding, but have not been fully optimized. Support from healthcare workers must be continually improved to meet the healthcare needs of families in an effort to prevent stunting in children.

Keywords: Family Efforts, Family Awareness, Prevention, Stunting.

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1. INTRODUCTION

Stunting is a condition in which children experience impaired growth due to prolonged malnutrition, leading to shorter stature compared to other children of the same age. Stunting can disrupt brain development and intelligence, resulting in decreased cognitive abilities, poor academic performance, and weakened immune systems, making children more prone to illness. Reducing stunting by 40% by 2025 is a target of the Sustainable Development Goals (SDGs). One of the SDGs' objectives is to eliminate hunger and all forms of malnutrition by 2030 and achieve food security (Andriyani & Werdani, 2021).

The World Health Organization (WHO) reported in 2020 that 21.3%, or 144 million children under five years old, experienced stunting in 2019. The global prevalence of stunting has declined since 2015, with 155 million children under five affected. Stunting remains the second-largest issue after wasting, which affects 47 million children, followed by obesity, affecting 38.3 million children worldwide. Stunting is most prevalent in Asia (54%) and Africa (40%), particularly in low- and middle-income countries. Indonesia is one of the Asian countries with a high prevalence of stunting (Wardana & Astuti, 2019). In 2021, the prevalence of stunting in Indonesia was 24.4%. However, there has been a national decline of 3.3%, from 27.7% in 2019 to 24.4% in 2021. Although stunting in Indonesia has become an urgent health problem, many families still do not understand the risks and how to prevent it. This study aims to explore how families can raise awareness about the risks of stunting and their role in preventing it.

According to the 2021 Indonesian Nutritional Status Study (SSGI), the prevalence of stunting in Indonesia was 24.4%, which remains far from the country's 2024 target of 14% (Biro Komunikasi dan Pelayanan Masyarakat, 2022). In Bali Province, the prevalence of stunting in young children decreased from 19.8% in 2018 to 14.4% in 2019, and then to 6.1% in 2020. However, it increased again in 2021 to 10.9%. Several districts in Bali also saw a reduction in the prevalence of stunting in 2021 compared to 2020. However, Klungkung District saw an increase of 1.7%, from 5.6% in 2019 to 7.3% in 2020. This trend calls for urgent attention to prevent further increases in stunting cases (Dinas Kesehatan Provinsi Bali, 2023).

Preventing stunting necessitates collaborative efforts from multiple stakeholders, with the family being the most pertinent social unit in guaranteeing adequate nutrition for children. This research is crucial for developing a family-oriented intervention model aimed at preventing stunting (Harahap et al., 2024; Yani et al., 2023). Specifically, the mother's role is a significant factor, including her education, nutritional knowledge, parenting style, and self-efficacy in fulfilling the child's nutritional needs (Aulia et al., 2017). Self-efficacy refers to an individual's belief in their ability to complete tasks and overcome challenges, characterized by confidence in managing uncertainty, achieving targets, applying cognitive abilities, and maintaining motivation (Andriyani & Werdani, 2021). The mother plays the most significant role in caring for and nurturing young children, especially in ensuring proper nutrition, which highlights the importance of family support.

Every family must have adequate knowledge of the causes, symptoms, and impacts of stunting in children. Such knowledge promotes heightened awareness of stunting risks. If a child is already stunted, proper support and intervention are needed so that the family can develop confidence and competence in caring for the stunted child. This study aims to assess the correlation between healthcare supports and family efforts in raising awareness about the risk of stunting in young children. This preliminary survey is the first phase of a continuous study aimed at developing an "anti-stunting family" intervention model to increase awareness of stunting risk and self-efficacy in caring for stunted children in the community. The impact would find a more effective strategy is anticipated to empower families in preventing stunting, with assistance from health workers, to enhance the quality of life for children in Indonesia.

2. RESEARCH METHOD

This study utilized a cross-sectional survey to the correlation between healthcare supports and family efforts in raising awareness about the risk of stunting in young children. Conducted in Klungkung district, the survey targeted families with stunted children, focusing on the influence of family characteristics and stunting prevention efforts across several key life stages, including before marriage, during pregnancy, and while breastfeeding.

A total of 200 mothers and heads of households participated in this study, selected using quota sampling to ensure representation across the target population. In the context of this study, quota sampling was used to ensure the representation of mothers from families with stunted children in the Klungkung Regency. The calculation of quota sampling was based on twenty per cent of the total number of stunts in the three public health center areas. Then, a stratified quota was conducted to reduce the bias.

All participants followed the inclusion and exclusion criteria. Inclusion criteria were mothers actively go to posyandu, have a child with one of the stunting symptoms, and are willing to be participants. Meanwhile, a child with congenital disorders or other chronic diseases and mothers refused to participate were excluded.

Data collection took place over a two-month period from July to August 2023, covering three specific health center regions: Klungkung 1 Health Center, Nusa Penida 1 Health Center, and Nusa Penida 3 Health Center. Structured questionnaires were employed to gather information directly from participants, capturing both demographic and behavioral data. Questions were divided into sections to address family characteristics, preventative practices before marriage, stunting prevention measures during pregnancy, practices while breastfeeding, and the nature and frequency of healthcare worker support provided to families. The questionnaire was adopted from the questionnaire of the public health centre's national stunting survey.

Family characteristics collected included demographic details such as age, socioeconomic status, and household structure. Preventative efforts prior to marriage were assessed by exploring family awareness of health and nutrition issues related to stunting. Pregnancy-related prevention measures included adherence to recommended prenatal care practices and nutritional habits, while breastfeeding-focused questions investigated feeding practices, exclusive breastfeeding duration, and nutritional supplementation.

Healthcare worker support was evaluated by capturing information on the types of interventions provided to families, such as educational initiatives, home visits, and follow-up assessments tailored toward stunting prevention. Data were analyzed descriptively to provide a broad understanding of family engagement and awareness regarding stunting prevention. This analysis highlighted the preventative actions taken by families at different stages, offering valuable insights into the areas where families and healthcare workers align or diverge in their efforts to prevent stunting.

3. RESULTS AND DISCUSSION

The average age of respondents in this study is 29.6 years, with a standard deviation of 5.48 years. The youngest respondent is 20 years old, and the oldest is 46 years old. Table 1 shows that most respondents have a high school education (40%), are housewives (69%), belong to nuclear families (55%), source their drinking water from public utilities (71%), have ceramic flooring (87%), live in homes with clean and maintained yards (88%), and have an income below the regional minimum wage (61%).

This study found that the average age of respondents was 29.6 years, with the youngest being 20 years old and the oldest 46. Respondents had a high school education, were housewives, belonged to nuclear families, obtained drinking water from the Public Water Utility (PDAM), lived in homes with ceramic flooring, maintained clean homes, and had an income below the regional minimum wage.

Table 1. Characteristics of Respondents by Education Level, Occupation, Income, Family Status, Drinking Water Source, Flooring, and Yard Condition (n=200)

Respondent Characteristics	f	%
Education Level		
Uneducated	13	6.5
Elementary school	48	24
Middle school	38	19
High school	80	40
Higher education	21	10.5
Occupation		
Housewife	138	69
Farmer	2	1
Civil servant	3	1.5
Private sector	46	23
Entrepreneur	11	5.5
Family Status		
Nuclear family	110	55
Extended family	90	45
Drinking Water Source		
Well	31	15.5
Spring	6	3
Public utility (PDAM)	142	71
Others	21	10.5
Flooring		
Ceramic	174	87
Concrete	26	13
Yard Condition		
Clean/maintained	164	88
Dirty/unmaintained	22	12
Household Income		
Below minimum wage	122	61
Above minimum wage	78	39
Average Income	Rp. 2.562.750	
Highest Income	Rp. 6.000.000	
Lowest Income	Rp. 600.000	

In general, the characteristics of respondents were mothers of sufficient age to marry and have children. A mother's age is considered significant in providing better infant care. Mature mothers are better prepared to care for sick children (Rahmayana et al., 1970). Most respondents (69%) were housewives, which theoretically allows more time for caregiving; however, this study found that babies suffering from stunting were often born to housewives. This indicates that while time availability is important, it is not sufficient—economic limitations also play a critical role (Mirayanti & Juanamasta, 2020). Housewives may lack additional income to meet household needs, particularly in providing nutritious food, and limited support through supplementary food programs is often inadequate to ensure a healthy standard of living (Hubaedah & Andarwulan, 2020). Furthermore, a significant portion of families (61%) reported household incomes below the regional minimum wage, with some earning as little as Rp. 600,000. This low income can severely restrict purchasing power and access to quality nutrition and healthcare during pregnancy and early childhood, both of which

are essential in preventing stunting. According to [Rahmah et al. \(2023\)](#), a mother's level of education is also a crucial factor in determining her behavior regarding nutrition and health. In this study, 49.5% of respondents had only elementary or middle school education, and 6.5% were uneducated. Limited education hinders critical thinking and reduces access to health information ([Berhe et al., 2019](#)), compounding the risk of poor nutritional practices. Additionally, most respondents (87%) lived in homes with ceramic flooring, and 88% had clean, maintained yards positive indicators of sanitation that can reduce disease transmission. Yet, 29% still relied on unsafe or less regulated water sources, which may contribute to frequent infections and poor child growth. In terms of family structure, 55% lived in nuclear families, which can offer decision-making freedom and less conflict but often lack the extended support networks found in larger family units ([Yasa et al., 2023](#)). Therefore, community-based mutual aid systems supported by local health workers should be developed to bridge this gap. Overall, efforts to reduce stunting must be multidimensional, targeting low-income households with improved nutrition, health education, clean water access, and family or community-based support systems.

Table 2. Various Stunting Prevention Efforts by Mothers Before Marriage (n-200)

Type of Prevention	Always (%)	Sometimes (%)	Never (%)
Iron (Fe) tablet consumption since adolescence	47 (23%)	24 (12%)	129 (64.5%)
Fast food consumption	26 (13%)	143 (73%)	28 (14%)
Eating at home regularly	199 (99.5%)	1 (0.5%)	-
Regular meal patterns	187 (93.5%)	13 (6.5%)	-
Milk consumption	11 (5.5%)	66 (33%)	123 (61.5%)
Fish/meat consumption	95 (47.5%)	104 (52%)	1 (0.5%)
Vegetable consumption	95 (47.5%)	104 (52%)	1 (0.5%)
Fruit consumption	186 (93%)	14 (7%)	-
Health checkups	46 (23%)	153 (76.5%)	1 (0.5%)
Listening to stunting information	25 (12.5%)	83 (41.5%)	92 (46%)
Health consultations before marriage	68 (34%)	32 (16%)	100 (50%)
Exercise habits	13 (6.5%)	11 (5.5%)	176 (88%)
Reminders about healthy living at school	22 (11%)	114 (57%)	64 (32%)
Soft drink consumption	131 (65.5%)	41 (20.5%)	28 (14%)
Drinking 1.5-2 liters of water daily	26 (13%)	139 (69.5%)	35 (17.5%)

Table 2 presents data on stunting prevention efforts by mothers before marriage, highlighting both positive and concerning health behaviors. Most respondents consistently ate at home (99.5%), followed regular meal patterns (93.5%), and consumed fruits (93%), while fish/meat and vegetable intake were more variable. However, key preventive practices showed low adherence, with only 23% consistently taking iron tablets during adolescence, 5.5% regularly drinking milk, and just 6.5% engaging in exercise. Health checkups were mostly occasional (76.5%), and half (50%) never sought pre-marital health consultations. Unhealthy habits were prevalent, including frequent fast food (73%) and soft drink (65.5%) consumption, along with inconsistent water intake. Additionally, awareness of stunting prevention was limited, as 46% never listened to related information, and 32% lacked school-based health reminders. These findings suggest gaps in essential health behaviors that could impact maternal and child well-being.

This study found that most mothers exhibited adequate behaviors in preventing stunting before marriage (76%) and the rest was inadequate. Preventive behaviors before marriage are critical in reducing the risk of stunting. Teenage girls are a key target in stunting prevention, emphasizing family planning, maintaining good health to avoid anemia and chronic energy

deficiency, and understanding early prevention methods. A strategic approach to motivating positive behavior change is through community empowerment and participation (Fujiana et al., 2023). The findings from this study highlighted the importance of iron (Fe) tablet consumption as a stunting prevention measure. Research by Fujiana et al. (2023) found that anemia is a predisposing factor for stunting, requiring specific interventions such as iron supplementation for teenagers, women of childbearing age, and pregnant women. Iron is a vital component of infant growth. As an essential micronutrient, iron plays a key role in enzymes and cytochromes, such as ribonucleotide reductase, which supports DNA synthesis and tissue growth (Harmatz et al., 2003). Iron also contributes to the production of ATP and protein synthesis, affecting tissue growth (Andrews, 1999). Some schools in Nusa Penida have implemented "Iron Tablet Week," where students are given iron tablets on Fridays to consume at school. Other schools distribute the tablets for home consumption. In the latter case, many students reported not consuming the tablets due to forgetfulness, taste, or constipation. Comparing both models, it is recommended that teenagers be given iron tablets at school under supervision to ensure consumption. Milk consumption is also important. Calcium deficiency from insufficient milk intake can lead to growth disorders in children. This issue is linked to low calcium levels and growth problems (Kurniasari et al., 2016). Calcium deficiency leads to poor absorption, evidenced by lower serum calcium levels in stunted babies compared to healthy babies (Glorieux & Pettifor, 2014). Calcium is stored in bones and is resorbed when needed, especially during pregnancy, to support fetal bone formation. Low calcium levels often result from inadequate milk consumption during adolescence, pregnancy, and breastfeeding. Furthermore, pre-marital health consultations among teenagers are still low. According to (Rus'an & Hamzah, 2019), pre-marital education is crucial for preparing teenagers for the transition in status. It is essential for preparing adolescents physically and mentally, including reproductive health and ensuring a healthier next generation. The lack of pre-marital education results in poor knowledge among teenagers about preparing for pregnancy and caring for their babies to prevent stunting. Addressing this issue requires health education programs for teenagers, particularly pre-marital, through youth health centers, peer support, or traditional organizations. Utilizing various groups can expand opportunities for teenagers to seek health consultations.

Table 3. Various Stunting Prevention Efforts by Mothers During Pregnancy (n=200)

Type of Prevention	Always (%)	Sometimes (%)	Never (%)
Iron (Fe) tablet consumption since adolescence	47 (23.5%)	24 (12%)	129 (64.5%)
Fast food consumption	26 (13%)	143 (73%)	28 (14%)
Eating at home regularly	199 (99.5%)	1 (0.5%)	-
Regular meal patterns	187 (93.5%)	13 (6.5%)	-
Milk consumption	11 (5.5%)	66 (33%)	123 (61.5%)
Fish/meat consumption	95 (47.5%)	104 (52%)	1 (0.5%)
Vegetable consumption	95 (47.5%)	104 (52%)	1 (0.5%)
Fruit consumption	186 (93%)	14 (7%)	-
Health checkups	46 (23%)	153 (76.5%)	1 (0.5%)
Listening to stunting information	25 (12.5%)	83 (41.5%)	92 (46%)
Health consultations	68 (34%)	32 (16%)	100 (50%)
Exercise habits	13 (6.5%)	11 (5.5%)	176 (88%)
Drinking 1.5-2 liters of water daily	26 (13%)	139 (69.5%)	35 (17.5%)

The table 3 presents various stunting prevention efforts by mothers during pregnancy, showing both positive and concerning health behaviors. Most respondents maintained regular meal patterns (93.5%), ate at home consistently (99.5%), and frequently consumed fruits (93%), while fish/meat and vegetable intake were variable. However, adherence to key prenatal health practices was low, with only 23% regularly attending health checkups, 34% seeking health consultations, and 12.5% listening to stunting information. Iron tablet consumption since adolescence remained low (23.5%), and milk intake was infrequent (5.5%). Unhealthy habits persisted, with 73% consuming fast food sometimes, and 65.5% regularly drinking soft drinks. Exercise engagement was particularly poor, with 88% never exercising. Although 69.5% sometimes drank the recommended amount of water, only 13% did so consistently. These findings highlight gaps in essential prenatal health behaviors that could impact maternal and child nutrition.

This study found that most respondents demonstrated adequate behaviour in stunting prevention during pregnancy (99%), with only 0.5% showing good behavior and another 0.5% deemed inadequate. Salamung discovered that stunting prevention behavior in the first trimester is influenced more by family and environmental support than by maternal age, education, or income (Salamung et al., 2019). However, one key point remains consistent: sufficient maternal nutrition during pregnancy is essential to reduce the risk of giving birth to a stunted child (Kurniasari et al., 2016). Poor nutritional intake, irregular eating habits, and low food quality can impair fetal growth, increasing the risk of stunting (Berhe et al., 2019; Budiastutik & Rahfiludin, 2019; Raiten & Bremer, 2020).

According to the behavioral data, although 99.5% of respondents ate at home regularly and 93.5% maintained consistent meal patterns, other crucial practices were neglected. For example, 64.5% never consumed iron (Fe) tablets during adolescence, and only 23.5% had done so regularly. This is concerning, as anemia—linked to iron deficiency—is a key contributor to poor fetal growth (Oktarina et al., 2024). In addition, 61.5% never consumed milk, and only 5.5% drank it regularly, indicating a lack of dietary calcium and protein. On the other hand, consumption of fruits (93% always), vegetables, and animal protein (each 47.5% always) was relatively strong, supporting essential nutrient intake during pregnancy.

Despite this, only 23% of respondents consistently attended health checkups, and 34% regularly sought health consultations. Most (76.5%) did so only occasionally, which may result in missed opportunities for early detection and intervention. Moreover, only 12.5% frequently listened to stunting-related information, and 50% never consulted with health professionals about it reflecting a serious gap in awareness. Physical activity and water consumption habits were also poor, with 88% reporting no regular exercise and 17.5% failing to meet daily hydration needs.

These findings highlight that while general eating routines are strong, there are critical weaknesses in iron supplementation, milk intake, healthcare engagement, and stunting awareness. Thus, preventing anemia during pregnancy requires not only iron-rich foods—such as meat, poultry, fish, legumes, and green vegetables—but also vitamin C-rich fruits to aid iron absorption (Hermawan et al., 2020).

Table 4. Various Efforts Made by Mothers to Prevent Stunting in Toddlers During the Breastfeeding Period (n=200)

Type of Prevention	Always (%)	Sometimes (%)	Never (%)
Habit of consuming vitamins after the baby is born	108 (54%)	50 (25%)	41 (21%)
Habit of eating fast food	99 (49.5%)	42 (21%)	59 (29.5%)
Habit of eating at home	96 (48%)	41 (20.5%)	63 (31.5%)
Habit of drinking milk	197 (98.5%)	3 (1.5%)	
Habit of eating fish/meat	195 (97.5%)	5 (2.5%)	

Habit of eating vegetables	50 (25%)	43 (21.5%)	107 (53.5%)
Habit of eating fruits	97 (48.5%)	102 (51%)	1 (0.5%)
Habit of health checkups	184 (92%)	16 (8%)	
Listening to information about stunting	42 (21%)	158 (79%)	
Habit of taking iron supplements	140 (70%)	47 (23.5%)	13 (6.5%)
Habit of taking calcium supplements	193 (96.5%)	7 (3.5%)	
Actively seeking information on stunting	104 (52%)	34 (17%)	61 (30.5%)
Checking for signs of stunting at health services	103 (51.5%)	16 (8%)	77 (38.5%)
Health workers providing education on stunting risks for my baby	185 (92.5%)	12 (6%)	1 (0.5%)
Taught how to handle stunting at home	173 (86.5%)	13 (6.5%)	13 (6.5%)
Taught how to stimulate the baby at home	181 (90.5%)	17 (8.5%)	2 (1%)
Received nutritional support to reduce stunting from the village	114 (57%)	34 (17%)	52 (26%)

The table 4 presents various efforts made by mothers to prevent stunting in toddlers during the breastfeeding period, highlighting both proactive and inconsistent practices. High adherence was observed in milk (98.5%), fish/meat (97.5%), and calcium supplement (96.5%) consumption, as well as regular health checkups (92%) and receiving stunting education from health workers (92.5%). Additionally, most mothers were taught how to handle stunting (86.5%) and stimulate their babies at home (90.5%). However, vitamin intake was inconsistent, with only 54% always consuming them post-birth. While 70% regularly took iron supplements, vegetable intake was notably low, with 53.5% never consuming them. Stunting awareness efforts showed gaps, as only 52% actively sought information, and 51.5% regularly checked for signs of stunting at health services, while 79% only sometimes listened to stunting information. Unhealthy dietary habits persisted, with 49.5% frequently consuming fast food. Additionally, 57% received nutritional support from the village, indicating partial community involvement. These findings suggest strong adherence to some key nutritional practices but highlight gaps in dietary diversity and stunting awareness.

Table 4 shows that the majority of respondents exhibited sufficient behavior in preventing stunting during the breastfeeding period, with 96% demonstrating adequate practices, while only 4% showed insufficient behavior. This finding aligns with previous research on stunting prevention in children under two years old (Fildzah et al., 2020), highlighting the critical importance of this stage. Stunting interventions are most effective when focused on the first 1,000 days of life the window from conception through the child's second birthday—which encompasses 270 days of pregnancy and 730 days of infancy and early childhood (Simbolon, 2019)

The behavioral data show several strengths during the breastfeeding period, such as high rates of milk (98.5%) and meat/fish consumption (97.5%), as well as strong adherence to health checkups (92%) and iron (70%) and calcium (96.5%) supplementation. Additionally, the majority of mothers reported receiving education from health workers about stunting risks (92.5%), being taught how to stimulate their baby at home (90.5%), and how to handle stunting at home (86.5%). These practices suggest good postnatal health engagement and awareness. However, gaps remain—only 25% reported regular vegetable consumption, and 49.5% frequently consumed fast food, indicating suboptimal dietary balance. Moreover, while 52% actively sought information about stunting, 30.5% never did, and 38.5% never checked for

signs of stunting at health services, revealing limitations in proactive health behavior and monitoring.

Although most mothers were practicing stunting prevention during the breastfeeding period, attention must be paid to dietary quality, consistent growth monitoring, and sustained education efforts (Nurvitriana & Andarwulan, 2021). Strengthening nutritional habits and empowering mothers to regularly engage with health services are crucial steps to maximize the benefits of interventions during the 1,000 days of life—window and ultimately reduce the prevalence of stunting (Likhar & Patil, 2022; Pudjirahaju et al., 2025).

Table 5. Various Types of Support from Health Workers to Families in Preventing Stunting in Toddlers in the Community (n=200)

Type of Health Worker Support	Often (%)	Sometimes (%)	Never (%)
Teaching how to handle stunting	71 (35.5%)	72 (36%)	57 (28.5%)
Checking for signs of stunting	135 (67.5%)	27 (13.5%)	38 (19%)
Educating on the risks of stunting	185 (92.5%)	14 (7%)	1 (0.5%)
Assisting in handling stunting	174 (87%)	13 (6.5%)	13 (6.5%)
Assisting with baby stimulation	181 (90.5%)	17 (8.5%)	2 (1%)

Table 5 presents an overview of the various types of support provided by health workers to families in preventing stunting among toddlers in the community. The most consistently delivered service was education on the risks of stunting, with 92.5% of families reporting that they often received this information. Similarly, a high level of support was reported in areas such as assisting with baby stimulation (90.5%) and helping families manage stunting cases (87%), indicating strong engagement in direct caregiving and developmental support. Additionally, 67.5% of respondents noted that health workers frequently checked for signs of stunting, although 19% reported never receiving this service—suggesting variability in routine health monitoring.

One of the more notable gaps was in teaching families how to handle stunting at home. Only 35.5% of respondents reported receiving this guidance frequently, 36% occasionally, and 28.5% never, revealing a need for more consistent family-centered training. While educational and clinical support from health workers appears robust, the data suggest that practical, hands-on training for families is not uniformly implemented. In terms of overall perception, 54.5% of respondents rated health worker support as good, 44% as sufficient, and only 1.5% as insufficient. These findings underscore the generally positive role of health workers in community-based stunting prevention while also highlighting areas for improvement, particularly in empowering families with practical skills to manage and prevent stunting at home (Putra et al., 2024; Tyarini et al., 2024).

This study found that health worker support for families in preventing stunting was generally good. The strong efforts of healthcare workers in addressing stunting indicate that the human resource development of health personnel in Klungkung Regency is highly capable of managing stunting cases. Improving the quality of healthcare workers in handling stunting is essential, requiring knowledge of the causes, treatments, family culture, economy, education, complementary foods, and community involvement. Health workers must be equipped with additional knowledge and practice on education techniques tailored to stunting risk factors. This aligns with a study that linked health extension workers' knowledge-sharing effectiveness (KSE) to stunting. Training health extension workers (HEWs) on Infant and Young Child Feeding (IYCF), along with proper communication techniques, can improve their counseling skills (Tan et al., 2020). As the key team members in stunting eradication, healthcare workers must continually enrich their knowledge to provide more comprehensive insights to stakeholders such as village chiefs, traditional leaders, youth group leaders, and others involved in stunting eradication. Better knowledge will empower stakeholders to take more optimal action.

Table 6. The Relationship Between Healthcare Worker Support and the Behaviors of Mothers of Toddlers with Stunting Before Marriage, During Pregnancy, and While Breastfeeding

		Behavior Before Marriage
Healthcare Worker Support	Pearson Correlation	0.187**
	Sig. (1-tailed)	0.004
	N	200
		Behavior During Pregnancy
Healthcare Worker Support	Correlation Coefficient	0.097
	Sig. (1-tailed)	0.083
	N	200
		Behavior While Breastfeeding
Healthcare Worker Support	Pearson Correlation	0.205**
	Sig. (1-tailed)	0.002
	N	200

The analysis results indicate a significant relationship between healthcare worker support and the behaviors of mothers of toddlers with stunting, particularly before marriage and while breastfeeding. As shown in the correlation data, healthcare worker support was positively and significantly associated with stunting prevention behaviors before marriage ($r = 0.187$, $p = 0.004$) and while breastfeeding ($r = 0.205$, $p = 0.002$). However, the correlation during pregnancy ($r = 0.097$, $p = 0.083$) was positive but not statistically significant, suggesting that other factors may have a stronger influence during that stage.

These findings align with previous studies, which reported that healthcare worker support remains inadequate in effectively preventing stunting (Bukit et al., 2021). In the study area, limited support services have likely contributed to the high stunting rate, with 56 children affected. This highlights the need to strengthen healthcare interventions, particularly at critical points in the life cycle. Stunting prevention should begin before marriage or during adolescence, when healthcare workers can educate young women about anemia prevention an important step, as anemia increases the risk of giving birth to stunted children (Reviani et al., 2025; Utami et al., 2023). Strategies to reduce anemia among adolescent girls and women of reproductive age should emphasize promotional and preventative measures, such as increasing iron-rich food intake, distributing iron supplements (TTD), and promoting fortified foods containing iron and folic acid (Elizar et al., 2022).

Moreover, healthcare worker support after childbirth is essential, especially in guiding families to practice exclusive breastfeeding and proper child stimulation to promote optimal growth and development (César-Santos et al., 2024; Purkiewicz et al., 2025; Yoto et al., 2025). The strong correlation between healthcare support and positive breastfeeding-period behaviors confirms the importance of continuous health education and engagement. To reduce stunting rates effectively, interventions must prioritize ongoing, stage-specific healthcare support, beginning in adolescence and continuing through the postnatal period.

4. CONCLUSION

Stunting cases were found among families where mothers were aged 20–46, had high school education, lived in nuclear families, and earned below the regional minimum wage. While families demonstrated adequate awareness of stunting prevention across all stages before marriage, during pregnancy, and while breastfeeding there were still inconsistencies in key behaviors such as iron supplementation, vegetable consumption, exercise, and early health

checkups. Healthcare worker support was generally good, especially in providing education and assistance, but training on managing stunting at home was less consistent. Continued health promotion efforts are needed throughout adolescence, pregnancy, and early childhood, with strong roles for healthcare workers and local government in identifying cases and supporting families.

Despite efforts, community-based support remains uneven, with only 57% of mothers receiving nutritional assistance from the village, revealing gaps in resource distribution. The study also faced limitations, including reliance on self-reported data and the absence of longitudinal follow-up, which restricts conclusions about long-term effectiveness. Additionally, broader socioeconomic factors critical to healthcare and nutrition access were not fully explored. Future research should aim to address these gaps by enhancing community engagement, expanding preventive care access, and incorporating socioeconomic data to guide more targeted and equitable stunting prevention strategies.

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