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OVERVIEW OF THE FIRST 1000 DAYS OF LIFE FOR EXPECTANT MOTHERS AND TODDLERS AGED 0-2 YEARS IN GIANYAR REGENCY, BALI, INDONESIA

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ABSTRACT

Introduction: *The first 1000 days of life are the most critical period in children's physical and cognitive development. Nutritional status in the first 1000 days of life in expectant mothers and children under five will affect the quality of health, intellectual, and productivity in the future. According to the Basic Health Research of Bali Province, the prevalence of stunting in Bali is 32.6%, with the most cases, one of which is in Gianyar Regency.* ***Objectives:*** *To present an overview of the first 1000 days of life in expectant mothers and toddlers aged 0-2 years.* ***Materials and Methods:*** *This study uses a descriptive research design with a household survey using a cross-sectional approach to 30 clusters. From each selected census block, 5 expectant mothers, 5 toddlers aged 0-1 years and 5 toddlers aged 1-2 years were selected as samples using simple random method from 450 respondents in the total sample.* ***Results:*** *The incidence of stunting in toddlers aged 1 year is 12% and in toddlers aged 2 years is 17% with a total rate of 19% in Gianyar Regency. In terms of gender of those who experience stunting, most of them are female with a percentage of 20%. In the implementation of the first 1000 days of life, especially in the level of achievement of specific interventions, there are expectant mothers who are exposed to cigarette smoke or as passive smokers with a percentage of 42%. At the level of achievement of sensitive indicators, especially the provision of clean water and sanitation, it is found that only 5.1% has access to clean water.* ***Conclusions:*** *There are 19% stunting toddlers in Gianyar Regency. Further research is needed, which adds or expands other variables and develops research methods.*
Keywords: *First 1000 days of life, expectant mothers, toddlers, Gianyar Regency*

ABSTRAK

Latar belakang: Masa 1000 hari pertama kehidupan merupakan masa paling kritis dalam perkembangan fisik dan kognitif anak. Status gizi pada 1000 hari pertama kehidupan pada ibu hamil dan balita akan berpengaruh terhadap kualitas kesehatan, intelektual, dan produktivitas pada masa yang akan datang. Berdasarkan Riset Kesehatan Dasar Provinsi Bali prevalensi *stunting* di Bali sebesar 32,6%, dengan kasus paling banyak salah satunya terdapat di Kabupaten Gianyar. **Tujuan:** untuk mengetahui gambaran 1000 hari pertama kehidupan pada ibu hamil dan balita yang berusia 0-2 tahun. **Bahan dan Metode:** Rancangan penelitian yang ini adalah penelitian deskriptif dengan survey rumah tangga dengan pendekatan *cross-sectional* pada 30 cluster. Dari setiap block sensus yang terpilih akan dipilih sebanyak 5 sampel ibu hamil, 5 sampel anak berusia 0-1 tahun dan 5 anak berusia 1-2 tahun dengan cara *simple random* dengan total sampel 450 responden. **Hasil:** Kejadian *stunting* pada anak 1 tahun adalah sebesar 12% dan anak pada usia 2 tahun sebesar 17% dengan angka keseluruhan sebesar 19% di Kabupaten Gianyar. Untuk jenis kelamin anak yang *stunting* sebagian besar berjenis kelamin perempuan sebesar 20%. Dalam penerapan 1000 hari pertama kehidupan, khususnya dalam tingkat capaian intervensi spesifik terdapat ibu hamil yang terekspose asap rokok atau perokok pasif sebesar 42%. Pada tingkat capaian indikator sensitif khususnya penyediaan air bersih dan sanitasi didapatkan yang mengakses air bersih hanya 5,1%. **Kesimpulan:** Terdapat 19% balita *stunting* di Kabupaten Gianyar. Perlunya penelitian lebih lanjut dengan menambah atau memperluas variabel lainnya serta mengembangkan metode penelitian.

Kata kunci: 1000 hari pertama kehidupan, ibu hamil, balita, Kabupaten Gianyar

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INTRODUCTION

The early 1000 days of life is the most critical period for fostering a child's physical and cognitive development (The World Bank Indonesia, 2012). Nutritional status of pregnant and lactating mothers, health status and good nutritional intake are important factors for growth and physical and cognitive development of children, reducing the risk of morbidity in and mothers. Poor nutritional status of expectant mothers will cause fetal growth disorders, the main cause of stunting, and increase the risk of obesity and degenerative diseases in adulthood (Pradnyawati et al, 2021).

Nutritional status in the first 1000 days of life will affect the quality of health, intellectual, and productivity in the coming future (USAID, 2014). Mothers and infants need adequate and quality nutrition to ensure proper nutritional status and health status, motor, social, and cognitive abilities. Considering the importance of nutrition for the first 1000 days of life, nutrition intervention during this period is a top priority to improve the quality of life of future generations (Ritte et al, 2016).

Expectant mothers and children under 5 years of age are at the highest risk of micronutrient deficiencies (MNDs) (Bappenas RI, 2012). Iron, iodine, folate, vitamin A, and zinc deficiency are the most widespread MNDs and are common contributors to growth disorders, intellectual decline, perinatal complications and increased risk of morbidity and mortality (Bailey et al, 2015). Nutritional problems that occur at the time of infants being newborn are also caused by the failure of exclusive breastfeeding. Factors causing the failure of exclusive breastfeeding include the condition of mothers who are working, lack of knowledge of mothers and unsupportive husbands (Pradnyawati et al, 2019). Another factor that causes nutritional problems in the first 1000 days of life is inappropriate complementary feeding practices (Walsh et al, 2015).

Based on data from the Bali Province Basic Health Research in 2013, the prevalence of stunting in Bali Province is 32.6%, with the most cases, one of which is in Gianyar Regency with a prevalence of 41% (Riskesdas, 2013). The behavior of the community, especially parents who are not good at fulfilling nutritional needs in the first 1000 days of life or the "golden period", is a factor in the emergence of nutritional problems. Behavior is the second largest factor after environmental factors that affect the health of individuals, groups and communities (Notoatmodjo, 2010).

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MATERIALS AND METHODS

The research design used was a household survey with a cross-sectional approach in Gianyar Regency, Bali Province, to find out an overview of the first 1000 days of life for expectant mothers and toddlers aged 0-2 years. The study population is families who have expectant mothers and children aged up to 24 months in the regency in 2021. Research population was selected using the cluster method, consisting of 30 clusters, with the probability proportional to size (PPS) method based on data from the Central Statistics Agency (BPS) of Bali province. From each selected census block, 5 expectant mothers, 5 children aged 0-1 years and 5 children aged 1-2 years were selected as samples using simple random method with a total sample of 450 respondents. This study was approved by the Institutional Review Board of Udayana University (Ref: 2082/UN14.2.2.VII.14/LT/2021).

RESULTS AND DISCUSSION

Characteristics of Sample

Table 1. Characteristics of the Research Sample

Characteristics	n	%	Characteristics	n	%
Expectant Mother	**150**	**100%**	**Breastfeeding Mothers (having toddlers aged 0-2 years)**	**300**	**100%**
Age			**Age**		
<18 years	0	0%	<18 years	0	0%
18 – 35 years	118	79%	18 – 35 years	259	86%
>35 years	32	21%	>35 years	41	14%
Parity			**Parity**		
0 (first pregnancy)	66	44%	Primipara	223	74%
1 infant	84	56%	Multipara	77	26%
Education			**Education**		
Elementary School	10	7%	Elementary School	2	1%
Junior High School	52	35%	Junior High School	17	6%
Senior High School	55	36%	Senior High School	124	41%
Higher Education	33	22%	Higher Education	157	52%
Occupation			**Occupation**		
Housewife	58	39%	Housewife	92	31%
Merchant	12	8%	Merchant	10	3%
Civil Servant	6	4%	Civil Servant	4	1%
Entrepreneur	8	5%	Entrepreneur	93	31%
Others	66	44%	Others	101	34%
Family Income			**Family Income**		
<2.5 million/month	111	74%	<2.5 million/month	169	56%
≥2.5 million/month	39	26%	≥2.5 million/month	131	44%

Toddler	**N**	**%**
	300	**100%**
Age		
0-1 year	150	50%
1-2 years	150	50%
Gender		
Male	153	51%
Female	147	49%
Birth		
Normal	103	34%
Caesarean Section	197	66%
Birth Weight		
Normal	288	96%
Low Birth Weight	12	4%

Source: Primary Data.2021.

Based on the data and cathartics in Table 1, in the expectant mothers group, the majority of mothers aged 18-35 years with a percentage of 79% and already have 1 infant with a percentage of 84%. Most of the respondents have senior high school education with a percentage of 37% and the average family income is less than 2.5 million rupiah per month. In the group of mothers with children aged 0-2 years, the majority of respondents aged 13-35 years with a percentage of 86% and primiparas at 74%. Most of the respondents have senior high school education with a percentage of 41% and the average family income is less than 2.5 million rupiah per month.

Family economic status will affect the nutritional status of the family members. This relates to the amount of food supply in the household. Toddlers with household conditions having low economic status will be more at risk of experiencing stunting. Children can tend to be thin or short. A good family's economic status will also receive decent public services such as education, health services, road access and others, so that it will have a good effect on the nutritional status of children (Pradnyawati dan Diaris, 2021).

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Implementation of the First 1000 Days of Life

Table 2. Specific Achievement Level of First 1000 Days of Life

Indicator	n (%)
Expectant mothers (n= 150)	
• Exposed to cigarette smoke (passive smoker)	63 (42%)
• Not exposed to cigarette smoke	87 (58%)
Breastfeeding mothers (n=150)	
• Exclusive breastfeeding	51 (34%)
• Non-exclusive breastfeeding	99 (66%)
Toddlers aged 0-2 years (n =300)	
• Vitamin A supplementation	101 (33.7%)
• Deworming treatment	140 (46.7%)
• Basic Immunization	285 (95%)

Source: Primary Data.2021.

Table 3. Achievement Level of Sensitive Indicators of the First 1000 Days of Life

Indicator (n=450)	n (%)
Provision of Clean Water and Sanitation	
• Access to clean water (municipal waterworks (PDAM)/packaged water source)	23 (5.1%)
• Proper sanitation:	
Possession of latrine	449 (99.8%)
Waste management	318 (70.7%)
• Hand washing and Clean and Healthy Lifestyle (PHBS)	368 (81.8%)

Source: Primary Data.2021.

The various impacts of malnutrition described above bring about an impact in the form of lack of human quality optimization, measured from the ability to achieve a high level of education, low competitiveness, vulnerability to non-communicable diseases, all of which lead to a decrease in income levels and family welfare and public (Moore et al, 2017). In other words, malnutrition can lead to poverty. What is encouraging is the problems mentioned above are not caused

primarily by genetic factors that cannot be improved as many people think, but rather by environmental factors that can be improved by focusing on the first 1000 days of life. Nutrition investment for this group should be seen as part of an investment to reduce poverty through improving education and health (Martorell, 2017).

Stunting Incidence

Table 4. Stunting Incidence

Group of children	Stunting		
	Stunted	**Normal**	**Total**
	n (%)	**n (%)**	**n (%)**
Age			
• 1 year	18 (12%)	132 (88%)	150 (50%)
• 2 years	40 (17%)	110 (73%)	150 (50%)
• Total	58 (19%)	242 (81%)	300 (100%)
Gender			
• Male	28 (18%)	125 (83%)	153 (51%)
• Female	30 (20%)	117 (79%)	147 (49%)
• Total	58 (19%)	242 (81%)	300 (100%)

Source: Primary Data.2021.

Stunting represents chronic undernutrition status during growth and development since early life. The situation is represented by a z-score of height for age (TB/U) less than -2 standard deviations (SD) based on growth standards (Pusat Data Kemenkes RI, 2018). Nutritional problems, especially stunting in toddlers, can hinder their development, with negative impacts that will take place until the next life such as intellectual decline, vulnerability to non-communicable diseases, decreased productivity to the point of causing poverty and the risk of giving birth to babies with low birth weight (Krishna et al, 2018).

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Children Morbidity Rate

Table 5. Children Morbidity Rate

Variable	n (%)
• **Frequency of morbidity in the last 3 months**	
Never	120 (40%)
<3 times	167 (56%)
>3 times	13 (4%)
• **Type of disease**	
Diarrhea	31 (10%)
Pyrexia	161 (54%)
Dyspnea	12 (4%)
Cough and cold	37 (12%)
Dermatitis	1 (0.3%)

Source: Primary Data.2021.

Infection is a disease that can be transmitted from one person to another or from animals to humans. Each year, infections kill about 3.5 million people, mostly poor children and children living in low- and middle-income countries. Infectious diseases are prone to occur and are often experienced by toddlers. Toddlers are an age group that is vulnerable to nutrition and disease-prone, and one of the problems that are often experienced by toddlers is diarrhea and acute respiratory infection (ARI) (Kattula et al, 2014).

In 2013, Basic Health Research (*Riskesdas*) showed diarrhea was one of the most common infectious diseases and the leading cause of death in children under five years of age (Riskesdas, 2013). Diarrhea has been the cause of death for children under 1 year of age as much as 31% and that of children aged 3-5 years as much as 25%. Children who suffer from infectious diseases with a longer duration of time have a greater chance of experiencing stunting. Additionally, the child in question is more likely to experience sequelae due to common infections that will weaken the child's physical condition (Tang et al, 2015).

Nutrition Consumption Adequacy

Table 6. Nutrition Consumption Adequacy

Consumption of Nutrients in Expectant Mothers				
	Good	**Moderate**	**Poor**	**Deficit**
Energy	0	138	12	0
Protein	90	48	6	6
Fat	150	0	0	0
Carbohydrate	0	0	12	138
Calcium	12	24	24	90
Fe	6	6	18	120
Consumption of Nutrients in Toddlers Aged 0-1 Years				
	Good	**Moderate**	**Poor**	**Deficit**
Energy	126	24	0	0
Protein	150	0	0	0
Fat	132	12	0	6
Carbohydrate	42	42	30	36
Calcium	108	18	6	18
Fe	60	18	36	36
Consumption of Nutrients in Toddlers Aged 1-2 Years				
	Good	**Moderate**	**Poor**	**Deficit**
Energy	6	144	0	0
Protein	90	42	18	0
Fat	150	0	0	0
Carbohydrate	0	0	36	114
Calcium	6	0	6	138
Fe	36	12	18	84

Source: Primary Data.2021.

Consumption of food for expectant mothers must meet the needs for themselves and for the growth and development of their fetus/infant. During pregnancy, mothers must increase the amount and type of food consumed to meet

the nutritional needs of expectant mothers and their fetuses. In addition, nutrition is also needed to prepare for breast milk production If the mother's daily diet does not contain enough nutrients needed, the fetus will take what is in the mother's body, such as fat cells as a source of calories and iron as a source of iron (Ariati et al, 2018).

Toddler is an important period for child growth. Nutrient intake through food and healthy living during this period will determine future growth and development (Schwarzenberg et al, 2018). Lack of nutrient intake can cause several nutritional problems, one of which is stunting. Stunting is a condition of long-term protein energy deficiency characterized by a lack of height for age. Indonesia still has a stunting problem with a prevalence of 36.4%. It is the 4th highest country for stunting rates in Asia (Krishna et al, 2018).

Protein plays a crucial role in the development of every cell in the body and also in maintaining immunity. As one of the nutrients that is needed by humans, it is unavoidably needed during the growth period. Consumption of less nutrients for a long time can cause Protein Energy Deficiency (PEM). The results of various studies have shown PEM is a form of malnutrition that has the effect of reducing physical and intellectual quality, and lowering the immune system which results in an increased risk of illness and death, especially in biologically vulnerable groups (Husnah, 2017).

CONCLUSIONS

Incidence of stunting in toddlers aged 1 year is 12% and in those aged 2 years is 17% with a total rate of 19% in Gianyar Regency. In terms of gender, children who experience stunting are mostly female with a rate of 20%. In the application of the first 1000 days of life, especially in the level of achievement of specific interventions, there are expectant mothers who are exposed to cigarette smoke or become passive smokers with a percentage of 42%. Mothers who exclusively breastfeed their toddlers make up 34%. At the level of achievement of sensitive indicators, especially the provision of clean water and sanitation in the implementation of the first 1000 days of life, it is found that only 5.1% of mothers have access to clean water in the form of municipal waterworks (PDAM)/packaged water source. Further research is needed by adding or expanding other variables and developing research methods.

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