Overview of Knowledge about the Importance of the First 1000 Days of Life in Indonesian Women of Reproductive Age (15 - 49 Years) in 2021

Abstract

The first thousand days of life is a golden period from 0-2 years which is a critical period in brain growth because there is a rapid increase in the development of cells in the brain that are very vulnerable to damage. If, at this time, the child is suffering from malnutrition, it cannot be guaranteed that further development will proceed normally. This study aims to describe knowledge about the importance of of the first 1000 days of life in women of childbearing age (15-49 years) in 2021. This research is a descriptive study with purposive sampling and obtained a total sample of 115 respondents. The results showed that the description of the knowledge of women of childbearing age about the meaning of of the first 1000 days of life showed that most women of childbearing age had moderate knowledge of 64 people (56%), knowledge of the of the first 1000 days of life program showed that most women of childbearing age had high knowledge of 44 people (38%), and knowledge about nutrition in of the first 1000 days of life shows that most women of childbearing age have moderate knowledge of 72 people (63%). Based on the results of the study, the description of knowledge about the importance of the first 1000 days of life in women of childbearing age (15-49 years) regarding of the first 1000 days of life program is included in the medium category, regarding the understanding of of the first 1000 days of life is included in the high category, and regarding nutrition in of the first 1000 days of life is included in the medium category.

Keywords: *Knowledge, women of reproductive age, first 1000 days of life*, malnutrition, childbearing age

Introduction

"The First 1000 Days of Life (1000 HPK) period, or the windows of opportunities period, is calculated from conception to the age of 2 years. The 1000 HPK period greatly determines the quality of the child's life in the future; the consequences for the child during this period are permanent and cannot be repaired". [1; 2] "Nutrition at 1000 HPK is very important for pregnant women and is still a health problem in society, which impacts the quality of life, good physical condition, and children's cognitive abilities in the future. Good nutrition is the main foundation of health for every toddler to reach their maximum potential". [3; 4]

"Children born and growing up in situations of chronic malnutrition will become stunted children (stunting). Stunting in children reflects a condition of failure to thrive in children under five due to chronic malnutrition". [5; 6] "The prevalence of uderweight at 17.7%, the prevalence of stunting at 30.8%, and the prevalence of wasting at 10.2%. The target for the National Medium Term Development Plan for 2010-2014 is 15%, and the Millennium Development Goals (MDGs) for 2015 is 15.5%, so the prevalence rate still needs to be reduced". [7; 8; 9] Mothers have an important role in helping the growth and development of toddlers. Lack of mother's knowledge of nutrition at 1000 HPK affects the practice of providing inappropriate food intake, affecting children's nutritional status. [10; 11]

"Low Birth Weight Babies (LBW) are babies born with a weight of less than 2500 grams, at risk of disease and growth retardation". [12; 13] The proportion of LBW from all provinces in Indonesia is 8%. [14; 15] Women of childbearing age at risk of Chronic Energy Deficiency (CED) in Indonesia in 2017 were 10.7%, while the number of pregnant women at risk of CED was 14.8%. [16] "The nutritional intake of women of childbearing age who are at risk for CED must be increased so that they can have an ideal body weight during pregnancy. Whereas for CED pregnant women, there is already a nutrition improvement program set by the government, namely by providing additional food in the form of biscuits containing protein, linoleic acid, and carbohydrates, and enriched with 11 vitamins and seven minerals following the Minister of Health regulation number 51 of 2016 concerning standard supplementation products nutrition". [17; 18]

Literature Review

"The 1000 HPK Movement is a movement to accelerate nutrition improvement adopted from the Scaling Up-Nutrition (SUN) Movement. When a process of growth and development occurs that is very fast and does not occur in other age groups". [1] "This period is very sensitive because it can affect the development of brain cells in humans, so if there is interference or damage, it will be permanent and cannot be repaired. The importance of improving nutrition in the 1000 HPK is not due to hereditary factors but environmental factors and social conditions, especially in supporting the growth and development of infants, fetuses, and children up to 2 years of age" [19]. "This movement helps life expectancy and improves the quality of life by focusing on the 1000 HPK period". [20]

Factors that greatly contribute to the problem of stunting are inadequate intake of energy and nutrients and infectious diseases. The quantity and quality of protein intake affect plasma levels of Insulin Growth Factor I (IGF-I) and also on bone matrix proteins and growth factors, which play an important role in bone formation. In addition, several micronutrients that are very important for preventing stunting, namely vitamin A, zinc, iron, and iodine. Iodine is needed to form the hormone thyroxine, which the body needs to regulate growth and development from fetus to adulthood. Iodine deficiency can result in, among other things, impaired physical growth and mental retardation. However, several other micronutrients, such as calcium and phosphorus, also play a very important role in the linear growth of children. [21] "During growth, bone mineralization is critical; low calcium intake can result in an under-mineralized matrix of new bone deposits and osteoblast dysfunction. If the bone's calcium content is less than 50% of the normal content, it can affect linear growth. Calcium forms complex bonds with phosphates, which provide strength to bones. Thus, phosphorus deficiency can also interfere with growth. Phosphorus deficiency in the long term will cause osteomalacia and can cause the release of calcium from the bones". [22]

"In addition to calcium, phosphorus, energy, and vitamins, one liter of milk contains 32-35 grams of protein, mostly casein and whey, which contain many growth elements. Casein can increase calcium absorption and mineral retention. Children who did not consume milk during the growth period were associated with shorter stature and lower bone mineral mass". [23] "During the growth period, the demands on bone mineralization are very high. A very low calcium intake can lead to hypocalcemia, despite maximal secretion from the parathyroid glands, which can result in low mineralization of the new bone deposit matrix

and osteoblast dysfunction. In infants, lack of calcium in the bones can cause rickets, whereas, in children, lack of deposits can cause growth retardation". [24]

"Scaling Up Nutrition (SUN) was established as a multi-stakeholder and multi-sectoral initiative that promotes nutrition action globally. This action involves civil society, business, and the United Nations working together to support efforts in 61 low- and middle-income member countries to reduce malnutrition, especially chronic malnutrition (stunting) among children". [25] "Balanced nutrition is a daily food composition that contains nutrients in the type and amount according to the body's needs, taking into account the principles of food diversity, physical activity, clean living behavior, and monitoring body weight regularly to maintain normal body weight to prevent nutritional problems". [26]

Appropriate and community-based communication, information, and education are needed to optimize the delivery of balanced nutrition messages to the public. Since 1952, nutrition education and counseling using the slogan 4 Healthy 5 Perfect has instilled an understanding of the importance of nutrition and then changed people's consumption behavior. Father of Indonesian Nutrition, Prof. Poorwo Soedarmo, introduced the 4 Healthy 5 Perfect Principle, which was inspired by the Basic Four of the United States which was introduced in the 1940s, namely a food menu consisting of staple foods, side dishes, vegetables, and fruits, and drinking milk to complete the menu. But nowadays, this slogan is no longer appropriate for developing science and nutritional problems, so it needs to be updated with slogans and visuals following current conditions. The principle of the Nutrition Guide for Balanced Diet is the result of an agreement at the world food conference in Rome in 1992, which is believed to be able to overcome the double burden of nutritional problems, both deficiency and excess nutrition. "The basic difference between the slogan 4 Healthy 5 Perfect and the Guidelines for Balanced Nutrition is: Daily food consumption must contain nutrients in the type and amount (portion) according to the needs of each person or age group. Food consumption must pay attention to the principles of the four pillars, namely a variety of foods, clean living habits, physical activity, and monitoring body weight regularly to maintain normal weight". [27]

"Pregnancy is a fertilization process that will produce an individual to continue an offspring. The gestation period is important for optimal fetus growth and preparation for childbirth. Therefore, adding nutrients is useful for pregnant women's health during childbirth, breastfeeding preparation, and growth and development. Things to pay attention to are: a) Eat larger portions than before pregnancy; b) For mothers who are overweight; and c) Reduce the portion of food sources of energy-adjusted to normal needs" [28].

"The first weeks of pregnancy are when the formation of important organs in the fetus's body. Therefore it is very important to maintain nutritional balance. Malnutrition can lead to failure in formation, so babies are born prematurely or with low birth weight. Arrange a varied menu and prioritize fresh foods to maximize the intake of the vitamins you need". [29]

"Before pregnancy, all women have to struggle to reach the appropriate weight. Normally, pregnant women will experience a weight gain of 10-12.5 kg. It happens because the need for food intake for pregnant women increases with increasing gestational age. Women who are underweight or underweight pre-pregnancy weight and fail to achieve an appropriate weight during pregnancy have a high probability of giving birth to a baby with

LBW. Women with large body proportions tend to have large babies, preeclampsia, diabetes, and urinary tract infections". [30]

The body mass index category for pregnant women is categorized as underweight (BMI ≤18.5), normal (BMI=18.6-25.0), overweight (BMI= 25.1-30.0), and obese (BMI ≥30.1). Guidelines regarding nutritional needs based on gender and age. [31] One of the increased needs for nutrients during pregnancy is the need for energy. The main energy requirement increases in the second and third trimesters. Increased energy consumption in the second trimester is needed to grow maternal tissues, such as increased blood volume, uterine and breast growth, and fat deposition. Meanwhile, the additional energy consumption throughout the third trimester is used to grow the fetus and placenta. Some of the nutrients pregnant women need cannot be fulfilled only from the food consumed by pregnant women every day, for example, iron, folic acid, and calcium. Therefore, pregnant women are required to add these nutrients in supplement form.

"Nutrition is a factor that plays an important role in the growth and development of the brain. The nutritional status of women, especially during childbearing age, is a key element of reproductive health, including pre-pregnancy, pregnancy, and the health of mothers who breastfeed their children. The effect of pregnancy and childbirth on women is an important indicator of their health". [32] "Each individual requires a different amount of food (nutrients) depending on age, weight, gender, physical activity, environmental conditions (such as temperature), and certain conditions (such as illness, pregnant or breastfeeding women). Age, education, and income also affect eating patterns and the level of nutritional adequacy of women of childbearing age". [33] Malnutrition impacts high maternal mortality rates during childbirth, infant mortality rates, under-five mortality rates, and low life expectancy. The health condition and nutritional status of pregnant women are determined during adolescence, adulthood, and before pregnancy as well as when they become women of childbearing age. [34]

Mothers and expectant mothers need to prepare nutrition in preparing for their pregnancy. Fulfillment of nutrients can be started when a woman enters her childbearing age. The fulfillment of maternal and infant nutrition is emphasized to be carried out from the first 1,000 days of a baby's life in the womb. The folic acid supplementation before pregnancy occurs is highly recommended for all women of childbearing age. The need for folic acid for normal women is 50-100 µg/day and 300-400 µg/day in pregnant women, while pregnant with twins has a greater need. Poor maternal nutrition before and during pregnancy can cause stunted fetal growth, babies born with low birth weight (LBW), impaired growth and brain development of the baby, and an increased risk of morbidity and mortality. [35]

"Knowledge results from knowing, which occurs after people sense a certain object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste, and touch. Most of human knowledge is obtained through the eyes and ears. Knowledge is very important in shaping human action (over behavior). Knowledge has six levels, namely, to know, to comprehend, to apply, to analyze, to synthesize, and to evaluate". [36] "The factors that influence knowledge are age, place of residence, sources of information, experience, socio-culture, environment, and intelligence". [37]

Measurement of knowledge can be done through interviews or questionnaires that ask the level of knowledge about the material's content to be measured by research subjects or respondents. We can adjust the acuity of knowledge we want to know or measure according to the level of knowledge in the cognitive domain. Criteria for assessing the level of knowledge using a value: a) The level of knowledge is high if the score or value is 76-100%; b) The level of knowledge is moderate if the score is 56-75%; and c) The level of knowledge is low if the score is <56%.

Method

This study uses descriptive research with with purposive sampling, it was done at Universtas Kristen Indonesia. The population in this study were women of childbearing age (15-49 years) with a sample size obtained from the Lemeshow formula of at least 68 people, but this study used 115 people who had filled out a questionnaire through the Google form which was distributed via social media Instagram, Whatsapp, and Line and meet the inclusion criteria. In taking research samples, a certain method is used so that the sample is as representative of the population as possible. The sampling technique used in this study was a non-random sampling procedure with purposive sampling. So that the results obtained follow the objectives. After all the data has been collected completely, the next step is to analyze the data. Data analysis is an important part of the scientific research method because data analysis will provide meaning that is useful for solving problems in research. This study uses descriptive data analysis techniques and data processing procedures that describe and summarize data scientifically in tables or graphs. Descriptive data analysis functions to summarize, classify, and present data. Results are presented using the following criteria: a) 76-100% (High knowledge); b) 56-75% (Moderate knowledge); and c) <56% (low knowledge). In determining the measurement results, use the following formula:

$$ppp = \frac{x}{y} x\ 100\% l$$

Information
Q: Percentage
X: The number of given respond
Y: The total number of answers

Result and Discussion

Research describing the importance of 1000 HPK knowledge in women of childbearing age (15-49 years) was conducted in June - July 2021. This study used purposive sampling, and 115 respondents were found who met the criteria to be the research sample. Furthermore, the results of the research in the form of tables are presented in full as follows.

Table 1. Frequency Distribution of Characteristics of Respondents of Reproductive Age Women (15-49 Years) based on Age, Last Education, and Occupation

Characteristics of Respondents	n	%
Age		
< 20 years	3	2.6
20-35 years	105	91.3
≥ 35 years	7	6.1
Last Education		
Elementary	0	0
Junior High School	0	0
Senior High School	27	23.5
Diploma (D3) / Undergraduate (S1)	86	74.8
Masters (S2)	2	1.7
Job		
Student	46	40.0
Housewife	15	13.0
Businessman	15	13.0
Civil Servant	9	7.8
Others	30	26.1

Table 1 shows in terms of age that out of 115 respondents, the age group with the most respondents was the group with an age range of 20-35 years, namely 105 respondents (91.3%), while the age group with the least number of respondents was the age group <20 years namely as many as three respondents (2.6%). Then in terms of recent education, it shows that of the 115 respondents, the most recent education level was Diploma (D3) / Bachelor (S1), namely 86 respondents (74.8%) then the last education level was SMA as many as 27 respondents (23.55%), and there were two respondents (1.7%) with the last educational level Masters (S2). After that, in terms of work, it showed that out of 115 respondents, 46 respondents (40%) were female students, and the least was civil servant respondents, namely nine (7.8%).

Table 2. Frequency Distribution of Levels of Knowledge about Understanding, Programs, and Nutrition of 1,000 HPK in Women of Reproductive Age (15-49 Years)

Definition of 1000 HPK	n	%
Low knowledge	12	10%
Medium knowledge	64	56%
High knowledge	39	34%
Total	115	100%

1000 HPK program	n	%

Low knowledge	29	25%
Medium knowledge	42	37%
High knowledge	44	38%
Total	115	100%

Nutrition at 1000 HPK	**n**	**%**
Low knowledge	5	4%
Medium knowledge	72	63%
High knowledge	38	33%
Total	115	100%

Based on table 2, regarding the level of understanding of 1000 HPK in women of childbearing age, shows that out of 115 respondents, 12 respondents (10%) of them had low knowledge, 64 respondents (56%) had moderate knowledge, and 39 respondents (34%) had knowledge tall one. The knowledge level of the 1000 HPK program for women of childbearing age indicated that the majority already had high knowledge, namely 44 respondents (38%), 42 respondents (37%) had moderate knowledge, and 29 respondents (25%) who still had low knowledge. The nutritional knowledge level of 1000 HPK in women of childbearing age shows that the majority of respondents have moderate knowledge, namely 72 respondents (63%), followed by high knowledge of 38 respondents (33%) and only five respondents (4%) of whom still have low knowledge.

Characteristics of respondents based on age showed that most respondents were aged 20-35 years, and this age was included in the category of women of childbearing age, which is a healthy and safe reproductive age. [38] Based on their last education, most respondents were Diploma (D3) / Bachelor (S1) graduates. The concept of education which is a learning process which means that in education, there is a process of growth, development, or change in a more mature, better and more mature direction in individual groups or society, and the last is characteristics based on work; female students are the most in this study [39].

Occupation can affect one's knowledge. Working people will have better access to various information. [40] Female student groups have a good level of knowledge, but a lack of motivation to seek information can still affect a person's level of knowledge. This study explains that most of the respondents have moderate knowledge about the importance of 1000 HPK.

Conclusion

Based on the results of the research and discussion of the description of knowledge about the importance of 1000 HPK in women of childbearing age (15-49 years) in 2021, it can be concluded that: a) The description of the level of knowledge of women of childbearing age about the 1000 HPK program is included in the medium category; b) The description of

the level of knowledge of women of childbearing age regarding the meaning of 1000 HPK is included in the high category; and c) Description of the level of knowledge of women of reproductive age about nutrition in 1000 HPK included in the medium category. Therefore, fertile women are expected to prepare to be healthy mothers so that mothers are ready to conceive a fetus that can grow and develop healthily and be born healthy. Healthy mothers will successfully give breast milk, optimize complementary foods, and stimulate good child growth and development. In old age, women will remain healthy, not bothered by many preventable degenerative diseases.

Consent

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

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