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Effect of Using the iMPASIQ Application on Knowledge and Behavior of Mothers as an Effort to Prevent Stunting

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Abstract

The research objective is to analyze effect of using the iMPASIQ application on knowledge and behavior of mothers as an effort to prevent stunting. This research is a quantitative research. This researcher uses a pre-experimental design using one group pre-test post-test. The sample in this study is 105 people who are taken by simple random sampling. To test the hypothesis, non-parametric statistical analysis was performed with the wilcoxon signed ranks test. The results of statistical calculations using the wilcoxon signed ranks test can be concluded that there is an effect of using the iMPASIQ application on knowledge and behavior of mothers as an effort to prevent stunting.

Keywords
iMPASIQ application; knowledge; behavior; mother

I. Introduction

Stunting is a chronic malnutrition problem caused by inadequate nutritional intake in a long time due to the provision of food intake that is not in accordance with nutritional needs. According to data from UNICEF in 2017, there are 92 million (13.5%) under-fives in the world underweight, 151 million (22%) under-fives experience stunting and 51 million (7.5%) under-fives experience wasting. Indonesia is a country with a stunting incidence of 37% (almost 9 million) children under five, and worldwide Indonesia is a country with the fifth largest prevalence of stunting. Toddlers who experience stunting will have a low level of intelligence, making children more vulnerable to disease and in the future can be at risk of decreasing productivity levels (Millennium Challenge Account Indonesia, 2014).

Stunting is a form of stunted growth in children. Until now stunting is one of the nutritional problems that need attention. In general, nutritional problems in children are the impact of an imbalance between intake and output or vice versa, in addition to errors in choosing food ingredients for consumption.

The short-term impact is that in childhood, development becomes hampered, cognitive function declines, immune function declines, and combustion system disorders. In the long term, namely in adulthood, there is a risk of degenerative diseases, such as diabetes mellitus, coronary heart disease, hypertension, and obesity. Facts related to stunting and its impacts include the following:

1. Children who are stunted early, namely before the age of six months, will experience more severe stunting by the age of two years. Severe stunting in children will result in long-term deficits in physical and mental development so that they are unable to learn optimally in school, compared to children of normal height.
2. Children with stunted tend to attend school longer and are more often absent from school than children with good nutritional status. This has consequences for the success of children in their lives in the future.

3. The effect of nutrition on stunted early childhood can interfere with growth and cognitive development that is lacking. Stunting children at the age of five years tend to persist throughout life, early childhood growth failure continues in adolescence and then grows into stunted adult women and has a direct impact on health and productivity, thereby increasing the chances of giving birth to children with LBW. Stunting is especially dangerous for women, because they are more likely to inhibit the growth process and are at greater risk of dying in childbirth.

East Java in the incidence of stunting also has a high prevalence rate of 26.7%, the incidence is greater than the incidence of stunting, which is 29.6%. This has resulted in East Java being one of the provinces that has a stunting prevalence rate that exceeds the national incidence rate. The mother's limited knowledge will pose a risk to the health and growth of the child, both in the womb and in its development. This is reinforced by research which concludes that young mothers whose toddlers experience stunting have low knowledge about nutrition. Increasing public awareness of the importance of maternal nutrition when the child is still in the womb until the child is 2 years old is a major task for the regional and central government.

Nutritious food is not food that is expensive, but food that has good nutritional content needed by infants and toddlers for the growth and development process. In children aged 6-12 months, the need for various nutrients is increasing and can no longer be met only from breast milk alone. At this age the child. Being in a period of rapid growth and development, starting to be exposed to infection and physically active, so that the nutritional needs that must be met take into account the baby's activity and the state of infection. In order to achieve balanced nutrition, it is necessary to add complementary foods to breast milk. This is not understood by parents in providing food to children aged 6-12 months. Currently, mobile phones are widely used with various applications that are available. In this research, the author makes a mobile-based application that aims to help parents in providing healthy food to their babies, the frequency of giving them, and menus that can be made according to the baby's age. Therefore, knowledge is needed for mothers who will provide food to their children. This application discusses balanced nutrition for infants and toddlers as well as the menu provided according to the child's age.

The research objective is to analyze effect of using the iMPASIQ application on knowledge and behavior of mothers as an effort to prevent stunting.

II. Review of Literature

2.1 Application

An application is a subclass of computer software that utilizes the capabilities of a direct computer to perform a task the user wants. Usually compared to system software that integrates various computer capabilities. Applications are programs developed to meet the needs of users in carrying out certain jobs.

So the application is a program created in a software with a computer to facilitate work or certain tasks such as the application, use and addition of the required data.

2.2 Knowledge

Knowledge is the result of knowing and this occurs after people have sensed a certain object. Sensing occurs through the human senses, namely the senses of sight, hearing, smell, taste and touch (Notoatmodjo, 2011). Level of knowledge According to Notoatmodjo (2011), knowledge has 6 levels, namely:

1. Know
   Know is defined as remembering a material that has been studied previously.
2. Understanding
   Understanding is defined as the ability to explain correctly about objects that are known and can interpret the material correctly.
3. Application
   Application is defined as the ability to use the material that has been studied in actual situations or conditions.
4. Analysis
   Analysis is an ability to describe material or an object into components, but still in an organizational structure and still have something to do with each other.
5. Synthesis
   Synthesis denotes an ability to put or connect parts into a new whole.
6. Evaluation
   Evaluation relates to a person's ability to justify or evaluate a particular object.

The factors that influence knowledge are:

1. Education means the guidance given by someone to others on something so that they can understand. It is undeniable that the higher a person's education, the easier it is for them to receive information and in the end the more knowledge they have.
2. The work environment can make a person gain experience and knowledge either directly or indirectly.
3. Age With increasing age, there will be changes in physical and psychological aspects.
4. Interest as a tendency or high desire for something. Interest makes a person to try and pursue something and in the end obtained a deeper knowledge.
5. Experience Experience is an event that has been experienced by a person in interacting with his environment.
6. The culture of the surrounding environment the culture in which we live and grow up has a major influence on attitude change.
7. Information The ease of obtaining information can help speed up a person to acquire new knowledge.

2.3 Stunting

Stunting is a condition of failure to thrive that begins to appear in toddlers (babies under five years) as a result of chronic malnutrition so that the child is too short for his age. Malnutrition occurs since the beginning of pregnancy and until the early period after the baby is born, however, stunting only appears after the baby is 2 years old. Short and very short toddlers are toddlers with body length (PB/U) or height (TB/U) according to age which are divided into very short, short, normal, and tall toddlers. It is categorized as very short if the Z-score value is < -3 SD, it is said to be short if the Z-score is -3 SD to -2 SD, normal Z-score is -2 SD is up to 2 SD, and is said to be high toddler if the Z-score is > 2 elementary school.

Nutritional problems are multidimensional problems, influenced by various factors. Nutritional problems are closely related to food problems. Nutritional problems in children under five are not easily recognized by the government, or the community and even families because the child does not look sick. Stunting is a condition of failure to thrive that begins to appear in toddlers (babies under five years) as a result of chronic malnutrition so that the child is too short for his age.

The concept of the emergence of malnutrition occurs as a result of environmental factors and human factors (host) which is supported by a lack of intake of nutrients. Due to lack of nutrients, the stored nutrients in the body are used to meet needs. If this situation lasts for a long time, then the nutrient stores will be depleted and eventually tissue deterioration occurs. At this time people can be said to be malnourished, even though it is only marked by weight loss and stunted growth in the body (Putra, 2016).

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Stunting has an impact on the lives of toddlers, WHO classifies it into short-term impacts and long-term impacts:

1. Concurrent Problems and Short-Term Consequences
   a. On the health side: morbidity and mortality rates are increasing.
   b. Developmental side: decline in cognitive function, motor, and language development.
   c. Economic side: increased health expenditure, increased financing for the care of sick children.
2. Long-Term Consequences or Long-Term Impact
   a. Health side: short adult stature, increased obesity and associated comorbidities, decreased reproductive health.
   b. Developmental side: decreased learning achievement, decreased potential learning capacity.
   c. Economic side: decrease in work capacity and work productivity.

III. Research Method

This research is a quantitative research. Quantitative research that reveals causal relationships by involving a group of subjects (Pandiangan et al., 2022; Tobing et al., 2018). Quantitative research is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations (Asyraini et al., 2022; Octiva, 2018; Pandiangan, 2015). The purpose of quantitative research is to attain greater knowledge and understanding of the social world. Researchers use quantitative methods to observe situations or events that affect people. Quantitative research produces objective data that can be clearly communicated through statistics and numbers (Octiva et al., 2018; Pandiangan, 2018).

This researcher uses a pre-experimental design using one group pre-test post-test. This research design does not use a control group but performs preliminary observations (pretest) that can test changes that occur after the experiment (Jibril et al., 2022; Pandiangan et al., 2018; Pandiangan, 2022). The subject group was observed before the intervention about how well they understood the MPASI, then the subject group would be treated with the iMPASIQ module and then observed again after the intervention.

The sample should be representative of the population to ensure that we can generalise the findings from the research sample to the population as a whole. The sample in this study is 105 people who are taken by simple random sampling.

To test the hypothesis, non-parametric statistical analysis was performed with the wilcoxon signed ranks test. The wilcoxon signed ranks test is a refinement of the sign test, this technique is used to test the comparative hypothesis of two correlated samples if the data is ordinal (Octiva et al., 2021; Pandiangan et al., 2021; Pandia et al., 2018).

IV. Results and Discussion

Hypothesis Test

In testing the hypothesis, the data analysis used in this study was the wilcoxon signed ranks test.

Table 1. Wilcoxon Signed Ranks Test Results

Ranks				
		N	Mean Rank	Sum of Ranks
Knowledge After – Knowledge Before	Negative Ranks	0[a]	.00	.00
	Positive Ranks	101[b]	51.00	5151.00
	Ties	4[c]		
	Total	105		
Behavior After – Behavior Before	Negative Ranks	0[d]	.00	.00
	Positive Ranks	44[e]	22.50	990.00
	Ties	61[f]		
	Total	105		
a. Knowledge After < Knowledge Before				
b. Knowledge After > Knowledge Before				
c. Knowledge After = Knowledge Before				

d. Behavior After < Behavior Before
e. Behavior After > Behavior Before
f. Behavior After = Behavior Before

Test Statistics[a]		
	Knowledge After – Knowledge Before	Behavior After – Behavior Before
Z	-9.205[b]	-6.633[b]
Asymp. Sig. (2-tailed)	.000	.000
a. Wilcoxon Signed Ranks Test		
b. Based on negative ranks.		

Statistical calculations using the wilcoxon signed ranks test can be concluded that there is an effect of using the iMPASIQ application on knowledge and behavior of mothers as an effort to prevent stunting.

V. Conclusion

The results of statistical calculations using the wilcoxon signed ranks test can be concluded that there is an effect of using the iMPASIQ application on knowledge and behavior of mothers as an effort to prevent stunting.

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