

THE EFFECT OF HEALTH EDUCATION ON THE NUTRITIONAL STATUS OF TODDLERS USING THE G-SIT APPLICATION ON THE KNOWLEDGE AND ATTITUDE OF MOTHERS IN UPT KUBANG JAYA HEALTH CENTER

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Abstract

Mother's knowledge and attitude have a big role in determining the nutritional status of toddlers. When mothers' understanding of nutrition is inadequate, the selection of food for children is often inappropriate, resulting in an impact on the nutritional intake of toddlers. Efforts to increase knowledge and form better attitudes can be done through health education. One of the educational media that can be used is the G-SIT application, an application designed to provide information about the nutritional status of toddlers and help mothers meet their children's nutritional needs. This study aims to determine the influence of health education on the nutritional status of toddlers using the G-SIT application on the knowledge and attitudes of mothers in the work area of the Kubang Jaya Health Center UPT. The study used a quantitative design of one group pretest posttest and was carried out in January 2025 with 44 respondents selected using purposive sampling techniques. The research instrument was in the form of a questionnaire of maternal knowledge and attitudes prepared by the researcher. Data were analyzed using a statistical t dependent test. The results showed that the average maternal knowledge and attitude before intervention of 6.64 and 6.23 increased to 7.36 and 7.32 after being given health education through the G-SIT application. The results of the dependent t-test showed a significant mean difference in maternal knowledge and attitude before and after the intervention with a p value of 0.001 < 0.05. This study concludes that the G-SIT application is effective in increasing maternal knowledge and attitudes regarding the nutritional status of toddlers. Therefore, this application is recommended to be used as a health education medium at the Health Center, especially for mothers who have toddlers.

Keywords: G-SIT Application; Nutritional status; knowledge; attitude; Nutrition News.

INTRODUCTION

In this golden age, toddlers need nutrition or balanced nutrition. Lack of nutritional needs can risk causing impaired growth and development in all organs and body systems, so it will have an impact in the future. One of the factors that affect a child's health and development is their nutritional status. Healthy nutritional status will strengthen the child's immune system, help the child's growth and development process optimally, and prevent various diseases (Shobah, 2021).

According to the Indonesian Health Survey Report (2023), at the district/city level in Riau Province, Kampar Regency is in 3rd position in the malnutrition category with a prevalence of 8.7%. For malnutrition, Kampar occupies the 2nd position with 4.0%, while in the overnutrition category, Kampar is in the 3rd position with a prevalence of 7.6%. In 2024, data from the Kubang Jaya Health Center Unit shows that from January to August the number of toddlers who were weighed was 315 who visited the health center. There were 135 undernourished toddlers (6.4%), 10 undernourished toddlers 0.47% and 3 undernourished toddlers 0.14%. According to a report from the Kubang Jaya Health Center, toddlers who

experience malnutrition have not reached the target, which is the national target of nutritional status under five by 5% by 2025.

Health education is a set of experiences designed to positively impact the habits, attitudes, and knowledge related to the health of individuals, communities, and nations. Health education that Previously, it focused more on classic methods such as seminars, brochures, and lectures, but now it is growing along with technological advances in switching to the digital realm such as the use of health applications, e-learning platforms, and social media as a means of disseminating information about health (Milah, 2022). A mother's knowledge of toddler nutrition is the mother's understanding of the nutritional needs of children under five years old, including the types of food needed for healthy growth and development. This includes an understanding of the importance of nutrition, how to develop a balanced diet, the benefits of breast milk, as well as signs of nutritional adequacy (Sutrisno et al., 2023). Attitude is the reaction or response that a person has to a stimulus or object. Attitudes clearly show the connotation of the suitability of reactions to certain stimuli, which are daily emotional reactions to social stimuli (Wijayanti, 2023).

According to a study conducted by Suryagustina et al. (2018) entitled "The effect of nutrition education on maternal knowledge and attitudes in feeding children in the work area of cold water health centers" on the effect of health education on knowledge obtained significance (p value $0.000 < 0.05$) while on the effect of health education on attitude significance (p value $0.000 < 0.05$). The results of this study are the influence of health education on child feeding on maternal knowledge and attitudes. So it is hoped that health workers will be able to provide health education so that public knowledge can be even better about stunting prevention.

G-SIT (Grow Screening Identify) is an application designed to facilitate data collection for toddlers and pregnant women and has several features, one of which is education. Thus, this application can be used as a medium for health education or health promotion. Currently, this application is still in the development process and can be accessed through the Website: <https://g-sit.id/> (Putri et al., 2024). This app assists parents in understanding their mothers about their child's nutrition.

Therefore, this study must be conducted with the following objectives: to find out the characteristics of respondents based on the age, occupation and last education of the mother about the nutritional status of toddlers in the UPT Kubang Jaya Health Center Area, to find out the average knowledge and attitude of mothers before and after the provision of health education using the G-SIT application in the UPT Kubang Jaya Health Center Area, and to analyze the difference in the average knowledge and attitude of mothers before and after the status health education for toddlers using the G-SIT application in the UPT Kubang Jaya Health Center area.

RESEARCH METHODS

This research is a quantitative research. The method of this study is a pretest-posttest design of one group. This study provides health education about the nutritional status of toddlers to the knowledge and attitude of mothers given pre-test and post-test (Nursalam, 2020). This research was conducted at the Kubang Jaya Health Center UPT, data shows that from January to August 2024. The population of this study was 315 toddlers and the sampling technique used the slovin formula and the number of samples obtained was 44 respondents.

The inclusion criteria in this study are mothers who have toddlers who are willing to be respondents, mothers who have toddlers from the age of 1-5 years, who have smartphones and can communicate well. This research instrument has 2 questionnaires, the first is a questionnaire

on balanced nutrition knowledge in toddlers made by the researcher himself, has 10 questions with a choice of correct and wrong answers using the guttman scale. The second questionnaire on maternal attitudes about balanced nutrition in toddlers, created by the researchers themselves, had 10 question items with a choice of yes and disagree answers using the Guttman scale.

RESEARCH RESULTS

A. Univariate Analysis

1. Characteristics of Respondents

The frequency distribution of respondents is based on the characteristics of the mother's age, the mother's occupation, and the last education of mothers who have toddlers in the UPT

Table 1. Kubang Jaya Health Center (n=44)

Yes	Characteristic	Frequency (n)	Percentage (%)
1	Mother's age		
	19-24 years old (Young adult)	1	2,3
	25-44 years (Adult)	43	97,9
	Total	44	100
2	Mother's work		
	IRT	33	75,0
	Honorary	4	9,1
	PNS	7	15,9
3	Mother's last education		
	SD	7	15,9
	JUNIOR	8	18,2
	SMA	14	31,8
	College	15	34,1
	Total	44	100

Based on Table 1, it can be seen that most of the respondents are in the age range of 25-44 years (adults), which is 43 people (97.7%). Most of the IRT respondents were 33 people (75.0%). A small percentage of respondents had a final education, namely university, which amounted to 15 people (34.1%).

2. Average knowledge and attitudes about the nutritional status of toddlers before and after health education

Table 2. The average value of knowledge before and after being given health education using the G-SIT application on the mother's knowledge about Nutrition Status News

Variable	N	Mean	SD	Min	Max
Pre test mother's knowledge	44	6,64	1,881	3	10
Knowledge of the mother Post test	44	7,36	1,615	4	10

Based on table 2, the results of mothers' knowledge about the nutritional status of toddlers were obtained with 44 respondents obtaining an average score of pretest or before being given health education, which was 6.64 and an average posttest or after being given health education, which was 7.36 with an average difference of 0.72.

Table 3. The average attitude score before and after being given health education using the G-SIT application on the mother's attitude about Nutrition Status News

Variable	N	Mean	SD	Min	Max
Pre-test mother's attitude	44	6,23	1,612	3	9
Post-test mother's attitude	44	7,32	1,552	4	10

Based on table 3, it was found that the results of mothers' attitudes towards the nutritional status of toddlers with 44 respondents obtained an average score of pretest or before being given health education, which was 6.23 and an average posttest or after being given health education, which was 7.32 with an average difference of 1.09

B. Bivariate Analysis

Table 4. Difference in Average Knowledge and Attitude of Mothers Before and After Providing Health Education Nutritional Status of Toddlers Using G-SIT Application in the UPT Puskesmas Kubang Jaya Area

		Mean	SD	ONE	95% Confidence Interval of the Difference		t	N	P Value
					Lower	Upper			
Pair 1	Mother's Knowledge Pretest - Knowledge Posttest mother	-,727	,660	,099	-,928	-,527	-7,310	43	,001
Pair 2	Pre-Test Maternal Attitude Post-Test Maternal Attitude	-1,091	,520	,078	-1,249	-,933	-13,910		

Based on Table 4, it shows that the p-value for the mother's knowledge and attitude is $0.001 < 0.05$, which means that H_0 was rejected so that it can be concluded that there is an influence of health education on the nutritional status of toddlers using the G-SIT application on the knowledge and attitude of mothers at the Kubang Jaya Health Center UPT.

DISCUSSION

Characteristic

Respondent : Mother's Age

Based on the results of data analysis, it can be seen that most of the respondents are in the age range of 25-44 years (adults), namely 43 people (97.7%). This study in line with Zaidah's (2024) research, the characteristics of the age of mothers who have the most toddlers aged 26 to

35 years are the reproductive age that is common for women. At this age range, a woman's body is usually more physically and mentally prepared to conceive and give birth to children. The results of this study are also in line with the research of Mey Liswati et al. (2022), namely the age of mothers who have the most toddlers, namely 24-35 years. At this age, mothers are generally better equipped to care for toddlers because they have achieved emotional maturity, economic stability, and have better experience and knowledge in childcare. In addition, at this age range, mothers tend to be in optimal physical condition to face the challenges of caring for and educating their children.

The results of this study are also in line with the research of Simbolon et al. (2022), the results of the study show that a total of 35 respondents studied found that the highest age group, namely 25-34 years old, was 11 people (31%). At this age, mothers tend to have more emotional maturity, a better understanding of nutrition, and the ability to make informed decisions regarding the health and growth and development of toddlers.

Mother's Work

Based on the results of data analysis, it can be seen that most of the IRT respondents, as many as 33 people (75.0%). This study is in line with the research of Sulistyorini and Rahayu (2020), the characteristics of respondents according to the type of work show that most of the respondents are housewives or not working, namely as many as 36 respondents (48%). This condition allows them to have more time to pay attention to their child. Children who are cared for by mothers with more time tend to receive more intensive attention, including meeting nutritional needs.

The results of this study are also in line with the research of Amirah and Rifqi (2019), showing that a total of 91 respondents, mothers of toddlers were mostly not working, namely 76 respondents (83.5%). This shows that mothers who are not working have more time to focus on caring, educating, and meeting the nutritional needs of children under five. With more optimal attention, mothers can be more responsive to children's growth and development, and are able to provide stimulation that supports the physical and cognitive development of toddlers.

The results of research from Simbolon et al., (2022), based on occupation, most mothers do not have a job/IRT with a total of 23 people (66%), and the lowest proportion of mothers who work as civil servants is 1 person (3%). Mothers who are not working have more time to care for and educate children under five years old. With a full focus on childcare, mothers can pay more attention to their children's needs, such as nutritional intake, health, and good growth and development stimulation.

Mother's Last Education

Based on the results of data analysis, it is known that a small percentage of respondents have their last education, namely higher education, namely 15 people (34.1%). This study is in line with the research of Khairunnisa and Ghinanda (2022), showing that the distribution of respondents based on education can be concluded that more than half of the majority of respondents are found in universities consisting of 35 respondents (38.9%) with a sample of 90 people. In this study, it was found that most of the highly educated mothers have a good understanding and application of feeding rules.

This research is also in line with the research of Lestiarini and Sulistyorini (2020), namely respondents based on the mother's last education, most of whom are university (74.4%), a person's knowledge is influenced by the level of education. Education can take place both inside and outside of school as an effort to develop one's personality and abilities. The more

information one obtains, the more knowledge a person gets. But it is not always possible for the absolute level of education to affect one's knowledge. It can be that a person's knowledge is good because it is obtained from his social environment.

This research is also in line with Fitri's (2022) research, the number of mothers who have the highest level of education is 22 people (37.9%). It is known that mothers under five in Arungan Village, Kuala Pesisir District, Nagan Raya Regency have received more higher education. This suggests that mothers with higher education tend to have a better understanding of health, nutrition, and parenting. With broader knowledge, they are better able to make the right decisions in caring for and educating toddlers, so that they can support optimal child growth and development.

The average value of knowledge before and after being given health education using the G-SIT application on mothers' knowledge about balanced nutrition in toddlers.

Based on the analysis, the results of mothers' knowledge about balanced nutrition in toddlers with 44 respondents obtained an average score of pretest or before being given health education, which was 6.63 and an average posttest or after being given health education, which was 7.25 with an average difference of 0.62. This research is in line with the research of Yanti and Agustin (2022), The results of data analysis found that the average value of maternal knowledge before being given health education was 69.43 and the average value of maternal knowledge after being given health education was 75.71. The increase in the average value of maternal knowledge in this study was due to the health education provided to mothers. This shows that health education is effective in improving maternal knowledge.

This study is in line with Suprapto's (2022) research which shows that of the 32 respondents before education was carried out with an average of 14.69 and after being given education, there was an increase in knowledge with an average of 17.94. The increase in knowledge after education occurs because the educational process succeeds in conveying information in a clearer and easier to understand way for respondents. This shows that the education provided is effective in helping respondents understand the topics being taught. Based on the researchers' assumptions, a person's knowledge, especially the ability to absorb information, is influenced by several factors, one of which is the health education factor. Health education itself is an application of the concept of education in the health sector, where the learning process plays a role in encouraging growth, development, or change towards a better and mature understanding, both in individuals, groups, and communities.

Average attitude score before and after being given health education using the G- SIT application on maternal attitudes about balanced nutrition in toddlers

Based on the analysis, the results of mothers' attitudes about balanced nutrition in toddlers with 44 respondents obtained an average score of pretest or before being given health education, which was 6.22 and an average posttest or after being given health education, which was 7.31 with an average difference of 1.09. This study is in line with the research of Ginting et al., (2022) The results of data analysis found that the average value of the mother's attitude before being given counseling was 14.48 and the average value of the mother's attitude after being given health counseling was 16. 31. The improvement of the mother's attitude after being given counseling can be explained because health counseling with audiovisual methods has succeeded in influencing the perspective and actions of mothers related to the fulfillment of child nutrition. This shows that counseling not only increases mothers' knowledge, but also changes their attitudes in providing proper nutrition to children.

Based on the researchers' assumptions about the average maternal attitudes before and after being given health education, the researchers argued that there was a positive change in maternal attitudes about the nutritional status of toddlers after the intervention. If the average value of maternal attitudes increases after being given health education, then this suggests that the intervention is effective in forming better understanding and encouraging more positive attitude change.

Differences in Knowledge and Attitude of Average Mothers Before and After Providing Health Education on the Nutritional Status of Toddlers Using the G- SIT Application at the UPT Puskesmas in the Kubang Jaya Region

Based on the results of the study, it was shown that the P value for the mother's knowledge and attitude was $0.001 < 0.005$, which means that H_0 was rejected so that it can be concluded that there is an effect of health education on the nutritional status of toddlers using the G-SIT application on the knowledge and attitude of mothers at the Kubang Jaya Health Center UPT. This study is in line with the research of Sitorus et al., (2022), the results of the statistical test obtained a value of $p = 0.000 < 0.05$ which means that H_0 was rejected so that it can be concluded that there is an effect of the Influence of Counseling with Animated Video Media on the Knowledge and Attitudes of Mothers of Toddlers About the Growth and Development of Toddlers at Posyandu Tuntungan II.

The use of apps about nutrition can increase maternal knowledge. This is evidenced by research conducted by Iqbal (2020) in a study entitled Increasing Maternal Knowledge about Nutrition to Overcome Malnutrition in Children Under Five with the Application "Healthy Children Eat Healthy (EMAS)". The administration of the EMAS application has been shown to increase the knowledge of mothers. This application contains information about different types of foodstuffs, the nutritional content in foodstuffs, and how to process them. In addition, the EMAS application also provides health articles, especially in the field of nutrition, as well as examples of nutritious food menus for children or toddlers. After using the GOLD application, the average subject knowledge increased to 84.35%, which was categorized as good.

The "About Children" application has proven to be very effective in improving the knowledge and attitude of mothers in monitoring the nutrition of babies and toddlers. With comprehensive features that provide information on children's growth and development, healthy food recipes, and nutrition monitoring tips, the app makes it easy for mothers to access important information that can help them make better decisions regarding their child's nutrition. The app is also easy to use and can be accessed at any time, allowing mothers to stay up-to-date on their child's nutrition (Sevin, 2018).

According to the researchers' assumptions, with this application, it is hoped that mothers can gain a better understanding of the importance of balanced nutrition for children's growth and development. Technology-based health education like this can be an effective educational alternative, especially in today's digital era, where access to information is easier and faster. The G-SIT application is designed to be accessible via smartphone, making it easier for mothers to get information about toddler nutrition anytime and anywhere.

CONCLUSION

1. The results of data analysis based on respondent characteristics found that most of the respondents were in the maternal age range of 25-44 years (adult), namely 43 people (97.7%). the majority of IRT respondents, as many as 33 people (75.0%). A small percentage of respondents had their last education, namely university, which was 15 people (34.1%).
2. The results of data analysis based on the average knowledge and attitude of mothers about the nutritional status of toddlers before being given health education using the G-SIT application had 44 respondents with an average *pretest* score or before being given health education, namely 6.64 and 6.23.
3. The results of data analysis were based on the average knowledge and attitude of mothers about the nutritional status of toddlers after being given health education using the G-SIT application, 44 respondents obtained an average *posttest* score or after being given health education, namely 7.36 and 7.32.
4. The results of the statistical test of maternal knowledge showed that *the value of the mother's knowledge and attitude* was $0.001 < 0.05$, which means that H_0 was rejected so that it can be concluded that there is an influence of health education on the nutritional status of toddlers using the G-SIT application on the knowledge and attitude of the mother at the Kubang Jaya Health Center UPT.

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