

The Effect of Whatsapp-Based Health Education on Improving Maternal Health Literacy in Stunting Prevention at Dengilo Health Center

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ABSTRACT

Verrawaty Amalia Padunggala. The Influence of Whatsapp-Based Health Education on Improving Maternal Health Literacy in Stunting Prevention at the Dengilo Health Center, Pohuwato Regency, guided by Hartati Inaku as chairman and Rini Asnawati as a member. Stunting is still a major problem for infants and children under the age of 2 in Indonesia. This condition must be resolved immediately for the achievement of a healthy, intelligent, and productive Indonesian golden generation, as well as the success of achieving sustainable development goals. (Perpres, 2021). The purpose of the study was to determine the effect of whatsapp-based health education on increasing maternal health literacy in preventing stunting in the working area of the Dengilo Health Center. Quantitative correlation with the Pre-Experiment research method with the type of one group pre-test and posttest design The quantitative correlation research sample in this study was mothers who had stunted children and the risk of stunting as many as 50 respondents. The Effect of WhatsApp-Based Health Education on Increasing Maternal Health Literacy in Stunting Prevention After data tabulation with spss using the paired sample t test obtained a sig.tailed value of $0.000 < 0.05$ which means that there is an effect of providing education through WhatsApp on increasing maternal health literacy in stunting prevention at the Dengilo Health Center, Pohuwato Regency. Conclusion There is an influence between whatsapp-based health education and maternal health literacy in stunting prevention at the Dengilo health center, Pohuwato Regency. It is expected that the Puskesmas will use WhatsApp media in an ongoing manner as one of the health education strategies in an effort to increase maternal health literacy and prevent stunting in the work area of the Puskesmas.

INTRODUCTION

Health is a crucial element in sustainable human resource development. One of the most important in the human life cycle is the First 1000 Days of Life (HPK), the period starting from pregnancy to a 2-year-old child is a golden opportunity to produce a quality generation free of stunting and other nutritional problems. Intervention during this period cannot be ignored because it determines a person's level of intelligence, physical growth and productivity. So that the threat of *stunting* and other nutritional problems will have a big impact on the country (Ministry of Health, 2019).

Stunting is still one of the biggest public health challenges in Indonesia, which has a wide impact on the quality of human resources and national productivity. According to the *Global Nutrition Report (2023)*, the prevalence of stunting under five in Indonesia reaches 21.5%, far above the WHO threshold of 20% (UNICEF, 2023).

Stunting is still a major problem for infants and children under the age of 2 in Indonesia. This condition must be resolved immediately for the achievement of a healthy, intelligent, and productive Indonesian golden

generation, as well as the success of achieving sustainable development goals. (Perpres, 2021) Presidential Regulation Number 72 of 2021 concerning the Acceleration of Stunting Reduction. Article 1 paragraph (1), states that stunting is a disorder of children's growth and development due to chronic malnutrition and recurrent infections, which is characterized by their length or height being below the standards set by the Minister in charge of Government affairs in the Health Sector.

The stunting prevalence rate in Indonesia in 2022 is 21.6%. It is necessary to make innovative efforts to reach 3.8% per year so that it can achieve the target of 14% as set in the 2020-2024 National Medium-Term Development Plan (RPJMN), related to public health programs focusing on reducing maternal mortality, infant mortality rates, reducing the prevalence of stunting and *wasting* in toddlers which are then followed by supporting indicators and the accuracy of interventions carried out (SSGI, 2022).

Data from the Gorontalo Provincial Health Office The prevalence of stunting in 2024 is 23.8%, which is a significant decrease from the figure of 26.9% in the previous year (2023). This data shows the success of intervention programs and integrated efforts of local governments in dealing with stunting, although the figure is still above the national average (19.8%), the prevalence of stunting in Pohuwato Regency in 2024 is reported at 18.4%, which represents an increase of 12% from the previous year. This figure is based on local government media reports and is not always in line with official data such as the Indonesian Nutrition Status Survey (SSGI) which records a trend of stunting decline at the national level. Based on data obtained from the Dengilo Health Center, it was found that there were 30 children with stunting.

This condition not only reflects chronic malnutrition, but also shows the weak capacity of families to access, understand, and utilize relevant health information. In this context, maternal health *literacy* is a key determinant in effective and sustainable stunting prevention efforts (Nutbeam, 2021). Low health literacy often causes mothers to be unable to recognize the signs of malnutrition, choose the wrong type of nutritious food, or not take advantage of available health services (Rahmawati et al., 2023)

A study by the Ministry of Health (2022) shows that almost 48% of mothers in urban areas and 62% in rural areas have a relatively low level of health literacy, especially in terms of understanding nutrition and immunization messages. This gap is exacerbated by limited time and access to formal educational media at the primary health service level such as Puskesmas. Therefore, an educational approach based on simple communication technology is a strategic alternative in increasing the capacity of maternal health literacy in a sustainable manner.

Mothers have an important role in the growth and development of babies, mother's knowledge will have an influence on the mindset and level of care to provide the right food intake given to her child (Aprillia et al., 2020). Nutrition education activities are activities carried out to increase knowledge and change behavior for the better. Based on research conducted by Naulia et al (2021), after two nutrition education methods with lectures, questions and answers and demonstrations, it has been proven to increase knowledge and attitudes in fulfilling nutritional nutrition which can be an alternative to improving health behaviors that can prevent stunting. Then nutrition education was carried out with 4 direct sample media (*food sample*) for four months, 3 times of education in one month was able to influence practice in family feeding stunted toddlers aged 7-24 months (Banowo et al., 2021).

A study proved that the increase in knowledge of mothers under five was carried out for one month about Infant and Child Feeding (PMBA) through WhatsApp groups with infographics and video media proved effective. Education involving the senses of hearing and also the sense of sight is considered significant by utilizing print and audiovisual media (Putri et al., 2021; Wardhani et al., 2021). Other studies also prove that the knowledge of baby mothers increases both offline and online through whatsapp *groups* and monitoring the weight of problematic babies can undergo significant changes during four weeks of monitoring. With this, baby parents become more innovative, creative, and independent in using smartphones or gadgets.

In the context of digitalizing society, WhatsApp has become the most dominant communication medium in Indonesia, used by more than 90% of active internet users (Kemp, 2024). These applications have great potential to support community-based *health education* through interactive messaging, multimedia material sharing, and group discussions that build social support (Naslund et al., 2022). The WhatsApp-based health education approach allows health workers to provide structured education on nutrition, child growth and development, and stunting prevention repeatedly and easily accessible without space and time limitations (Hassan et al., 2022).

Based on the results of interviews with 4 mothers who have stunted children, it was found that mothers' knowledge about stunting is still lacking so that it affects nutritional intake in children, according to mothers, nutritious food is expensive food and is obtained from chicken, fish and rice and fruit while the economic situation of parents is limited. Mothers also rarely check their pregnancy at posyandu or other health service places because their residences are far from the health center.

Based on the above background, WhatsApp-based health education has the potential to strengthen the role of health centers in promotive and preventive functions through continuous digital communication between health workers and target mothers. This approach also supports the principle of *community empowerment*, where mothers are not only recipients of information but also active participants in family

health discussions. Therefore, this study was conducted to analyze the influence of WhatsApp-based health education on increasing maternal health literacy in stunting prevention at the Dengilo Health Center, Pohuwato Regency, with the hope of producing an effective, cheap, and adaptable digital intervention model in various regions in Indonesia.

RESEARCH METHODOLOGY

The design of the type of research used by the researcher is a correlation quantitative approach with the Pre-Experiment research method with the type of one group pre-test and post-test design. This correlational quantitative research is a form of descriptive research where the researcher not only describes variables, but also tests the nature of influence between two or more without determining cause and effect. (Wujarso, 2023). The research has been conducted at the Dengilo Health Center, Pohuwato Regency. The research time has been conducted in October 2025.

The sampling technique in this study is total sampling. Total sampling is a sampling technique where the number of samples is equal to the population. The reason for taking the total sampling is because the population is less than 100. So the number of samples in this study is as many as 50 people within one month.

Data Analysis Techniques

Analysis of Knowledge Variables

Knowledge Variable Analysis The data analysis carried out is univariate analysis. According to Notoatmodjo (2010), univariate analysis is an analysis of one variable to determine the frequency distribution of each variable. The formula used is:

$$= \frac{F}{N} \times 100\%$$

Description:

P = Percentage of mothers who have certain characteristics

F = The number of Scores obtained by the respondent

N = Maximum number of scores

RESULTS

Respondent Characteristics

Table 1 Characteristics of Respondents by Age

Age	Frequency	Percentage (%)
17 - 25 years old	15	30
26 - 35 years old	15	30
36 - 45 years old	9	18
>45 years old	11	22
Quantity	30	100

Source: Primary Data, 2025

Based on Table 1, the characteristics of respondents based on age are most in the age range of 17 – 25 years as many as 15 respondents (30%), age 26 – 35 years as many as 15 respondents (30%), >45 years as many as 11 respondents (22%) and the lowest in the age range of 36 – 45 years as many as 9 respondents (18%).

Univariate Analysis

Mother's Health Literacy about Stunting Before Being Educated Through Whatsapp

Table 2 *Health Literacy* of mothers before being given education

Health Literacy	Frequency	Percentage (%)
Enough	33	66
Less	17	34
Quantity	50	100

Source: Primary Data, 2025

Based on table 2 of Health Literacy of mothers about stunting before being educated through WhatsApp, the majority of respondents had Sufficient Health Literacy as many as 33 respondents (66%) while those who had good health literacy were 17 respondents (34%).

Mother's Health Literacy about Stunting After Being Educated Through Whatsapp

Table 3 *Health Literacy* of mothers after being educated

Health Literacy	Frequency	Percentage (%)
Good	23	46
Enough	27	54
Quantity	50	100

Source: Primary Data, 2025

Based on table 3 of *Health Literacy* of mothers about stunting after being educated through WhatsApp, the majority of respondents have good Health Literacy as many as 23 respondents (46%) while those who have moderate/moderate health literacy are 27 respondents (54%)

Bivariate Analysis

The Effect of Whatsapp-Based Health Education on Improving Maternal *Health Literacy* in Preventing Stunting

Table 4. The Effect of Whatsapp-Based Health Education on Improving Maternal Health Literacy in Preventing Stunting

	N	Red	St.Deviation	Correlation	Sig.Tailed
Pre	50	2.66	0.479	0.439	0.000
Post	50	1.54	0.503		

Source: Primary Data, 2025

Based on table 4 The Effect of WhatsApp-Based Health Education on Improving Maternal Health Literacy in Stunting Prevention after data tabulation with spss using the paired sample t test, a sig.tailed value of $0.000 < 0.05$ was obtained, which means that there is an effect of providing education through WhatsApp on improving maternal health literacy in stunting prevention at the Dengilo health center, Pohuwato Regency.

DISCUSSION

Maternal Health Literacy Before Being Educated

Based on table 4 of Health Literacy of mothers about stunting before being educated through WhatsApp, the majority of respondents had Poor Health Literacy as many as 33 respondents (66%) while those who had Moderate/Moderate health literacy were 17 respondents (34%).

Based on the results of the study, the level of maternal health literacy about stunting before being educated through WhatsApp media showed that the majority of respondents had good health literacy, namely 33 respondents (66%), while respondents who had good health literacy were only 17 respondents (34%). These results show that most mothers do not have adequate knowledge and understanding about stunting, both in terms of definition, risk factors, impacts, and prevention efforts.

The low level of maternal health literacy before intervention can be influenced by various factors, such as relatively low levels of education, limited access to health information, and lack of exposure to structured health education about stunting. Health literacy theory states that an individual's ability to obtain, understand, and use health information is greatly influenced by sociodemographic factors, including education, age, and employment. This condition is in line with the characteristics of the respondents in this study, where most of the mothers have a basic education background and play the role of housewives.

In addition, stunting is often still perceived as a natural condition or hereditary factor, so mothers' understanding of the importance of stunting prevention from an early age is still low. Previous research has shown that low maternal health literacy is related to suboptimal nutrition practices, child growth monitoring, and utilization of health services. Therefore, before being provided with health education, mothers tend not to be able to identify the risk of stunting and its prevention measures appropriately.

WhatsApp media as a means of health education was chosen because it is easily accessible and often used by mothers in their daily lives. Prior to the intervention, low maternal health literacy indicated the need for health education that was easy to understand, flexible, and accessible at any time. Education through WhatsApp

is expected to gradually increase mothers' understanding through the delivery of simple, repetitive, and interactive information.

Thus, the condition of maternal health literacy, which is still mostly not good before education, is an important basis for health education interventions.

This shows that providing health education through WhatsApp media is very relevant and needed to improve maternal health literacy about stunting as an effort to prevent stunting in a sustainable manner.

Maternal Health Literacy After Being Educated

Based on table 4 *Health Literacy* of mothers about stunting after being educated through WhatsApp, the majority of respondents have good Health Literacy as many as 23 respondents (46%) while those who have moderate/moderate health literacy as many as 27 respondents (54%)

Based on the results of the study, the level of maternal health literacy about stunting after being educated through WhatsApp media showed that the majority of respondents still had adequate/moderate health literacy, namely 27 respondents (54%), while respondents who had good health literacy increased to 23 respondents (46%). These results show an increase in the number of mothers with health literacy both after being given health education via WhatsApp, although most of the respondents are still in the Sufficient category.

The increase in the number of respondents with good health literacy after the intervention showed that health education through WhatsApp media had a positive influence in improving maternal understanding of stunting. WhatsApp media allows the delivery of information flexibly, easily accessible, and can be read repeatedly, thus helping mothers understand educational materials about the definition of stunting, risk factors, impacts, and prevention efforts.

However, the still high proportion of respondents with poor health literacy after education can be caused by several factors, including relatively low education levels, limited literacy skills, and differences in individual ability to grasp the information provided. The health literacy theory states that the increase in health literacy is not only influenced by educational media, but also by the basic ability of individuals to read, understand, and apply health information.

In addition, health education through digital media requires time and repetition so that changes in understanding and behavior can occur optimally. Previous research has shown that social media-based educational interventions tend to provide gradual results, especially in people with low educational backgrounds. Therefore, despite the increase in maternal health literacy, the results obtained are not fully optimal.

The researcher's assumption is that the results of this study show that health education through WhatsApp is able to increase maternal health literacy about stunting, but it is still necessary to strengthen education in a sustainable manner and use additional methods, such as interactive discussions or direct mentoring, so that health literacy improvement can be maximized and evenly distributed to all respondents.

Bivariate Analysis

Based on the results of data tabulation using the SPSS program with a paired sample t-test, a Sig. (2-tailed) value of 0.000 was obtained, which shows a p value < 0.05. These results indicate that there is a significant influence between the provision of WhatsApp-based health education on increasing maternal health literacy in stunting prevention at the Dengilo Health Center, Pohuwato Regency. The results of the statistical test showed that there was a significant difference between the level of maternal health literacy before and after being given health education through WhatsApp media. This increase in health literacy reflects that the educational interventions provided are able to improve the ability of mothers to obtain, understand, and use health information related to stunting and its prevention efforts.

According to Notoatmodjo (2014), health education is a process that aims to improve the knowledge, attitudes, and behaviors of individuals or communities in order to be able to maintain and improve the degree of health. The provision of health education through WhatsApp media in this study is a form of health education that is adapted to technological developments, making it easier for mothers to access health information anytime and anywhere. Education provided in a structured and repeated manner can improve the mother's ability to understand health information related to stunting.

In line with that, the World Health Organization (WHO) defines health literacy as the ability of individuals to obtain, understand, and use health information to make informed decisions related to health. The results of this study show that WhatsApp-based health education is able to improve the ability of mothers to access and understand information about stunting, which ultimately contributes to increasing maternal health literacy in stunting prevention.

In addition, based on the Health Literacy Model, the increase in health literacy is influenced by individual factors, health service systems, and information delivery methods. The use of WhatsApp media as a means of health education allows for more flexible and communicative interaction between health workers and mothers. Educational materials delivered through text messages, pictures, and videos can gradually improve mother's understanding, especially for mothers with low educational backgrounds.

WhatsApp media as a means of health education is considered effective because it is easily accessible, flexible, and allows mothers to read and understand educational materials repeatedly. In addition, the use of digital media in health education can increase respondent involvement and facilitate the delivery of health information in a simpler and more communicative manner. This is in line with the theory of health literacy which states that educational media that is in accordance with the characteristics of the target can increase individual understanding and awareness of health problems.

The results of this study are also in line with previous research which stated that health education based on social media or digital media has a significant effect on increasing maternal health knowledge and literacy, especially in efforts to prevent stunting. Education that is carried out in a sustainable and structured manner through WhatsApp media is able to bridge the limitations of access to information and time owned by mothers.

The researchers' assumption is that the results of this study confirm that the provision of WhatsApp-based health education has a significant influence on increasing maternal health literacy in stunting prevention. Health education through digital media can be used as one of the effective promotive and preventive strategies in health service facilities, especially at the Dengilo Health Center, Pohuwato Regency, in an effort to reduce the incidence of stunting.

CONCLUSION

Health literacy of mothers about stunting before being educated through whatsapp, the majority of respondents had Poor Health Literacy as many as 33 respondents (66%) while those who had Moderate/Moderate health literacy were 17 respondents (34%).

Health Literacy of mothers about stunting after being educated through WhatsApp, the majority of respondents had good Health Literacy as many as 23 respondents (46%) while those who had moderate/moderate health literacy were 27 respondents (54%)

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ADVICE

For the Health Center. It is hoped that the Dengilo Health Center in Pohuwato Regency can use WhatsApp media in an ongoing manner as one of the health education strategies in an effort to improve maternal health literacy and prevent stunting in the work area of the health center.

For Health Workers. Health workers are expected to develop digital-based health education methods that are more interactive, simple, and easy to understand, and adjusted to the level of maternal education so that health messages about stunting can be optimally accepted.

For Mothers and Society. Mothers are expected to increase awareness to seek, understand, and apply health information obtained through WhatsApp education in daily life, especially related to nutritional fulfillment and monitoring of child growth and development as an effort to prevent stunting.

For the next researcher. Researchers are then advised to use a research design with a control group, expand the number and location of respondents, and combine WhatsApp education with other methods so that the results of the research are more comprehensive and can be generalized widely.

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