



## EFFECTIVENESS OF NUTRITIONAL EDUCATION MEDIA FOR STUNTING PREVENTION IN PREGNANT WOMEN

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### Abstract

Stunting is a health problem related to child's nutrition where his growth and development process is slower than other children, characterized by the child's height being below compared to the children's standard his age. This problem is caused by various factors such as nutritional intake and parental knowledge which results in children's nutritional needs not being met during the First 1000 Days of Life. If it is not treated immediately, stunting can reduce a child's immunity and cognitive abilities, making them vulnerable to disease and experiencing difficulties in education. Stunting prevention can be made by educating the public, especially pregnant women, regarding the importance of fulfilling children's nutritional intake with various interesting and innovative media. The aim of this study is to analyze the influence of nutritional education media on stunting prevention in increasing the knowledge of pregnant women. This study was written based on various literature references related to the research title. The results of the research show that there is a significant influence of nutritional education media on stunting prevention in increasing the knowledge of pregnant women. Nutrition education media in stunting prevention plays a role in increasing pregnant women's knowledge about the importance of meeting children's nutritional needs.

**Keywords:** Education, Media, Nutrition, Stunting, Pregnant

### Introduction

Stunting could be defined as a condition where a child's growth and development is disrupted(1). This condition is characterized by the child's height being below compared to the children's standard his age (2). Stunting is also known as a complex chronic nutritional problem because it can be caused by various factors such as social and economic conditions, the quality of nutrition received by mothers during pregnancy, lack of nutrition in babies, and infectious diseases (3).

Stunting is a nutritional problem that occurs in children, as evidenced of high number of stunting in the world in 2017 amounting to 22.2% or 150.8 million children under five years old and more than half (55%) or 83.6 million children under five years old occurred in Asia. (4). Indonesia is the 3rd country with the highest prevalence of stunting in Southeast Asia (5). In 2018, the average prevalence of stunting in Indonesia was 36.4%. It is higher than the previous two years with respective prevalences of 27.5% and 29.6% (6). According to UNICEF, this figure is in the very high category (7).

The main factors that cause stunting are the lack of nutritional intake in pregnant women, low number on IMD and exclusive breastfeeding(4). The other factors that cause stunting are very diverse, such as low birth weight in babies (LBW), quality and timing of

feeding (exclusive breast milk and complementary food), maternal anthropometry, maternal health history, and lack of maternal knowledge. Low quality and quantity of nutritional intake during pregnancy is a direct factor causing stunting for the UNICEF framework. Stunting attacks from infancy in the fetus and worse impacts will occur if it is not treated well from the first 1.000 days of life (8).

Based on the impacts that occur, stunting must be given special attention (9). The effect of stunting on children in a short time is a decrease in brain and body development, intelligence, and disrupted body metabolism. Children with stunting can get an average Intelligence Quotient (IQ) score eleven points lower compared to the average IQ score of normal children in general (4). In the long term, stunting can result in a decrease in psychological abilities, learning manifestations and body resilience so that children are easily infected with diseases such as overweight, cardiovascular disease, diabetes, stroke, cancer and special needs. Moreover, stunting can also reduce a person's work performance, causing low economic productivity. In fact, stunting can have an impact on mortality in children under five years old (10).

Prevention is an effort that must be made to overcome the high prevalence of stunting. Preventive steps can be taken through nutritional and non-nutritional approaches. Teenagers, prospective brides and pregnant women are the main targets for improving nutrition and health (11). WHO says that to prevent stunting, it can be done from preconception, the importance of fulfilling nutrition before pregnancy can be given to women of childbearing age (12).

Stunting prevention can be done by educating the public, especially adult women who will or are already mothers, regarding the importance of fulfilling children's nutritional intake. Especially for pregnant women, so that the condition of themselves and their fetus remains good, it is very necessary to maintain and ensure that the nutrition they receive is balanced (13). This education has a specific goal for improvement in the first 1.000 days of life. This group consists of pregnant women, breastfeeding mothers and 0-2 years old children. If it is not treated from the first 1.000 days of life, then the problem will be too late and difficult to treat. Therefore, the mother's health history and nutritional status are important factors in preventing stunting.

Stunting education can be carried out as a form of community service (14). Stunting education can be carried out using various media as intermediaries, for example posters, audio visuals, social media, counseling, etc. This literature review will review nutritional education media to prevent stunting directly and indirectly (via online). This study aims to analyze the role of stunting nutrition education media in increasing adult women's knowledge of stunting prevention.

## **Method**

The method used in this literature review is to analyze 3 journals that support and match to the study theme. The author collected data from journals that were analyzed as references, journals met the category for analysis if the journal was related to nutritional education media for stunting prevention for adult women. Journal keywords consist of stunting, media, nutrition education, mother, child. The main journal and supporting journals used as references are indexed by Sinta or Google Scholar with the publication year of 2019-2021.

## **Result**

Based on the three studies of nutritional education media to prevent stunting in pregnant women analyzed, this research focuses on the influence of nutritional education media to prevent stunting on knowledge changes of pregnant women.

The first journal is entitled “*Edukasi Gizi pada Ibu Hamil Mencegah Stunting pada Kelas Ibu Hamil*” by Ni Wayan Dian Ekayanthi dan Pudji Suryani (15). In this research, nutritional education to prevent stunting was using classes for pregnant women which was carried out at the Sindang Barang Community Health Center and Gang Kelor Community Health Center in July-September 2017. This research used a one group pre-test post-test design. Penelitian ini menggunakan desain *one group pre-test post-test*. The research sample consisted of 35 pregnant women in the first trimester. During the research, the sample needed to complete a pre-post test to determine the sample's level of knowledge before and after being given education. The research results can be seen in Figure 1.

Pengetahuan	n	Rerata+s.d	Perbedaan rerata+s.d	IK 95%	p-value
Pengetahuan sebelum kelas ibu hamil	35	8,80±3,56	5,83±3,54	4,61-7,04	0,000
Pengetahuan setelah kelas ibu hamil	35	24,63±2,46			

**Figure. 1 Knowledge Level of Research Samples Before and After Classes for Pregnant Women**

Figure 1 proves that there has been an increase in knowledge level of pregnant women. This is indicated by an increase in the average (mean) knowledge level before the pregnant women's class from 18.8 to 24.63 after the pregnant women's class. Based on the paired t-test, it is known that the significant value is 0.000 (p value <0.05), meaning that pregnant women's classes as a media for nutritional education to prevent stunting can increase the knowledge level of pregnant women

The second journal entitled “*Edukasi Gizi Pencegahan Stunting Berbasis Whatsapp Group untuk Meningkatkan Pengetahuan dan Sikap Ibu Hamil*” by Ika Putri Melati dan Choirul Anna Nur Afifah (16). Their research was carried out online with pregnant women in Kuripan Sari Village, Mojokerto in March 2021. The research design used was real experimental with 19 pregnant women as the research sample divided into experimental and control groups. The experimental group was given education about preventive steps for stunting for pregnant women twice a week, such as stunting videos and the first 1000 day of life, posters on how to measure the ideal weight gain of pregnant women and recognize pregnancy hormones, PPT on the nutritional needs of pregnant women in trimesters I, II, III, voice notes abnormalities in pregnancy, intervention steps also myths and facts in pregnancy. The research sample needs to complete a pre-post test to measure nutritional knowledge of pregnant women in the experimental and control groups. The research results are shown in Figure 2.

	n	p-value	95% CI	
			Lower	Upper
Posttest dan angket	19	0,000	17,67	36,32

**Figure. 2 Independent Sample t-test**

Figure 2 shows that there are differences in the average post-test and questionnaire scores between the experimental group and the control group. The result value is  $t_{count}$  amounting to 6,110 and the value is known  $t_{table}$  2,109 with significant value 0,000 (p<0,05). From the known data, a value is stated  $t_{count} > t_{table}$  and p<0,05 value. The experimental group had a significant increase in knowledge and attitudes compared to the control group. Stunting preventive nutritional education using WhatsApp group media has been proven to increase pregnant women's knowledge.

The third journal entitled “*Edukasi Gizi Ibu Hamil dengan Media Booklet sebagai Upaya Tindakan Pencegahan Stunting pada Balita di Wilayah Kerja Puskesmas Undaan Kabupaten Kudus*” by Anita Dyah Listyarini, Yayuk Fatmawati, dan Indriana Savitri (17). The educational media used in this research was a booklet which was distributed to 54 pregnant women in the first trimester in the working area of the Undaan Community Health Center, Kudus Regency. The research method used is analytical observational. Interviews regarding the fulfillment of balanced nutrition for pregnant women were conducted with the research sample to determine the sample's level of knowledge before and after being given education through booklets. The results of the interview are shown in Figure 3.

Pengetahuan Perilaku	Sebelum		Setelah	
	Frekuensi	Persentase (%)	Frekuensi	Persentase (%)
Kurang	21	38,8	4	7,4
Cukup	14	25,9	3	5,5
Baik	19	35	47	87
Total	54	100	54	100

**Figure. 3 Results of Changes in Knowledge and Behavior to Prevent Stunting in Toddlers by Pregnant Women in the First Trimester**

The research results in Figure 3 state that there are changes in knowledge and behavior in the sample. This is proven by the percentage before being given education in the poor category of 38.8% (21), sufficient 25.9% (14), and good at 35% (19) of the sample. After being given nutrition education, the percentage of poor knowledge and behavior was 7.4% (4), sufficient was 5.5% (3) and good was 87% (47) of the sample. Nutrition education to prevent stunting through booklets could increase pregnant women's knowledge regarding nutrition.

## Discussion

### Sample Characteristics

The research samples used in the research analyzed were pregnant women. The purpose of selecting pregnant women as samples is that pregnant women play a major role in the first 1000 day of life, such as meeting nutritional needs, improving nutritional status, and requiring nutritional knowledge to provide the best food intake for children. Pregnant women with insufficient nutritional knowledge can result in misperceptions so that the risk of children experiencing stunting increases if food selection and processing methods are wrong.

Based on the main reference journal, the research sample was pregnant women aged 20-35 years and most of them were housewives. Housewives have a lot of busy lives at home and usually often cook for the family at home. If housewives receive incorrect information (hoax) regarding nutrition, the entire family can be affected, including children. Therefore, housewives who are pregnant must be educated so that they do not experience mistakes in fulfilling nutritional needs from the time the child is in the womb.

The educational level of the sample is quite diverse, such as elementary school, middle school, high school and college. However, the number of samples with a higher education level (high school, college) is larger. In this era of globalization, information spreads quickly and is easily falsified so that individuals with higher education do not guarantee that they can differentiate between facts and hoaxes. Education by professionals in their field will really help pregnant women receive the correct information.

In the first journal, it is known that most of the samples were mothers who already had more than one child (multigravida) while in the second journal the majority of the samples were mothers who were pregnant for the first time (primigravida). Both multigravidas and primigravidas have the

same rights to receive nutrition education. For primigravidas, nutrition education is very important as a guide because they are becoming mothers for the first time. For multigravidas, nutrition education is useful for correcting previous wrong perceptions and becoming better mothers in meeting their children's nutritional needs.

### **Change in Knowledge Level**

All research that used as references showed that there was a change in the level of knowledge in the research sample after being given nutritional education to prevent stunting using pregnant women's classes, WhatsApp groups and booklets.

This change was marked by an increase in knowledge scores after pregnant women were given education regarding balanced nutrition to prevent stunting.

Nutrition education through classes for pregnant women is the research with the most relevant increase in knowledge scores in this study.

Ni Wayan Dian Ekayanthi's research shows that nutritional education to prevent stunting using pregnant women's class media provides a significant increase in knowledge for pregnant women with an average increase of 5.83. In the other hand, research by Ika Putri, M. et al proves that the use of WhatsApp groups as an educational media plays a role in increasing the knowledge of pregnant women by 56.6%. The latest research reference by Anita Dyah, L. et al, states that nutrition education on stunting prevention using booklet media can increase the knowledge of pregnant women, marked by a drastic reduction in samples with low levels of knowledge.

Factors that the causes in the increase level of pregnant women's knowledge are the way of increasing knowledge and the level of awareness of pregnant women regarding the importance of early stunting intervention. This happens because of the nutritional education provided to pregnant women through various media such as pregnancy classes, WhatsApp groups and booklets. The use of varied media in nutrition education is very important as an intermediary so that educational targets feel interested and easily understand the nutrition education provided.

The media used in reference research are quite varied, interesting and practical, especially WhatsApp groups because WhatsApp is an application that is owned by almost everyone nowadays. This application also supports as an educational medium because it is easy and fast to use even for general people.

### **Pregnant Women Classes as Educational Media**

Nutritional problems are a major health problem in developing countries, including Indonesia. Pregnancy plays a role in forming a good quality and healthy generation. Therefore, preventing stunting could start from pregnant women. Pregnant women with low nutritional knowledge will have an impact on their nutritional status during pregnancy. If it is not treated immediately, this problem could threaten the health of the mother and child. Meanwhile, pregnant women with high nutritional knowledge are able to meet the nutritional needs of themselves and their children properly and correctly. The nutritional knowledge that pregnant women need to know includes fulfilling nutritional intake, correct food preparation and processing, as well as environmental sanitation and cleanliness.

Pregnant women's classes are a media for health-related nutrition education which aimed to pregnant women. This class is held face-to-face and in groups with the aim of building pregnant women's knowledge and skills about pregnancy, pregnancy therapy, childbirth, postpartum and newborn care. The supervisors and presenters in the pregnant women class are health workers (midwives).

The research results showed that the pregnant women's class had a significant influence in increasing pregnant women's knowledge regarding stunting interventions. The factors that play a role in this result include ability, health knowledge provided by appropriate presenters, social culture,

information media, educational and religious organizations, and individual feelings. Behavioral changes can occur when the knowledge, awareness and attitudes of pregnant women move in a positive direction so that pregnant women are able to face their pregnancy better.

### **WhatsApp Group as Educational Media**

WhatsApp group is one of the features of WhatsApp application which makes it easier to disseminate information and give messages simultaneously because several contacts are combined into one group.

Educational media via WhatsApp groups is an innovative and practical media at this time. The education provided in the WhatsApp group consists of steps to prevent stunting for pregnant women in the experimental group twice a week, such as stunting videos and the first 1000 day of life videos, posters on how to measure the ideal weight gain of pregnant women and recognize pregnancy hormones, PPT on the nutritional needs of pregnant women in the first, second and third trimesters, voice note of abnormalities in pregnancy, intervention steps and myths and facts in pregnancy. The validity results for the material and media used were 83.9% based on tests by material experts and media experts.

The research results are in line with previous research by Sari, et al where WhatsApp as an educational medium was proven to be more effective in increasing knowledge by 84.6% compared to other educational media such as booklets and lectures. There was a difference in the average pre-posttest scores in the experimental and control groups. This difference includes knowledge where the experimental group understands the material better and is able to answer questions better than the control group.

### **Booklet as Educational Media**

Booklet is a small and thin book with a few pages (no more than 30), the contents of the booklet usually consist of interesting writing and pictures. Booklets are often used as educational media because they are considered as interesting media and easy to understand. Setyawati et al in their research proved that nutrition education using booklet media was able to build knowledge of pregnant women. Booklets as a media for nutrition education are considered as quite effective media because they can provide information without wasting a lot of time and easily make educational targets interested because the content in the booklets is pleasing to the eye.

The community really needs booklets to gain the knowledge related to nutrition. In Indonesia, there are still many areas where it is difficult to get access to knowledge, including books. It is hoped that the presence of the booklet will provide additional knowledge to the public in following balanced nutrition guidelines to prevent stunting.

The research results stated that the booklet as a nutritional education media for stunting prevention provided pregnant women with increased knowledge regarding nutrition. The advantages of booklets as educational media include that the practical function, could be used anywhere and anytime because their small size, and contain more information. It contains images and content that are attractive and not stuffy, booklets could give a good impression to readers. The more interesting thing of the booklet is, the readers will not easily to get bored and its easier to understand the material.

### **The Weakness of The Research**

The first reference research entitled "*Edukasi Gizi pada Ibu Hamil Mencegah Stunting pada Kelas Ibu Hamil*" by Ni Wayan Dian Ekayanthi dan Pudji Suryani (2019) has the weakness by not providing an explanation of the research instruments and materials that provided in pregnant women's classes.

The second research entitled “*Edukasi Gizi Pencegahan Stunting Berbasis Whatsapp Group untuk Meningkatkan Pengetahuan dan Sikap Ibu Hamil*” by Ika Putri Melati dan Choirul Anna Nur Afifah (2021) provides data test results that are difficult to understand for general people because there are no tables that clearly show the average and level of knowledge.

The third research entitled “*Edukasi Gizi Ibu Hamil dengan Media Booklet sebagai Upaya Tindakan Pencegahan Stunting pada Balita di Wilayah Kerja Puskesmas Undaan Kabupaten Kudus*” by Anita Dyah Listyarini, Yayuk Fatmawati, dan Indriana Savitri (2020) does not provide the explanation regarding the material contained in the booklet.

## **Conclusion**

Nutrition educational media is very varied and plays a role in stunting intervention by increasing pregnant women's knowledge regarding balanced nutrition during pregnancy and the first 1000 of life. From this study we can see that classes for pregnant women are the media for nutrition education that provides the most significant changes to the knowledge of pregnant women. A significant increase in knowledge in the pregnant women's class is due to the presence of health workers who can be consulted directly and face-to-face education which increases the concentration of educational targets.

Other educational media such as WhatsApp groups, booklets, etc. could also provide maximum influence if they continue to be developed. Especially during this pandemic where face-to-face activities are not possible, innovation in nutrition educational media that are practical, effective and without face-to-face are really needed to expedite stunting intervention steps in Indonesia. If pregnant women have high awareness and knowledge regarding balanced nutrition, the prevalence of stunting could be decreased because pregnant women are able to deal with pregnancy and their children's nutritional needs well.

## **References**

- [1] Supatmi. Edukasi Pencegahan Stunting dan Pendampingan Ibu Hamil Pada Masa Pandemi COVID-19. *Jurnal Peduli Masyarakat*. 2021;3(4):451–8.
- [2] Anggraeni NPDA, Murni NNA. Sosialisasi Stunting dan Upaya Pencegahannya Melalui Edukasi Tentang Nutrisi Pada Ibu Hamil. *GEMAKES: Jurnal Pengabdian Kepada Masyarakat*. 2021;1(1):1–6.
- [3] Simbolon D, Asmawati, Batbual B, Ludji IDR, Eliana. Pendampingan Gizi Spesifik Pada Ibu Hamil Upaya Menuju Kampung KB Bebas Stunting. *Jurnal Pengabdian kepada Masyarakat*. 2021;3(2):112–21.
- [4] Sukmawati, Hermayanti Y, Nurhakim F, Amira I, Mediani HS. Edukasi Pada Ibu Hamil, Keluarga dan Kader Posyandu Tentang Pencegahan Stunting. *Dharmakarya: Jurnal Aplikasi Ipteks untuk Masyarakat*. 2021;10(4):330–5.
- [5] Patata NP, Haniarti, Usman. Pengaruh Pemberian Edukasi Gizi Terhadap Pengetahuan dan Sikap Calon Pengantin dalam Pencegahan Stunting di KUA Kabupaten Tana Toraja. *Jurnal Sains dan Kesehatan*. 2021;3(3):458–63.
- [6] Atasasih H, Aziz A. Pengembangan Media Poster “isi piringku” sebagai Alat Bantu Edukasi Gizi Ibu Hamil dalam Upaya Pencegahan Stunting. *Jurnal Kesehatan Komunitas*. 2021;7(2):226–33.
- [7] Falaach MF, Ningtyias FW, Astuti NFW, Adi DI. Peningkatan Kesadaran Kebutuhan Gizi Ibu Hamil Sebagai Tindakan Pencegahan Stunting Melalui Modul Emotional-Demonstration (Emo-Demo). *Buletin Al-Ribaath*. 2020;17:48–53.

- [8] Mulianingsih M, Yolanda H, Widiastuti NA, Hayana H. Media Permainan Ular Tangga sebagai Upaya Peningkatan Pengetahuan Ibu Hamil Tentang Stunting di Polindes Gerung Utara Puskesmas Gerung Lombok Barat. *Jurnal Pengabdian Multidisiplin*. 2021;1(1):33–40.
- [9] Sari DP, Fanny N, Pradany AL. Pengaruh Edukasi Pencegahan Stunting Tentang Satu Pilar Akses Pangan Bergizi Dengan Metode Brainstorming Terhadap Pengetahuan Ibu Baduta di Taman Sari Timur. *Jurnal Kebidanan Indonesia*. 2020;11(2):21–8.
- [10] Permatasari TAE, Turrahmi H, Illavina. Edukasi Gizi Seimbang bagi Kader Posyandu pada Masa Pandemi Covid-19 sebagai Pencegahan Balita Stunting. *AS-SYIFA: Jurnal Pengabdian dan Pemberdayaan Kesehatan Masyarakat*. 2020;1(2):67–77.
- [11] Fitriani, Ramlan, Rusman ADP. Efektivitas Kartu Cegah Stunting Terhadap Pengetahuan Calon Pengantin di Kua Kota Parepare. *Jurnal Ilmiah Manusia dan Kesehatan*. 2021;4(3):332–41.
- [12] Nurlinda, Zarkasyi R, Sari RW. Pengaruh Penyuluhan dengan Media Animasi Pencegahan Stunting terhadap Pengetahuan dan Sikap Calon Pengantin. *MPPKI*. 2021;4(3):372–6.
- [13] Pratiwi IG, Hamidiyanti BYF. Edukasi Tentang Gizi Seimbang Untuk Ibu Hamil Dalam Pencegahan Dini Stunting. *Jurnal Pengamas Kesehatan Sasambo*. 2020;1(2):62–9.
- [14] Fajar I, Aroni H, Hadisuyitno J. Pendampingan Dan Pemberdayaan Ibu Hamil Untuk Mencegah Balita Stunting di Kelurahan Samaan Kecamatan Klojen Kota Malang. *Jurnal Idaman*. 2021;5(1):21–32.
- [15] Ekayanthi NWD, Suryani P. Edukasi Gizi pada Ibu Hamil Mencegah Stunting pada Kelas Ibu Hamil. *Jurnal Kesehatan*. 2019;10(3):312–9.
- [16] Melati IP, Afifah CAN. Edukasi Gizi Pencegahan Stunting Berbasis Whatsapp Group Untuk Meningkatkan Pengetahuan dan Sikap Ibu Hamil. *Jurnal Pangan Kesehatan dan Gizi*. 2021;1(2):61–9.
- [17] Listyarini AD, Fatmawati Y, Savitri I. Edukasi Gizi Ibu Hamil Dengan Media Booklet Sebagai Upaya Tindakan Pencegahan Stunting Pada Balita Di Wilayah Kerja Puskesmas Undaan Kabupaten Kudus. *Jurnal Pengabdian Masyarakat*. 2020;3(1):73–83.