

## Development Of E-Module To Prevent And Early Detection OF Stunting Against Knowledge Of Pregnant Woman

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### ABSTRACT

Stunting is a problem of malnutrition and is one of the common causes of morbidity and mortality in children, which is characterized by children who are smaller than their age. One strategy to overcome stunting is to provide educational interventions regarding stunting for pregnant women to increase knowledge about the prevention and early detection of stunting using e-modules. This study aims to produce an e-module educational media product for preventing and early detection of stunting to increase knowledge of pregnant women. The research design uses R & D (Research and Development) and refers to the development stages of Borg & Gell to produce e-modules and the type of Quasi-Experimental Research (Pre-Post Test Design) conducted on 44 pregnant women. Purposive sampling technique. Each pregnant woman was given a pre-post-test questionnaire along with an e-module for prevention and early detection of stunting. The feasibility test for the prevention and early detection of stunting e-module uses a Likert scale that is rated by the validator and, for effectiveness, uses a Pre-Post Test questionnaire. The Wilcoxon test was used to determine the effectiveness of the stunting prevention and early detection e-module on increasing knowledge of pregnant women. The results showed that the value ( $p = 0.000 < 0,05$ ) which means that the stunting prevention and early detection e-module is effective in increasing the knowledge of pregnant women to prevent and early detection of stunting.

**Keywords :** Early detection; E-modul; Knowledge; Pregnant Woman; Prevention

### INTRODUCTION

Stunting a linear growth disorder, is considered a serious health problem in Indonesia, prevalent of stunting relevant to maternal and child health service periode (Simbolon et al. 2021). Stunting is a condition of failure to thrive related to the growth and development of children due to long-term malnutrition. This causes the child's height to be shorter than the child his age accompanied by delays in cognitive development in children who experience stunting (Ahmad A., Abdul Aziz 2021). The nutritional status of toddlers is generally caused by two factors, namely internal factors. Internal factors include age, infectious diseases, gender, and nutritional intake, while maternal factors include education, knowledge, parents' occupation, and parenting and

(Yarmaliza et al. 2021).

The incidence of stunting in toddlers is an international and national problem that needs attention. According to the World Health Organization (2020), the prevalence of stunting in the world in children under five years of age is highest in African countries, which share the prevalence of stunting ( 57.6% ). (World Health Organization 2022). According to SSGI (2021) in Indonesia, the prevalence of stunting decreased significantly in 2013 the incidence of stunting was 37.2% to ( 27.7% ) in 2019. (KemenKes 2021) According to data (WHO, 2022) the prevalence of stunting will increase again in 2020 ( 31.8% ) (World Health Organization 2022). Stunting incidence in South Sulawesi Province in 2019 (6.6%), and 2020 (11.9%), while 2021 experienced a decline of as much as 10.4% (Kemendagri 2022). Bone Regency was once one of the districts that had high cases of stunting with a percentage of 40.1% in 2017 and decreased in 2020, namely 6.30% in 2021 as much as 6.17%. In Kab. In Bone, 50 villages are priority locations for handling stunting and one of them is Pattiro Sibulue in 2020 as much as 14.58% and increase in 2021 by 15.80% (E-PPGBM 2022).

Research conducted by (Beal et al. 2018) identified eight factors of stunting originating from the mother: malnutrition, pregnancy, and worry; maternal short stature, infection, teenage pregnancy, mental health, intrauterine growth restriction (IUGR) and birth prematurity, short birth spacing, and high blood pressure. Malnutrition during contraception, pregnancy and breastfeeding, prematurity, and teenage pregnancy are associated with stunting in children in Indonesia. Efforts to overcome stunting, namely intervening pregnant women to provide education on fulfilling nutrition because the lack of awareness of the importance of nutrition will be risky stunting on the fetus it contains. Insufficient knowledge and inappropriate practices are obstacles to improving nutrition (Ekayanthi and Suryani 2019). Providing education requires media tools, which can be interpreted as health promotion tools to facilitate communication and information dissemination (Listyarini and Fatmawati 2020).

According to research conducted (Musdalifah et al. 2020), The stunting risk detection module as an educational medium for pregnant women is very feasible to use and can have a good impact on preventing stunting by increasing the ability and knowledge of the mother. One of the media that is considered effective is the e-module which is an independent teaching material media digital form designed to increase knowledge, interactive, and interest the readers by displaying multi-media in the form of

readings, audiovisuals along with pictures in a regular, directed and measurable way achieve the learning objectives contained in the e-module (Rahmi 2018). In a study the introduction was carried out by e - module educational media still rarely used. So the researcher aim To research “Development Of E-Module To Prevent And Early Detection OF Stunting Against Knowledge Of Pregnant Woman”.

### MATERIALS AND METHODS

The research design used in the E-module prevention and early detection stunting development research is *R&D (Research and Development)* which is a type of research method to produce certain products and test their effectiveness of these products. R & D research refers to the Borg & Gall development stages, namely 1) product analysis, 2) product development, 3) validation of media experts and material experts, and 4) field trials using a *Quasi Experiment research type* with a design (*Group pre-test and post-test design*). This research took place from January 2022 - September 2022 and the location of this research was carried out in the working area of the Sibulue Health Center, Districts Bone.

The population in this study were all pregnant women who were included in the working area of the Sibulue Health Center, Kab. Bone, the sample in this study was 44 pregnant women. The sampling method in this study was *purposive sampling* based on the inclusion and exclusion criteria determined by the researcher. The inclusion criteria in this study were pregnant women who were included in the working area of the Sibulue Public Health Center and were willing to be research respondents, while the exclusion criteria were pregnant women who were not willing to be research respondents. The independent variable in this study is the E-Module while the dependent variable is the knowledge level of pregnant women. The tools and materials used in this study were health education media using modules on prevention and early detection of stunting which were developed on an electronic basis, questionnaires for collecting research respondent data, and validation questionnaires for validators. Media experts and material experts to test the feasibility of developing E-modules.

This research was carried out with the initial steps of conducting a preliminary study on stunting and conducting FGDs (Focus group discussions) followed by making modules and then developing more innovative electronic-based modules, making it easier to understand the contents of the e-module material because it has been completed with pictures and videos so that This printed e-module does not seem

monotonous. This Cating e-module is designed to be simpler so that pregnant women don't get bored while reading. This e-module consists of one subject, namely stunting, and is divided into several sub-topics, namely, the definition of stunting, factors causing stunting, signs of stunting, the impact of stunting, prevention of stunting, and early detection of stunting. After that, we analyze the input and output of the e-module in the form of an access link to the E-module and access the video link to Youtube for the E-module. Followed by developing the e-module, followed by validation of the E-module by media and material expert validators. After the feasibility test was carried out, field trials were carried out by collecting respondent data using a pre-and post-test questionnaire containing 20 questions in the form of a choice to see the effectiveness of the E-module prevention and early detection of stunting in increasing pregnant women's knowledge. The flow of this research begins with a preliminary study, determines objectives, determines the content of the material and evaluation strategy for the E-module with a validated questionnaire for the feasibility test and a questionnaire for testing the effectiveness of the E-module.

Analysis of the e-module stunting eligibility data uses the *e-module* feasibility data analysis technique using a Likert scale. The scores obtained are then converted into scores on a scale of one to four. As for the analysis of e-module effectiveness data to determine the increase in knowledge of pregnant women using Wilcoxon analysis. The statistical test in this study uses the SPSS Ver. application 23.

## RESULTS

Based on Table 1 above, it is known that 50% of respondents with elementary school and junior high school education status. Almost all of them are IRT (not working) 88.6% and there are 79.5% of respondents aged 20-35 years.

**Table 1 . Distribution of Respondent Characteristics**

Respondent characteristics	Frequency( N)	Percentage (%)
<b>Education</b>		
SD / SMP	22	50
SENIOR HIGH SCHOOL	12	27.3
PT	10	22.7
<b>Work</b>		
Doesn't work	39	88.6
Working	5	11.4
<b>Age(Years)</b>		
<20	3	6.8
20-35	35	79.5
>35	6	13.6
<b>Total</b>	<b>44</b>	<b>100</b>

Based on table 2, shows that the module assessment carried out by media experts obtained 3.5% results, material experts 3.35%, and obtained a total value of 3.42%, thus based on the results of the validity test of media and material experts stated that the e-module prevents and the early detection of stunting that is being developed is included in the very good category and is suitable for use. After revising input and suggestions from media and material experts. The material in the e-module is adapted to the latest issues regarding stunting and uses language that is easily understood by respondents (pregnant women). The e-module is also designed simply, apart from that the e-module for preventing and early detection of stunting is complemented by pictures and videos so that the e-module is not monotonous and clarifies the content of the material.

**Table 2. Media and Material Expert Validation Results**

Validators	Expert I	Expert II	N	Category
Media	3,4	3,6	3,5	Very good
Theory	3,6	3,1	3.35	Very good
<b>Total</b>	<b>3,5</b>	<b>3.35</b>	<b>3,42</b>	<b>Very good</b>

Based on table 3 above, the results of the Wilcoxon analysis test showed positive ranks which identified that 36 respondents received an increase in knowledge after being given the e-module intervention to prevent and early detect stunting. and the results obtained were  $p = 0.000$   $p < 0.05$  meaning that the e-module for preventing and early detection of stunting is effective in increasing the knowledge of pregnant women.

**Table 3. Results of pretest and posttest analysis of the e-module for preventing and early detection of stunting**

		N	Mean Ranking	Sum of Ranks	P = Value
Posttest – Pretest	Negative Ranks	4 <sup>a</sup>	11.75	47.00	0.000
	Positive Ranks	36 <sup>b</sup> –	21.47	773.00	
	ties	4 <sup>c</sup> –			
	<b>Total</b>	<b>44</b>			

## DISCUSSION

Stunting is a chronic malnutrition problem that is caused by a lack of nutritional intake for quite a long time, resulting in impaired child growth marked by a child's height is lower than the standard age (RI 2018). Problem stunting nutrition in a child (tall short according to age) is defined as a tall body at age 2 SD in lower average (WHO 2018). Retardation growth usually occurs on 1000 days of first life because growth

stops During pregnancy and continues until age 2 years, after that difficult treatment (Prendergast and Humphrey 2014). Stunting isn't only Become problem nationally but also internationally, term long from stunting incidents in one region or country will impact on declining economy causing a lack of productivity source power to stunt humans. One of the factors most important is the education mother, the amount of inspection, and the place of labor predictors important reasons for stunting in toddlers. Because that, to educate and empower women, increasing access to service KB and ANC as well as countermeasures to nutrition bad on mothers Becomes a factor important which need noticing including in policy to reduce the stunting of a child (Amaha and Woldeamanuel 2021) Research on the development of the e-module for preventing and early detection of stunting began with preliminary studies and group discussions regarding the importance of stunting knowledge for pregnant women to prevent stunting. From the results of the discussion, it was found that there was a need for independent educational media that were more innovatsive and easy to understand for pregnant women so an electronic-based stunting prevention and early detection module product was developed.

E-module is an electronic form of a printed module that consists of a set of paper containing learning materials in the form of text, sound, images, animated videos, and simulations (Erinawati 2016). ( Gunadarma, 2011 ) E-module is combined from media print and electronic, so that e-module could serve information in a manner systematic, interesting, and interactive, as well as the process of learning no again depend on the lecturer as the only source of information (Shovrotul Khoiriyah, Sumaryanto Florentinus, and Yuniastuti 2020). The material presented in the e-module is the definition of stunting, the causes of stunting, the signs of stunting, the impact of stunting, the prevention of stunting, and the early detection of stunting. Each material has an explanation accompanied by pictures, besides pictures, several video links are synchronized directly on YouTube which is useful for clarifying the material and making it easier for mothers to understand because it stimulates their senses of hearing and sight so that the e-module does not seem monotonous and boring for the reader, at the end of the e-module the module contains a summary of the material and evaluation questions. E- module prevention and detection Early stunting can be accessed on the link as following [https://www.dropbox.com/pri/get/Bismillah%20E-Module%20fix.pdf?subject uid=1449577393&w=AAA7tBl3H4c4W-](https://www.dropbox.com/pri/get/Bismillah%20E-Module%20fix.pdf?subject%20uid=1449577393&w=AAA7tBl3H4c4W-)

[TvNjdOuD93CvAdPD-x4glT4RieRKhrNA.](#)

Before applying the e-module, it is first validated by a media validator and the material is by the scientific field. After validating the results of the e-module for preventing and early detection of stunting, it is included in the very good category and is suitable for use by pregnant women. After being declared feasible, data were collected from 44 pregnant women who filled out the *pretest questionnaire*, continued reading the e-module, and filled out the *posttest questionnaire again*. After the data has been collected and the data coding is continued with analyzing the effectiveness of the e-module for preventing and early detection of stunting to increase knowledge of pregnant women using the Wilcoxon test analysis with a p-value  $<0.05$ , which means that the e-module for preventing and early detection of stunting is effective in increasing knowledge pregnant mother.

This research is in line with research conducted by (Pasili, 2019) stating that the results of the paired *T-test* obtained a p-value = 0.000 (p-value  $<0.05$ ) so that there is an increase in knowledge before and after being given health education using an e-media module (Pasili Nur Aini, Desy W, 2019). The results of this study are in line with research conducted by (Ningsih, 2020) stating that there is a module effect that significantly increases the knowledge of pregnant women (Ningsih Dewi and aliyah, 2020). With the *stunting* risk detection module media as an educational medium for pregnant women, it is very necessary because it can have a good impact on preventing stunting by increasing the ability and knowledge of mothers (Musdalifah et al., 2020).

The implications of research on the development of an e-module for preventing and early detection of stunting make it easier for pregnant women and increase pregnant women's knowledge about stunting. This e-module is designed to be more innovative, not monotonous, and developed so that it can be accessed anywhere and anytime, even though the module is electronically based, it can still be accessed without an internet network. Besides that study, this is done in a manner collaborative with midwives in charge of services, so before doing \_ study especially formerly researcher does meeting coordination with a midwife about mechanism research that has been designed by the researcher so that respondent intervened during the data collection process. According to (Aisyah R.D 2022) Role, the collaborative midwife is the key main stunting prevention with the contribution given by intervention midwife influence enough big to stunting prevention.

Studying this capability adds knowledge mother pregnant specifically regarding stunting through educational media study independent module-based electronics. For work areas, Public health center Sibulue E- module cat this can Become wrong one regular intervention can apply as effort wrong one prevention of stunting in the region work Public health center Sibulue Kabupaten bone. Advantages study this is several studies similar using educational media module print and from studies preliminaries that have been made E- module development regarding stunting and designated \_ for mother pregnant very less. for deficiency study, this is still a lack of references to use as research literature.

### CONCLUSIONS

Dari hasil penelitian ini dapat disimpulkan E-modul Cegah dan Deteksi Dini Stunting layak digunakan sebagai Media edukasi kesehatan dan berdasarkan uji statistik Wilcoxon, E-modul Cegah dan Deteksi Dini Stunting efektif meningkatkan pengetahuan ibu hamil. Saran bagi peneliti selanjutnya untuk meneliti mengenai perbandingan pemberian E-modul dan Modul cetak terhadap peningkatan pengetahuan ibu hamil.

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