



Knowledge Levels of Pre-Marital Couples on Stunting Prevention after the Exposure to an E-Module

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Abstract. Stunting is a significant public health issue affecting children under five, commonly resulting from chronic malnutrition and infections during early childhood. This descriptive study was conducted in 2023 at the Marriage Registration Office (KUA) in Imogiri sub-district, an area selected due to high stunting rates in the villages of Jatimulyo, Muntuk, and Karangtengah. The study aimed to assess the knowledge levels of pre-marital couples regarding stunting prevention after exposure to a digital e-module. Using purposive sampling, 15 respondents were selected based on their willingness to participate and ability to complete the module. The e-module was chosen for its accessibility, scalability, and interactive features, making it suitable for reaching a broad audience and accommodating varied learning paces. Pretest and posttest assessments demonstrated that the e-module effectively improved participants' knowledge, as shown by a notable increase in average posttest scores. These results highlight the potential benefits of incorporating digital health education into pre-marital counseling programs to raise awareness on stunting prevention. Future efforts should consider adapting this module to diverse cultural contexts and evaluating its role within a broader national health strategy to support child health outcomes in Indonesia.

Keywords: E-modul, stunting, knowledge

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INTRODUCTION

Stunting is a growth disorder affecting children under five years old, primarily caused by chronic malnutrition and recurrent infections during the first 1000 days of life. A child is classified as stunted if their height is -2 SD below the median height-for-age. Stunting represents chronic malnutrition and results in delayed growth, requiring additional time for the child to achieve age-appropriate height [1], [2]. In 2020, the global prevalence of stunting was 22%, affecting approximately 149.2 million children, with the highest rates observed in Africa (61.4 million) and Southeast Asia (15.3 million) [3]. In Indonesia, stunting prevalence decreased from 27.7% in 2019 to 24.4% in 2021, according to the Indonesian Nutritional Status Study (SSGI). In the Special Region of Yogyakarta (DIY), stunting prevalence in 2021 was 19%, with a target reduction to 14% [4]. In Bantul Regency, the prevalence of stunting in 2021 was 8.36%, showing a 1.38% decrease from the previous year. The highest stunting rates were observed in the villages of Jatimulyo, Muntuk, and Karangtengah,

all within the area served by the Imogiri Marriage Registration Office (KUA Imogiri), highlighting the need for targeted stunting prevention efforts in this region [5].

Stunting has both short-term and long-term impacts on health. Short-term effects include increased morbidity, mortality, impaired cognitive development, and higher healthcare costs. Long-term consequences may involve shorter adult stature, increased risk of obesity, reproductive health issues, decreased IQ, and reduced productivity [6]. Inadequate maternal health knowledge regarding preconception can lead to pregnancy complications, raising morbidity and mortality risks for both mother and fetus [7]. Many prospective parents focus solely on pregnancy and childbirth preparation, neglecting the importance of preconception care. Effective pregnancy planning should start before conception or pre-marriage to ensure optimal maternal and fetal health [8].

Preventing stunting involves nutritional interventions targeting adolescents, prospective brides and grooms, and pregnant women. Education on stunting for pre-marital couples should encompass nutritional education, pregnancy preparation, and general health education. Knowledge about stunting and other health issues significantly affects maternal health, fetal condition, and infant quality. Improving nutritional education before pregnancy is crucial, as the first 1000 days of life are critical for development. The government mandates pre-marital health screening, including Tetanus Toxoid (TT) vaccination. The role of midwives and pre-marital health education programs, such as pre-marital courses, is vital for enhancing couples' health knowledge. Preconception screening has been implemented effectively in various countries, including those with high-income as well as middle- and low-income nations [8], [9].

Multiple factors contribute to the risk of stunting among children under two years old. Specifically, lower maternal education levels significantly increase the odds of stunting, reflecting the critical role of maternal knowledge in promoting healthy feeding practices. This study corroborates the association between maternal education and child health outcomes, consistent with other studies that emphasize the importance of parental education in fostering protective caregiving behaviors [10].

Health education methods include individual, group, and mass education, utilizing media such as print (posters, leaflets), electronic (television, radio, e-modules), and billboard media. In the digital age, electronic modules (e-modules) are an effective tool for health education, with an average effectiveness score of 84.72% [11]. The use of e-modules is expected to enhance pre-marital couples' knowledge about stunting and contribute to reducing stunting rates in Indonesia. This study aims to evaluate the level of knowledge among pre-marital couples about stunting in the Imogiri sub-district's Marriage Registration Office, an area with the highest stunting rates, making it a critical focus for health education interventions.

METHOD

Study Design

This research employs a descriptive design with quantitative data analysis to assess the knowledge levels of pre-marital couples in the Imogiri sub-district regarding stunting prevention after exposure to an e-module. The study utilizes a survey-based approach with a pretest and posttest to measure knowledge levels before and after the intervention. The pretest assesses participants' initial knowledge, followed by the administration of the stunting prevention e-module. The posttest is conducted after the intervention to evaluate any changes in knowledge. This descriptive design allows for an in-depth understanding of knowledge levels among the sample without testing for the causal relationships.

Population and Sample

The study population includes all pre-marital couples registered at the Marriage Registration Office (KUA) in Imogiri. On average, KUA Imogiri registers approximately 34 couples each month, totaling around 400 individuals annually. For this study, the sample consists of pre-marital couples registered at KUA Imogiri during the research period, selected based on inclusion and exclusion criteria until the target of 15 eligible participants is met. Inclusion criteria include (1) pre-marital couples registered at KUA Imogiri, (2) couples willing to participate in the study, and (3) respondents who are conscious, able to communicate, and capable of completing the questionnaire. Exclusion criteria include (1) couples with known health conditions or cognitive impairments that may impact their ability to participate fully, (2) individuals with language barriers that prevent clear understanding of the questionnaire, and (3) couples who have undergone similar educational or intervention programs within the past year, as prior exposure could influence their responses and affect study validity. The

study uses purposive sampling to select participants who meet the specified criteria. All eligible participants available during the research period are included, without setting a specific sample size.

Research Procedure

The study intervention involved distributing an e-module to pre-marital couples registered at the Imogiri Marriage Registration Office. The e-module was administered without additional counseling sessions, enabling participants to engage with the material independently. Participants accessed the e-module through a digital platform, accessible on smartphones or computers, allowing flexibility to review the content over a 14-day period. To promote active engagement and comprehension, the e-module included embedded quizzes, which participants were instructed to complete as they progressed through the content. Researchers sent periodic reminders via email or WhatsApp to minimize the risk of lost to follow-up and conducted follow-up interactions to maintain participant engagement. At the end of the intervention, a posttest was conducted to assess changes in knowledge levels.

Instrument

Data collection was conducted using a structured questionnaire distributed via Google Forms. The link to the form was sent to respondents via email or WhatsApp. The questionnaire's validity was tested with a sample of 31, resulting in a validity coefficient (r) of 0.355 at a 5% significance level. Reliability testing yielded a Cronbach's alpha value of 0.735, indicating that the questionnaire items were reliable.

The e-module used as the intervention tool was reviewed by a panel of experts, including media experts, content specialists, and linguists, who assessed and provided feedback on the module's content, language, and presentation quality. The e-module was designed to be accessible on digital devices, with quizzes embedded to enhance comprehension and engagement.

Data Analysis

The descriptive analysis summarized the demographic characteristics of pre-marital couples, including age, education level, and occupation, using frequency distributions and percentages. Additionally, mean, median, and standard deviation values of pretest and posttest knowledge scores were calculated to capture baseline knowledge and improvements following the e-module intervention. The change in mean scores between pretest and posttest provided insights into the e-module's effectiveness in enhancing participants' knowledge of stunting prevention.

RESULTS AND DISCUSSION

Table 1. Respondent Characteristics

Characteristics	Total respondents	Percentage (%)
Age		
Late Adolescence	5	33.3
Adulthood	10	66.7
Total	15	100.0
Education		
Middle School	2	13.3
Higher education	13	86.7
Total	15	100.0
Type of Employment		
Not Working	1	6.7
Working	14	93.3
Total	15	100.0

The respondent characteristics indicate that most are adults over 22 years old (66.7%) with higher education levels (86.7%). A majority are employed (80.0%). The research suggests that age, education, and employment positively influence knowledge acquisition. Older respondents, with more life experience, tend to have better cognitive abilities. Higher education enhances knowledge, providing a solid foundation for understanding complex issues. Employment offers practical

experience, further boosting cognitive functions like memory and problem-solving skills. These factors collectively contribute to higher knowledge levels among the respondents [12], [13].

The level of knowledge of respondents is presented in Table 1, the knowledge of pre-test respondents is mostly in the fair category, 9 respondents (60%) and the knowledge of post-test respondents is mostly in the good category 14 respondents (93.3%).

Table 2. Knowledge Level of Respondents

Respondents' Knowledge Level	Total respondents	Percentage (%)
Pretest		
Poor	2	13.3
Fair	9	60.0
Good	4	26.7
Total	15	100.0
Posttest		
Poor	0	0
Fair	1	6.7
Good	14	93.3
Total	15	100.0

Table 3. Differences in Respondents' Knowledge

Knowledge Score	N	Mean	SD
Pretest	15	69.17	9.63
Posttest	15	90.58	7.76

The mean pretest knowledge score of respondents was 69.17, reflecting a moderate level of knowledge. After the intervention, the average posttest score increased to 90.58, indicating a good level of knowledge. The analysis showed a significant increase in the level of knowledge, with the mean pretest score of 69.17 increasing to 90.58 in the posttest. This indicates that the E-Module on stunting prevention was successful in increasing the knowledge of premarital couples. Knowledge is essential in shaping individual actions and behaviors, and its learning process is influenced by various factors, such as age, education, and life experiences [14].

Specifically, the questionnaire assessed knowledge in several areas, including the causes of stunting, its impact on child development, nutritional requirements, and preventive measures. Among these themes, the area with the most significant improvement in knowledge scores was nutritional requirements, where respondents demonstrated a marked increase in understanding essential nutrients necessary for preventing stunting. Additionally, there was a notable improvement in knowledge about the impact of stunting on child development, which underscores the critical nature of addressing this issue. Implications of this research suggest that integrating digital health education into pre-marital counselling programs can significantly improve knowledge among couples, potentially leading to better health outcomes for future children. This could be a valuable step toward addressing public health concerns like stunting in Indonesia [16].

This finding is consistent with previous studies that have shown the impact of educational interventions on improving knowledge [15]. Nutrition education significantly improved the knowledge of pre-marital couples, with scores increasing from 11.77 to 24.27 after the intervention [7]. The stunting prevention card game found a significant increase in knowledge, with scores increasing from 25.43 to 29.00, a significant impact of the intervention on knowledge levels [16].

The significant increase in knowledge among the respondents can be attributed to the ability of the E-Module to provide comprehensive and easily accessible information on stunting prevention, which is particularly important as stunting is a major public health concern, and increasing knowledge among premarital couples can play an important role in preventing stunting in future generations [17].

The significant increase in knowledge in the presence of the stunting E-Module as shown by the increase in posttest scores, supports the use of educational interventions as a strategy to address knowledge gaps in critical public health areas. Future research could further explore the long-term impact of such interventions on behavior and health outcomes, thereby contributing to broader efforts to combat stunting and other public health challenges [17], [18].

However, the study also had certain limitations. One potential weakness is the relatively small sample size of 15 respondents, which may limit the generalizability of the findings. Additionally, the

reliance on self-reported data could introduce bias, as respondents may tend to provide socially desirable answers. Future research should consider larger and more diverse populations to validate these findings and explore the long-term effects of such educational interventions.

CONCLUSION

This study shows that the knowledge level of pre-marital couples regarding stunting prevention improved after using the E-Module. The average pretest knowledge score of 69.17 indicates a moderate level of knowledge, while the average posttest score of 90.58 reflects a good level of knowledge. These findings indicate a positive change in pre-marital couples' understanding of critical health issues such as stunting. Therefore, it is important to continue integrating digital health education into pre-marital counseling programs to enhance couples' awareness and knowledge of health matters.

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