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Empowerment of brides-to-be to prevent stunting events early through balanced nutrition

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ABSTRACT

Stunting, a condition of impaired growth and development among children under five caused by chronic malnutrition in the first 1,000 days of life, remains a significant public health issue in Indonesia. Early prevention efforts are essential, particularly among women of reproductive age and prospective brides and grooms, who are critical in ensuring optimal maternal and child health. This community service program was conducted at Puskesmas Sekaran, Semarang, to empower prospective couples through balanced nutrition education to reduce the risk of stunting. The program adopted a participatory approach involving health workers, village authorities, and the Office of Religious Affairs. Activities included baseline assessments of chronic energy deficiency (CED) and anemia, development of educational media (booklets, leaflets, and banners), pre-marital nutrition classes, and intensive student mentoring. The intervention reached 25 participants across five villages, with activities delivered interactively through presentations, discussions, and Q&A sessions addressing scientific facts and common myths about nutrition. Pre- and post-tests were used to evaluate changes in knowledge, showing significant improvements: average pre-test scores increased from 89/100 to 95/100, with 92% of participants demonstrating improved knowledge and 76% achieving perfect post-test scores. These findings highlight that nutrition education, supported by user-friendly media, effectively enhances knowledge and awareness regarding balanced nutrition among prospective brides and grooms. The program demonstrates that empowering couples before marriage contributes to healthier pregnancy preparation, reduces risks of CED and anemia, and ultimately supports the national goal of lowering stunting prevalence.

Keywords: Balanced Nutrition; Community Empowerment; Prospective Couples; Stunting.

INTRODUCTION

Stunting is still a major unresolved nutritional problem and a national priority. The stunting incidence rate is still high, at 21.5% in 2023 [1]. Despite the decrease compared to 2022 (21.6%), this figure is still far from the national target of 14% by 2024. Stunting occurs from the time the fetus is still in the womb and only appears when the child is two years old. The long-term effects of stunting include other problems with physical, mental, intellectual, and cognitive development in adulthood [2]. In addition to increasing infant and child mortality, stunting at an early age also causes sufferers to be prone to health problems and have an ideal posture as adults [3].

The childhood stunting conceptual framework states that child stunting includes various causative factors, including maternal genetic factors, environmental conditions, history of breastfeeding and complementary feeding, and history of infection in toddlers. Stunting prevention must be encouraged early, even before 1000 days of life, in women of childbearing age, brides-to-be, or catin [4].

The main causes of stunting that occur in brides-to-be include chronic energy deficiency (KEK) and anemia. This problem is caused by indirect factors, such as the environment, and direct factors from individuals not supported by the consumption of nutrients as needed [5]. The application of strict intake restrictions on brides-to-be to want an ideal physical appearance without thinking about the body's nutritional needs to prepare for pregnancy can lead to malnutrition problems such as KEK and anemia [6]. Malnutrition can increase the chances of giving birth to a stunted baby because the body is not ready to get pregnant. The risk of stunting can increase by 36 times in mothers who have a history of KEK than in mothers who do not have a history of KEK. The growth and development process of the fetus is influenced by nutritional intake that is in accordance with the needs before and during pregnancy. Premarital childbearing women who have anemia status can affect the fetus conceived indirectly [7].

The application of a healthy lifestyle is very necessary in preventing stunting from an early stage in women of premarital childbearing age, such as the consumption of balanced and varied meals with reference to the principle of balanced nutrition, especially for women who are pregnant or brides-to-be [8]. This is proven by research (96.32%), not knowing what balanced nutrition is. If the bride-to-be has a good knowledge of balanced nutrition, they will change how they look at their nutritional status and what they eat. If the bride-to-be lacks knowledge about balanced nutrition, they will behave badly about what they eat, which can ultimately lead to KEK and anemia [9].

Some of the problems experienced by catin at the Sekaran Health Center include, first, the high level of catin who experience KEK and anemia. Based on data from the Sekaran Health Center in January 2025, it is known that there are 188 brides-to-be, including 26 prospective brides experiencing KEK and 23 prospective brides experiencing anemia, or around 26% of KEK catin and anemia. Second, the problem of KEK and anemia experienced by cats in the work area of the Sekaran Health Center is also influenced by the lack of knowledge about the fulfillment of balanced nutrition during the preparation period for marriage and pregnancy. Brides-to-be who experience KEK and anemia have a high risk of giving birth to children with a risk of stunting. Third, health workers' limited assistance of catin with SEZs and anemia. This is an effort to prevent KEK and anemia in catin, so that at least cadres as arm length of health workers must be able to provide nutrition education, nutrition counseling, and periodic health check-ups, so that there is empowerment and assistance to the bride-to-be. It can also increase knowledge related to intake patterns based on balanced nutrition as needed in

cats, and prevent stunting in the future. In addition, the fourth problem is the lack of information media related to cat nutrition. This information media is needed, especially in the religious affairs office (KUA) and the health center. Based on this background, the devotees are interested in carrying out a bride-to-be empowerment program to prevent early stunting through the implementation of balanced nutrition in the Sekaran Health Center area.

METHODS

This service program uses a participatory approach by involving various stakeholders on an ongoing basis, such as the Sekaran Health Center, village officials, KUA, and brides-to-be (catin) as the primary targets. The activity began with an initial stage, including preparation activities, field observation, advocacy, and coordination with village officials and the Sekaran Health Center. Furthermore, permits and interviews were carried out with the Puskesmas to obtain information on the initial situation, including identifying cat data with Chronic Energy Deficiency (SEZ) and anemia conditions.

The process of identifying and analyzing the situation was carried out, and the implementation team advocated the program to the Head of the Sekaran Health Center, nutritionists, the village in the work area of the Sekaran Health Center, and the Office of Religious Affairs (KUA). Based on these results, a premarital bride empowerment program was developed, which includes preparing premarital catin class programs, preparing pocket books for catin and cadres, and preparing training materials.

The implementation stage consists of three main activities, namely: (1) socialization of a series of community service activities to partners and targets, (2) implementation of catin and pregnant women empowerment activities with SEZ and anemia conditions, and (3) intensive assistance by students. The implementation of empowerment activities includes mentoring and monitoring of prospective brides with anemia and SEZs, the preparation of educational media (such as booklets, leaflets, and banners), the implementation of pre-marital classes with presentation, pretest, and posttest methods, as well as skill training for cadres and catin through presentations.

Evaluation was carried out to assess the effectiveness of the program with the following success indicators: at least 80% of KEK and anemia catin were actively attended, premarital classes run regularly every marriage period (based on KUA data), the preparation of nutrition and health pocket books for catin, and the availability of educational media in the form of nutrition awareness family banners installed at the Sekaran, Gunungpati, and KUA Health Centers, as well as a leaflet on balanced nutrition.

Partner participation in program implementation is critical in supporting the success of activities. The partner in this program is the Sekaran Health Center, Gunungpati District, Semarang City. Forms of partner participation include granting permits and supporting the implementation of programs at target locations, facilitating supporting facilities and infrastructure, and active involvement in monitoring and evaluating the program's success rate. Based on the problems faced by partners, which were reviewed in terms of health, environment, and human resources, the approach method involves all parties who play a role in an ongoing manner.

RESULT

The community service activity, which was held at the Sekaran Health Center Hall on April 26, 2025, and June 24, 2025, was attended by 25 brides-to-be from the Sekaran Health Center's work area, covering Sekaran, Ngijo, Kalisegoro, Sukorejo, and Patemon

villages. The activity began with filling out a pre-test to measure the bride-to-be's initial nutrition knowledge during the pre-conception period. Furthermore, as supporting media, education is provided with pre-conception nutrition materials through PowerPoint presentations, booklets, leaflets, and x-banners.

During the education process, participants showed enthusiasm by asking questions about the foods recommended during pregnancy preparation, pregnancy, postpartum, or breastfeeding. In addition, the discussion also discussed myths and facts circulating in the community regarding nutrition, thereby increasing participants' comprehensive understanding. The knowledge measured includes six levels: know, comprehension, application, analysis, synthesis, and evaluation. With this achievement, it is hoped that the bride-to-be will not only know the concept of pre-conception nutrition but also understand and apply the principles of balanced nutrition in daily life as preparation for a healthy pregnancy.

Community service activities regarding the empowerment of brides-to-be to prevent early stunting through the application of balanced nutrition in the work area of the Sekaran Health Center aim to increase the knowledge of brides-to-be in preparing for pregnancy after marriage, so that later they can give birth to healthy and normal children. The incidence of stunting in the work area of the Sekaran Health Center will decrease. The impact of this activity can be seen from the enthusiasm of the participants and the effectiveness of the educational media prepared. Figure 1 shows supporting media in the form of X-banners, pocket books, and leaflets used in the education process. This media plays an important role in strengthening the bride-to-be's understanding of the importance of balanced nutrition before pregnancy to prevent stunting.

Figure 1. X Banners, Pocket Books, and Leaflets

Nutrition education activities for brides-to-be take place in an interactive and participatory manner. Participants followed the delivery of the material with enthusiasm, as can be seen from the questions about nutrition during the preconception period, as well as clarification of myths and facts that developed in society. Documentation activities can be seen in Figure 2, which shows the atmosphere when providing nutrition education to the bride-to-be in the work area of the Sekaran Health Center. After the material delivery session, participants were directed to fill out a post-test questionnaire to evaluate their increased knowledge about nutrition during the preconception period. The evaluation was carried out by comparing the pre-test and post-test results that the bride-to-be had filled out. Based on the results of the analysis, there was an increase in knowledge after

providing educational materials. The knowledge achievement of the bride-to-be before and after being given nutrition education can be seen in Figure 3, while the visualization of the increase is presented in the form of a diagram on

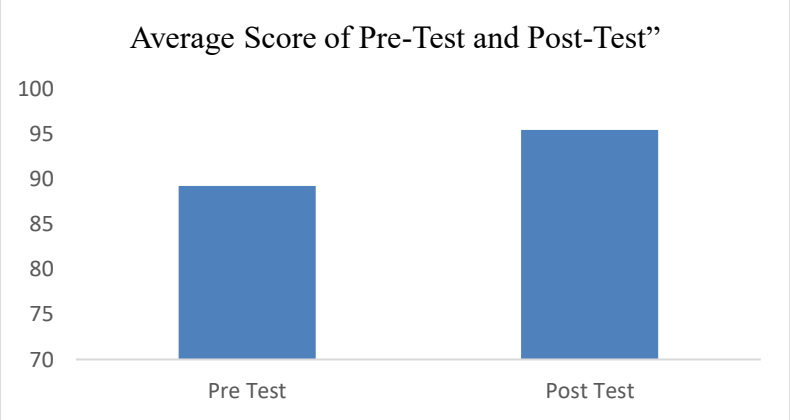

Figure 2. Catin's Nutrition Knowledge Achievement Results Chart

Based on data from the nutrition education achievement diagram for prospective brides in the work area of the Sekaran health center, it was found that there was an increase in knowledge after nutrition education activities. The average pre-test score is 89/100, while the average post-test score is 95/100. 92% of brides-to-be experienced increased knowledge, and 8% experienced a decrease. Of the 25 participants whose post-test results showed perfect scores (100/100), 19 people, or 76% did. This indicates that this service activity has quite a positive impact on the knowledge of the bride-to-be.

DISCUSSION

The increase in the knowledge of the bride-to-be after receiving balanced nutrition education during the preconception period shows that the method of delivering material using the media of pocket books, leaflets, and x-banners is effective in improving participants' understanding. This is in line with studies that state that nutrition education media interventions can significantly improve people's nutrition knowledge and attitudes. Using media in the form of booklets or pocket books that are systematically compiled with supporting visuals also makes it easier for participants to understand the material received. The findings of this community service program highlight the significance of empowering prospective brides and grooms through nutrition education as a preventive measure against stunting. Stunting, which is caused by chronic malnutrition during the first 1,000 days of life, continues to be a pressing public health issue in Indonesia. The results of this study align with previous research indicating that nutritional deficiencies, particularly chronic energy deficiency (CED) and anemia in women of reproductive age, are major contributors to stunting risk in children. The presence of these conditions among prospective brides emphasizes the urgent need for preconception interventions [10].

Implementing nutrition education using various media such as booklets, leaflets, and X-banners improved the knowledge of prospective brides and grooms. The improvement between pre-test and post-test scores demonstrates that educational interventions can positively influence participants' understanding when delivered interactively and supported with appropriate media. This supports earlier studies, which suggest that media-based nutrition education significantly enhances public knowledge and attitudes towards healthy eating practices [11]. Moreover, the interactive learning

approach, including discussions and clarification of myths, contributed to active engagement and better comprehension of the materials presented [12].

Another important aspect of this program is the role of stakeholder involvement. Collaboration with community health centers (puskesmas), village officials, and religious institutions such as the Office of Religious Affairs (KUA) ensured broader outreach and program sustainability [13]. This participatory approach strengthens the community-based strategy in stunting prevention, demonstrating that a multi-sectoral partnership is essential to address complex health issues. The involvement of students as facilitators also provided added value in terms of additional human resources and the application of academic knowledge in real settings [14].

The data revealed that 92% of participants showed an improvement in knowledge after the intervention, with 76% achieving perfect scores. This outcome highlights the potential long-term benefits if nutrition education programs are integrated into mandatory pre-marital preparation [15]. Equipping couples with sufficient knowledge about balanced nutrition makes them more likely to adopt healthier dietary practices, thereby reducing the risk of anemia and CED and lowering the incidence of stunting in their future children. However, while the program achieved positive results, some limitations should be considered. First, the sample size of 25 participants is relatively small, which may not fully represent the region's broader population of prospective brides and grooms. Second, the study measured knowledge improvement but did not yet assess long-term behavioral changes or health outcomes, such as reduced anemia prevalence or improved birth outcomes [16]. Future studies should include follow-up assessments to evaluate whether the knowledge gained translates into sustained behavior change and better maternal and child health indicators [17].

Overall, the success of this program underscores the importance of early intervention at the preconception stage. Nutrition education for prospective brides and grooms is a practical and impactful strategy that can be scaled up in other regions [18]. With strong community involvement, effective educational media, and continued monitoring, this approach can contribute significantly to the national target of reducing stunting prevalence to 14% by 2024 [19]. In addition, the leaflet media used in this activity has proven to be effective as an educational tool that can increase public knowledge and attitudes towards nutrition, according to the research results [20]. These interesting and easy-to-understand educational media help brides-to-be internalize important information related to pre-conception nutrition, so they are better prepared to face pregnancy. The high enthusiasm of the participants and the active involvement in the question and answer sessions demonstrated the success of the interactive educational approach. Discussions about nutritional myths and facts are also essential to correct societal misunderstandings, so the bride-to-be can decide to implement a healthy diet.

The results of this service prove that the empowerment of brides-to-be through balanced nutrition education can increase their knowledge and readiness in preparing for a healthy pregnancy. With this increase in knowledge, it is hoped that it can contribute to reducing the incidence of stunting in the work area of the Sekaran Health Center through a healthier and more optimal next generation.

CONCLUSIONS

Community service activities regarding the empowerment of brides-to-be to prevent early stunting through implementing balanced nutrition in the work area of the Sekaran Health Center went well. The bride-to-be can understand nutrition and how to

apply it during the pre-conception period. The participants' enthusiasm can be seen from the question and answer activities during the implementation of mentoring activities. Education provided through various educational media effectively increases the bride-to-be's knowledge of the importance of pre-conception nutrition. It is hoped that this activity can contribute to reducing the stunting rate in the work area of the Sekaran Health Center through improving the quality of health of prospective mothers and children.

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