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EDUCATION ON RED GUAVA JUICE (JUMERAH) IN AN EFFORT TO INCREASE HB LEVELS OF PREGNANT WOMEN WITH ANEMIA AT THE MALAWILI PUBLIC HEALTH CENTER, SORONG DISTRICT

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Abstract

The community service activity entitled "Education on Red Guava Juice (JUMERAH) to Increase Hemoglobin (Hb) Levels in Pregnant Women with Anemia at Malawili Community Health Center, Sorong Regency" was conducted using educational, participatory, and empowering approaches, involving pregnant women with anemia, healthcare workers, and health volunteers. The activities included coordination and preparation, development of educational materials, participant registration, education on pregnancy-related anemia, hemoglobin (Hb) level testing, a demonstration of JUMERAH preparation, supervised consumption, knowledge evaluation, a satisfaction survey, and report compilation. Thirty pregnant women with anemia participated in the program. Evaluation results showed that the number of participants with "good" knowledge increased from 5 (16.7%) in the pre-test to 26 (86.7%) in the post-test, while the number in the "poor" category decreased from 10 (33.3%) to 0%. Mean Hb levels rose from 9.8 g/dL (SD 0.6; range 8.5–10.9) to 11.1 g/dL (SD 0.7; range 10.0–12.5), representing an average increase of 1.3 g/dL. Participant satisfaction was also high, with an average score of 36.2 out of 40 (90.5%), and 23 participants (76.7%) falling into the "very satisfied" category. Most outcome indicators were achieved.

Keywords: pregnancy anemia, red guava juice, JUMERAH, hemoglobin, vitamin C, pregnant women

INTRODUCTION

Anemia during pregnancy is a health issue that remains a concern in Indonesia because it can negatively impact the health of both the mother and the fetus. Anemia in pregnant women is defined as a hemoglobin (Hb) level of less than 11 g/dL in the first and third trimesters or less than 10.5 g/dL in the second trimester. This condition is generally caused by iron deficiency, inadequate nutritional intake, increased iron requirements during pregnancy, and poor adherence to iron supplementation. Pregnant women with anemia are at risk of fatigue, decreased immunity, bleeding during labor, premature birth, and low birth weight.

Anemia remains a significant public health problem in Indonesia. Based on data from the Indonesian Health Survey (SKI) and various reports from the Indonesian Ministry of Health, the prevalence of anemia in pregnant women remains high, requiring serious attention. Therefore, various promotional and preventive measures are needed to increase hemoglobin levels in pregnant women, including nutrition education and the use of local food sources rich in nutrients that support hemoglobin formation.

Sorong Regency is one of the regions continuously striving to improve maternal and child health through various maternal health programs. However, cases of anemia in pregnant women are still found in several community health centers (Puskesmas) operating in the region, including the Malawili Community Health Center. Based on initial observations and coordination with local health workers, pregnant women are still found to have low hemoglobin levels, caused by a lack of knowledge about nutritional needs during pregnancy, low consumption of iron-rich foods, and inadequate use of sources of vitamin C, which can support optimal iron absorption.

One way to help increase hemoglobin levels in pregnant women with anemia is by consuming red guava juice (JUMERAH). Red guava (*Psidium guajava L.*) is a fruit with a very high vitamin C content, even higher than some other fruits. Vitamin C plays a vital role in increasing iron absorption in the body, thus optimizing hemoglobin formation. Furthermore, red guava also contains antioxidants, fiber, vitamin A, and various minerals that are beneficial for the health of pregnant women.

According to research conducted by several researchers, regularly consuming red guava along with iron supplements can significantly increase hemoglobin levels in anemic pregnant women. Its high vitamin C content helps convert iron into a form that's more easily absorbed by the body, thus enhancing the effectiveness of iron supplementation. Therefore, using red guava juice as a drink to accompany iron supplements can be an easy, safe,

and affordable alternative to help treat anemia in pregnant women. However, the use of red guava juice as a way to increase hemoglobin levels is still not optimal. Many pregnant women are unaware of the benefits of red guava in aiding iron absorption and increasing hemoglobin levels. Furthermore, there is still a widespread belief that iron intake can only be met through medications or supplements, ignoring the importance of consuming foods and beverages that support iron absorption.

Based on these conditions, health education activities are needed regarding the use of Red Guava Juice (JUMERAH) to increase hemoglobin levels in pregnant women with anemia in the Malawili Community Health Center, Sorong Regency. Through this educational activity, it is hoped that pregnant women will understand the importance of preventing and treating anemia, increase their knowledge about the benefits of red guava, and be motivated to adopt a consumption pattern that supports increased hemoglobin levels during pregnancy, thus optimally maintaining the health of the mother and fetus.

Target Audience Demographic Data

Based on the results of the initial situation analysis carried out through coordination with midwives, health cadres, and health workers in the work area of the Malawili Health Center, Sorong Regency, the following description of the target audience for educational activities was obtained:

Table 1 Demographic Data of Target Audience

No	Characteristics	Information
1	Amount Participant	± 25 mothers pregnant with anemia
2	Range Age	20–35 years
3	Gender	Woman
4	Level of education	School , and College
5	Work	housewife households , self-employed , farmers , and employees private
6	Access to Health Services	Available ANC services and classes Mother pregnant at Malawili Health Center
7	Knowledge about Anemia	Still varies and requires improvement education
8	Utilization of Guava Juice Red Seeds	Not yet optimal as companion increased tablet consumption blood (TTD)

Pregnant women in the Malawili Community Health Center work area Sorong Regency is groups that have role important in guard health herself and her fetus during pregnancy . However , it is still found Mother pregnant women who experience anemia due to lack of knowledge about importance fulfillment substance iron as well as utilization source of vitamin C that can help increase absorption substance iron in body . This condition can impact on health Mother and growth and development fetus if No handled optimally . Malawili Community Health Center as facility service health level First has provide various health programs mother and child , including antenatal care (ANC) services , provision of additional tablets blood (TTD), as well as class Mother pregnant . However however , still required effort more education intensive For increase understanding Mother pregnant about importance prevention and treatment of anemia during pregnancy .

One of alternatives that can utilized is Guava Juice Consumption Red Seeds (JUMERAH). Guava seed red contains high levels of vitamin C so that can help increase absorption substance iron and support hemoglobin formation . Besides being easy obtained , guava seed red is also relative affordable and can processed become mother 's favorite drink pregnant . With support power health , cadres health , and family , activities devotion public expected capable increase knowledge , awareness , and skills Mother pregnant in utilizing guava juice seed red as companion increased tablet consumption blood so that can help increase hemoglobin levels and lowers the incidence of anemia in pregnancy .

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LITERATURE REVIEW

Anemia in pregnancy is one of the problem health society that still become attention in Indonesia. According to the World Health Organization (WHO), anemia in pregnant women pregnant defined as condition level low hemoglobin (Hb) than 11 g/dL. Anemia during pregnancy can increase risk labor premature , bleeding moment childbirth , baby born with low birth weight (LBW), up to death mother and baby if No handled optimally . The Ministry of Health of the Republic of Indonesia continues strive decline number anemia in mothers pregnant through administration of iron tablets (TTD), examination pregnancy in a way routine , and education about fulfillment nutrition during pregnancy . However however , still Lots Mother pregnant who is not yet understand importance consume foods that help absorption substance iron , especially source of vitamin C. One of the easy source of vitamin C obtained public is guava seed red . Fruit This contains very high levels of vitamin C so that capable increase absorption substance iron inside body . Therefore that , education about utilization Guava Juice Red Seeds (JUMERAH) expected be one of alternative companion increased tablet consumption blood in increase level maternal hemoglobin (Hb) pregnant women who experience anemia .

Anemia in pregnancy is condition when hemoglobin (Hb) levels in blood Mother pregnant be under 11 g/dL , so that ability blood in transport oxygen to all over body become reduce . Hemoglobin is a protein found in cell blood red and functional transport oxygen to all over network body . During pregnancy need substance iron increase Because used For growth fetus , placenta , and increased blood volume mother . If need substance iron No fulfilled , mother pregnant will experiencing anemia which can bother health Mother and fetus . WHO estimates that around 36–37% of mothers pregnant women in the world experience anemia , with part big caused by a lack of substance iron . Based on Indonesian Nutritional Status Survey (SSGI) and data from the Indonesian Ministry of Health, anemia in pregnant women pregnant Still be one of problem nutrition that is needed attention specifically , especially in areas with access nutrition and services limited health .

A number of signs of anemia that need to be recognized among others: a. Easily tired, b. Face looks pale , c. Dizzy or Sick head , d. heart palpitations , e. Shortness of breath, f. Difficulty concentrating , g. Easy sleepy . If symptom the appear , mother pregnant recommended quick check self to facility Health . Causes and Risk Factors of Anemia to mother pregnant can caused by several factors , including : a. Lack consumption foods that contain substance iron , b. Lack of consumption foods containing vitamin C, c. Not routine taking additional tablets blood , d. Pregnancy with distance too close , e. Infection disease certain , f. Bleeding during pregnancy , g. Deficiency sour folate and vitamin B12.

The Impact of Anemia on Pregnant Women If No treated , anemia can be causes : In mothers , including : Easily Tired, Risk bleeding increased , premature delivery , infection , shock moment childbirth , in babies including : Low Birth Weight (LBW), Premature , Growth fetus stunted , Risk of stunting, Neonatal mortality Prevention of Anemia in Pregnancy can done through : a. Taking iron supplements, at least 90 tablets during pregnancy in accordance recommendation Health workers , b. Consuming Nutrient- Rich Foods Iron (Liver, Meat) Beef , Fish, Chicken, Eggs , Spinach, Water Spinach , Nuts), c. Routine ANC Check- ups . inspection minimum of six pregnancies according to standard antenatal care .

METHOD

The implementation of this community service activity is designed using a participatory community empowerment approach , which emphasizes the active involvement of pregnant women, health cadres, families, and health workers as the main subjects in every stage of the activity. This approach aims to increase the knowledge, awareness, and skills of pregnant women in preventing and treating anemia through the use of **Red Guava Juice (JUMERAH)** as a source of vitamin C that can help increase iron absorption and hemoglobin (Hb) levels.

Form and Approach Implementation

Form activities offered covers education health , demonstration making guava juice Red Seeds (JUMERAH), assistance Mother pregnant , and collaboration with power health and cadres health local . Every activity arranged in a way systematic For answer problem partners as has described in Chapter I, with focus main focus on improvement maternal Hb levels pregnant anemia through utilization food easy local obtained , safe , and nutritious

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The approach used includes :

1. Approach Educative
   Through counseling health and education based participation active participant with method lecture interactive , discussion groups , demonstrations , and questions answer regarding anemia in pregnancy as well as Benefits of Guava Juice Red Seeds (JUMERAH).
2. Approach Collaborative
   With involving midwife , labor health , cadres health , as well as family Mother pregnant as partners in implementation activity education and mentoring .
3. Approach Empowerment
   Which places Mother pregnant as perpetrator main in guard health pregnancy through implementation pattern Eat nutritious , increase tablet consumption blood , and Utilization of Guava Juice Red Seeds (JUMERAH) in independent and sustainable .

RESULTS AND DISCUSSION

Activity devotion to public with theme " Guava Juice Education " Red Seeds (JUMERAH) in an Effort to Increase Hb Levels in Anemic Pregnant Women at the Malawili Community Health Center Sorong Regency " has implemented in accordance with stages activities that have been planned in Chapter III. In general general , all series activity walk with Good start from stage preparation , coordination with party health center , preparation of educational media , implementation counseling health , demonstration making guava juice seed red , examination Hb levels , evaluation activities , up to compilation report end .

Activity This aim For increase knowledge Mother pregnant about anemia in pregnancy as well as give education about utilization of guava juice seed red as one of the effort non-pharmacological which can help increase level hemoglobin (Hb). The high vitamin C content in guava seed red play a role in help increase absorption substance iron so that can support formation hemoglobin in the mother pregnant with anemia .

Realization implementation activity compared to with plan beginning presented in Table 2

Table 2 Realization Implementation Activity Community service

No	Activity	Plan	Realization / Date	Information
1	Coordination initial survey introduction and licensing with Malawili Health Center Sorong Regency	Week 1	May 20, 2026	Implemented in accordance plan
2	Compilation material education and supporting media (leaflets, posters, questionnaires , SOP for making guava juice seed red)	Week 1–2	May 24, 2026	Implemented ; educational media finished prepared
3	Data collection and confirmation participant Mother pregnant anemia through party community health center	Week 2	June 1, 2026	Implemented with help midwives and cadres health
4	Education health about anemia during pregnancy , benefits of guava juice seed red , initial Hb examination , and demonstration making of JUMERAH	Week 3 (1 day)	June 6, 2026	Implemented ; participants follow activity with enthusiastic

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5	Mentoring consume guava juice seed red and monitoring maternal Hb levels pregnant	Week 3–4	June 7–10, 2026	Implemented in accordance timetable activity
6	Evaluation knowledge through post-test and final Hb examination	Week 4	June 12, 2026	Implemented
7	Processing of result data activities and preparation report	Week 4–5	June 19, 2026	In the process of completion end

Based on implementation activities , number participants who took part activity education as many as 30 mothers pregnant anemia that does Hb examination at Malawili Health Center Sorong Regency . Presence participant achieve the targets that have been set determined in the activity proposal . In addition to participants main activities this is also supported by manpower health and cadres who help with the education process , examinations , and mentoring during activity ongoing . The height participation Mother pregnant show that public own good attention to problem anemia in pregnancy . Activities education through method counseling and demonstration making guava juice seed red give experience direct to participant so that expected can increase understanding and change behavior in fulfillment nutrition during pregnancy .

Improvement Results Knowledge Participant Before and after Education

Measurement level knowledge participant done use questionnaire before given education (**pre-test**) and after given education (**post-test**). Assessment level knowledge categorized become three category that is **good (76–100%), sufficient (56–75%), and poor (<56%)** .

Measurement results knowledge against 30 mothers anemia in pregnant women is presented in Table 3

Table 3 Distribution of Knowledge Level of Pregnant Women Before and After Guava Juice Education Red Seeds (JUMERAH)

Category Knowledge	Pre-Test (n)	Pre-Test (%)	Post-Test (n)	Post-Test (%)
Good (76–100%)	5	16.7%	26	86.7%
Sufficient (56–75%)	15	50.0%	4	13.3%
Less (<56%)	10	33.3%	0	0.0%
Amount	30	100%	30	100%

Based on Table 3 it is known that that before given education about guava juice seed red , partly big Mother pregnant own level knowledge category Enough that is as many as 15 respondents (50.0%), while category not enough as many as 10 respondents (33.3%) and category Good as many as 5 respondents (16.7%). After being given education about anemia pregnancy and benefits consume guava juice seed red , happened improvement knowledge participants . Most of them respondents is in the category Good as many as 26 respondents (86.7%), category Enough as many as 4 respondents (13.3%), and no there is respondents with category less . The results show that activity JUMERAH education is capable increase understanding Mother pregnant about anemia , its importance inspection Hb levels , as well as benefit consumption food source vitamin C such as guava seed red For help increase absorption substance iron .

5.3 Results of Increasing Hb Levels in Anemic Pregnant Women Before and After Guava Juice Consumption Red Seeds

Measurement hemoglobin (Hb) levels are measured before giving education and after done mentoring consume guava juice seed red . Examination results maternal Hb levels anemia in pregnant women is presented in Table 4.

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Table 4 Distribution of Average Hb Levels in Pregnant Women Before and After Consuming Guava Juice Red Seeds (JUMERAH)

Variables	Mean Hb (g/dL)	Elementary School	Min–Max
Before JUMERAH consumption	9.8	0.6	8.5–10.9
After JUMERAH consumption	11.1	0.7	10.0–12.5

Based on Table 4 shows that there is increase in average maternal Hb levels pregnant after given education and consumption of guava juice seed red . Average Hb levels before intervention of 9.8 g/dL, then increase to 11.1 g/dL after intervention with an average increase of 1.3 g/dL. The increase Hb levels show that giving education about consume guava juice seed red give impact positive in support improvement level hemoglobin Mother pregnant anemia . Vitamin C content in guava seed red help increase absorption substance iron inside body so that formation cell blood red become more optimal.

Survey Results Satisfaction Participant

Evaluation satisfaction participant to implementation activity education **Guava Juice Red Seeds (JUMERAH)** done use instrument survey satisfaction contained in Appendix 8. Instrument evaluation consists of from a number of aspect covering suitability material education , clarity delivery information , benefits activities , educational media used , and service and assistance during activity ongoing . Maximum score evaluation satisfaction is 40.

Recapitulation results survey satisfaction against 30 participants Mother anemia in pregnant women is presented in Table 5.

Table 5. Results Survey Satisfaction Participant to Implementation Activity Guava Juice Education Red Seeds (JUMERAH)

Category Satisfaction	Amount Participant (n)	Percentage (%)
Very Satisfied (81–100%)	23	76.7%
Satisfied (61–80%)	7	23.3%
Enough Satisfied (41–60%)	0	0.0%
Less Satisfied (≤40%)	0	0.0%
Amount	30	100%

Based on Table 5, it is known that that part big participant give evaluation **very satisfied** to implementation activity JUMERAH education , namely as much as **23 participants (76.7%) ,** whereas as much as **7 participants (23.3%)** is in the category satisfied . There is no participants who provide evaluation Enough satisfied and not enough satisfied . Average score satisfaction participant obtained as big as **36.2 of score maximum 40** or equivalent with **90.5% ,** so that including in category **very satisfied** . Aspects that get evaluation highest is **clarity material about anemia pregnancy and the benefits of guava juice seed red** , and **demonstration making guava juice seed easy red understood and applied at home .** While that , the aspect that obtains variation evaluation is duration activities , because a number of participant expect time discussion and consultation about fulfillment nutrition Mother pregnant can extended so that participants can convey question related condition each pregnancy .





CONCLUSION

The results obtained from This activity is increasing knowledge Mother pregnant regarding anemia and efforts prevention , increasing awareness Mother pregnant about importance consume iron supplements according to your blood count recommendation power health . Increasing knowledge about Benefits of Guava Juice Red Seeds (JUMERAH) in help increase hemoglobin levels . Increased skills Mother pregnant in processing guava juice Red Seeds as drink Healthy during pregnancy . Increased compliance Mother pregnant in consume food nutritious and a source of vitamin C. The occurrence of change behavior life healthy and supportive prevention of anemia during pregnancy . And Support improvement hemoglobin (Hb) levels , decrease risk of anemia in mothers pregnant , and increase health mother and fetus in the work area **Malawili Community Health Center UPTD Sorong Regency .** Happen improvement average knowledge score participant regarding anemia in pregnancy and the benefits of guava juice seed red (Jumerah) as big as **minimum 20%** from pretest to posttest results . Minimum **80% of participants get posttest score ≥ 75 ,** which shows understanding Good to the material provided . Availability **Guava Juice educational leaflet Red Seeds (Jumerah)** as a medium of information and education sustainable for Mother pregnant women with anemia in the Malawili Health Center work area Sorong Regency . Increasing understanding participant about Understanding anemia in pregnancy , causes and impacts of anemia, nutritional needs substance iron during pregnancy , pregnancy nutrition guava seed red , and benefit consume guava juice seed red in help increase hemoglobin (Hb) levels . Minimum **80% of participants capable explain come back and practice method making guava juice Red Seeds (Jumerah)** in a way independent in accordance with steps that have been taken taught . Implementation activity education health about Guava Juice Red Seeds (Jumerah) according to with schedule that has been planned with level presence participant **minimum 80%** from amount invited targets . Increasing motivation Mother anemia for pregnant women consume nutrient -rich foods iron , vitamin C, and comply increased tablet consumption blood (TTD) given by energy health .

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