

## Effectivity of Beetroot in Increasing Pregnant Women Hemoglobin

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### ABSTRACT

The background is that anemia is a major problem in pregnancy women. According to Riskesdas 2019 there are 20.1 % of anemia in West Java. In Cimenyan Public Health Center area there are 37% pregnant women with anemia at 2022. The government has done efforts to reduce this condition by giving the iron tablets to pregnant women. Food supplementation that are rich of iron nutrition such as beetroot consumption can increase the hemoglobin. From the preliminary studies founded that 6 from 10 pregnant women never experience consuming beetroot and doesn't know the benefits of consuming beetroot.

The aim of the study is to know the effectivity of consuming beetroot in increasing hemoglobin of pregnant women with anemia.

The metode is quasy experiment with one group pretest and post-test design, with purposive sampling technique, with 34 subjects. This research use the standard procedure of processing and consuming beetroot. Respondent's hemoglobin are measure with hemoglobinometer before and after beetroot consumption. The statistic use bivariate analysis with Wilcoxon test.

The result is that the hemoglobin median value from 34 subjects before consuming beetroot juice is 9.75 gr/dl, and after consuming beetroot juice is 10.7 gr/dl. From the statistic test is Sig value (0,000) that means the beetroot juice consumption effectivity increases hemoglobin level in pregnant women with anemia.

The conclusion is that the consuming beetroot is effective in increasing pregnant women hemoglobin with anemia.

**KEYWORDS:** anemia, pregnant women, hemoglobin, beetroot juice

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### ARTICLE DETAILS

**Published On:**  
**13 April 2024**

**Available on:**  
**<https://ijmscr.org/>**

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### I. INTRODUCTION

Anemia is a blood hemoglobin level under 12-16 grams/dl (WHO, 2019). Maternal mortality death in development country according to World Health Organization (WHO, 2019) 40.3% is related with pregnancy anemia with iron deficiency. Seventy five percent of pregnancy complications are caused by bleeding, infection, high blood pressure, labor complication, and unsafe abortion (WHO, 2019). Anemia prevalence in Indonesia have a great number of 48.9 % and this increased from 37.1 % in 2013 (Riskesdas, 2018). Anemia in pregnancy 62.3 % is caused by iron deficiency and has a fatal effect such as abortion, uterine atony, prematurity, uterine inertia, prolonged delivery, bleeding, shock, and maternal or neonatal death (Cunningham, 2018). Anemia in pregnancy 45.7 % occurs in the third trimester (Supriasa, 2018). Government supplementation programme of 60 mg iron and 50 nanograms of folic acid is the prevention and

therapy of anemia in pregnancy (Kemenkes, 2017). Another way of anemia prevention and treatment is non pharmacology supplement such as consuming fruits and vegetables. Beetroot is a fruit with 108 mg of folic acid and 1.0 mg of iron (Kemenkes, 2017).

Preliminary studies at Cimenyan Public Health Centre in October 2023 was interview of 10 pregnant women, and from this interview, 6 has anemia, and 3 of the anemia women say they consume the iron tablet but seldom consume fruit and vegetables, 3 others doesn't consume iron tablet regularly. None of the interviewees have consume beetroot juice and doesn't know the benefit of beetroot.

This encourages Author to research about the benefit of beetroot juice to increase hemoglobin level in pregnant women with anemia.

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## II. METHOD

Sample is calculated using sample formula by Arikunto using  $Z = 1.96$ ,  $p = 0.05$ , and  $d = 0.15$ , resulting sample size of 34. We use the purposive sampling, and the inclusion criterias are third trimester pregnant women with mild anemia that agreed to join the research, domicile at Cimenyan Public Health Center area at periode November – Desember 2023, could answer all the questions, consumes beetroot juice according to procedure for seven days, consumes iron tablet, have Mother and Child Book. The exclusion criterias are pregnant women with other health complications such as renal failure, Tuberculosis, Diabetss Melitus, not cooperative, and inpatient.

First we collect the data of pregnant women that routine antenatal care at Cimenyan Public Health Centre area, then after informed consent – we perform the hemoglobin test using hemoglobinometer to gain the pre-test data. After that we make the beetroot juice of 100 grams resulting 200 ml of juice and entering it in bottle than give it daily for seven days. Performing hemoglobin examination again after 7 days using hemoglobinometer.

Population in this research is 160 third trimester pregnant women with anemia in Cimenyan Public Health Center area from April to September 2023. The data collected are analyze with univariat and bivariat statistic, we perform the normality test and if the data is normal we use T-test and if the data is not normal we use Wilcoxon Signed Rank test.

## III. RESULT

This research involves 34 subjects with mild anemia, and the subjects all consume beetroot juice for 7 days. The hemoglobin level in pregnant women before consuming beetroot is 9.750 gr/dl. Anemia in pregnancy influence the pregnancy, labor, and puerperium. Anemia can cause abortion, prematurity, premature rupture of membrane, prolonged labor, lack of contraction, labor power, postpartum hemorrhage, rest of placenta, uteri subinvolution,

**Tabel 1. Hemoglobin Level in Pregnant Women before Consuming Beetroot in Cimenyan Public Centre Area**

N	Median	Maximum	Minimum
34	9.750	9.4	10

Good nutrition state in pregnant women could make the pregnancy have a good outcome, give enough energy for mother, optimalize the fetal growth and development, and make the recovery more fast (Silitonga, 2023).

**Tabel 2. Hemoglobin Level in Pregnant Women after Consuming Beetroot In Cimenyan Public Center Area**

N	Median	Maximum	Minimum
34	10.700	10.3	11

According to the analysis showed in table 3 we see that 34 subjects show median of 9.75 gr/dl before consuming beetroot juice. And after it the median increase into 10.700 gr/dl. There is increasement of 0.95 gr/dl. Using the Wilcoxon test, we result in Z value - 5,188 and p value 0.000 ( $<0.05$ ) that shows that beetroot juice is effective in increasing the hemoglobin level in pregnant women with anemia.

This research is appropriate with Gustina's research (2020) with p value of 0.00. The result is appropriate to with Stephana (2018) that show that hemoglobin level in pregnant women with anemia has increase hemoglobin level.

To treat anemia in pregnant women we can use non pharmacology like beetroot because of high folic acid and iron.

## CONCLUSIONS

1. Hemoglobin level in pregnant women with mild anemia before consuming beetroot juice have median level of 9.750.
2. Hemoglobin level in pregnant women with mild anemia that after consuming beetroot juice have median of 10.70 g/dl.
3. Beetroot juice can increase hemoglobin level with p value 0.00.

## ACKNOWLEDGMENT

Thankyou for all the support for Author in finishing this research, especially to Rajawali Health Institute and to Cimenyan Public Health Center.

## REFERENCES

- I. Arikunto, S. Prosedur Penelitian Suatu Pendekatan Praktik. Jakarta: PT Rineka Cipta. 2010.
- II. Arisman. Buku Ajar Ilmu Gizi: Gizi Dalam Daur Kehidupan. Jakarta: Penerbit Buku Kedokteran EGC; 2010.
- III. Astutik RY, Dwi Ertina. Anemia dalam Kehamilan. Jawa Timur : CV. Pustaka Abadi. 2018.
- IV. Cunningham EG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY. Obstetri Williams (Setia R, dkk, eBditor edisi Bahasa Indonesia). Ed 23. Vol 2. Jakarta.
- V. Hernawati Erni, Lia Kamila. Kegawatdaruratan Maternal dan Neonatal. Jakarta Timur : CV. Trans Info Media. 2017.
- VI. Kementrian Kesehatan RI. Profil Kesehatan Indonesia 2017. Jakarta : Kemenkes RI. 2018. Accessed 6 January 2023. From : <http://www.depkes.go.id/resources/download/pusdatin/profil-kesehatan-indonesia/Profil-Kesehatan-Indonesia-tahun-2017.pdf>
- VII. Silitonga IR, Nuryeti. Profil Remaja Putri dengan Kejadian Anemia. Vol.3, No 3, Desember 2021, pp 184-192.
- VIII. Silitonga IR, dkk. Kehamilan , Janin dan Nutrisi. Sumatra Barat; Get Press Indonesia : 2014.

## Effectivity of Beetroot in Increasing Pregnant Women Hemoglobin

IX. and puerperal infection (Hernawati, 2017).

**Table 3: Increasement Of Hemoglobin Level In Pregnant Women Before And After Consuming Beetroot In Cimencyan Public Center Area**

<b>Hb Level</b>	<b>N</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>	<b>Z</b>	<b>P-value</b>
<b>Pre Test</b>	34	9.750	9.4	10	-5.188	0.000
<b>Post Test</b>		10.7	10.3	11		