# THE EFFECTIVENESS OF DIETS PROGRAM FOR PREECLAMPSIA ON BLOOD PRESSURE CONTROL AMONG PREGNANT WOMEN IN SOUTH TANGERANG

*By* Irma Nurbaeti

**Original Research Article**

# THE EFFECTIVENESS OF DIETS PROGRAM FOR PREECLAMPSIA ON BLOOD PRESSURE CONTROL AMONG PREGNANT WOMEN IN SOUTH TANGERANG

**Aanisah Zahran [1], Irma Nurbaeti[1*]**

[1] Nursing Science Program, Faculty of Health Science, UIN Syarif Hidayatullah Jakarta

**\*Correspondence:**
**Irma Nurbaeti**
Nursing Science Program, Faculty of Health Science, UIN Syarif Hidayatullah Jakarta
Kertamukti Pisangan Road, Ciputat, Tangerang Selatan, Banten - 15419
Email: irma.nurbaeti@uinjkt.ac.id

**Abstract**

**Background:** Preeclampsia is one of three causes of death for pregnant women, contributed to about 27% of maternal mortality in Indonesia. One of intervention that can be made for pregnant women to handling preeclampsia is diet for preeclampsia.

**Objectives:** The purpose this study was to investigate the effectiveness of diets program for preeclampsia on decreasing blood pressure in pregnant women.

**Methods:** A pre-experimental design with one group pretest – posttest was carried out. Population was all pregnant women who experience preeclampsia in Public Health Center in Ciputat South Tangerang. Twenty pregnant women who met criteria and completed the intervention were included in this study by using purposive sampling. Researcher explained the program diet and participants received program diets for preeclampsia in the form of a food list table, and fill in a table of food they consumed every day. Sphygmomanometer to measure blood pressure was used. Data collection with measure blood pressure was performed three times, before intervention, two weeks after diet program and one month after diet program. Repeated Measures ANOVA was applied to analysis with $\alpha = 0.05$.

**Results:** The mean scores of Systolic blood pressure was 147.06; 143.81; 140.38 in first, second and third collection, respectively. Systolic blood pressure in pregnant women with preeclampsia significantly decreased within two weeks after intervention ($F = 31.30$; p-value = 0.0001; Eta Squared= 0.676). The mean score of diastolic blood pressure was 102.31, 99.00 and 91.56 respectively. Diastolic blood pressure within two weeks after intervention decreased ($F= 19.05$; p-value= 0.0001; Eta Squared= 0.560).

**Conclusion:** Diets Programs for Preeclampsia could decrease both systole and diastole blood pressure. The recommendation for pregnant women who have Preeclampsia is to manage preeclampsia diets regularly.

**Keywords:** *Blood pressure, diets program, preeclampsia, pregnant.*

# INTRODUCTION

The maternal mortality rate (MMR) in Indonesia in the period 2007 to 2012 had been increased and subsequently gradually decreased back to the year 2015 (Ministry of Health, The Republic of Indonesia, 2017). Therefore, hypertension in pregnancy, bleeding, infection, duration of labor, and abortion are still the causes of high MMR in Indonesia. Gradually, the percentage of bleeding and infections occurring in pregnant women tends to decline while hypertension in pregnancy proportionately increases (Ministry of Health, The Republic of Indonesia, 2015). Preeclampsia remains a high cause of maternal and fetal morbidity and mortality; contributed 27% from all maternal mortality in Indonesia.

Increased systolic blood pressure more than 140 mmHg and diastolic blood pressure more than 90 mmHg at twice the measurement with a five-minute time interval in a fairly resting or quiet state is commonly referred to as high blood pressure or hypertension (Leifer, 2015). Hypertension or high blood pressure experienced by pregnant women is closely related to preeclampsia. Preeclampsia is an illness with symptoms of hypertension, proteinuria and edema that occurs during pregnancy usually in the second and third quarters (Magin, et al., 2011). Furthermore, preeclampsia is a risk factor for cardiovascular disease in both the mother and the child and asphyxia in fetus and newborn (Towsend et al, 2016).

Management of preeclampsia for pregnant women exists. Several interventions can be done to handling pregnant women with preeclampsia such as bed rest, diet, anti-hypertension medicine and checking proteinuria levels regularly (Hanafiah TM, 2011). The benefits obtained are to prevent developing severe preeclampsia and/or eclampsia; and minimum trauma for fetus lived (Cuningham, 2016). However, nutritional deficiency plays a role in preeclampsia. Nutritional intake affects blood pressure (William and Wilkins, 2013). According to Purwani (2015) total protein intake has a significant negative correlation with systolic and diastolic blood pressure. Animal protein was also significantly negatively correlated with systolic and diastolic blood pressure. A negative relationship means that the higher the total protein intake and animal protein, the lower the blood pressure will be. Study by Justin (2014) among adult participants showed that total protein intake, vegetable and animal sources are negatively correlated with systolic and diastolic blood pressure. Fat intake can increase the level of fat in the blood that will accumulate on the walls of blood vessels. It will form a plaque that eventually develops into atherosclerosis that will cause increasing blood pressure (Weber et all, 2014).

Effectiveness diet program for preeclampsia in Indonesia is a little-known study. Therefore, this study aim was to investigate effectiveness diet program for preeclampsia toward decreasing blood pressure pregnant women.

# METHODS

## Study Design

A pre-experimental one group with Pre-test and Post-test design was carried out in this study.

## Setting

The study was conducted between March to May 2019 in Public Health Center in Ciputat, South Tangerang.

## Research Subject

Population was all pregnant women who experience preeclampsia in Public Health Center in Ciputat, South Tangerang. From 20 women who meet inclusion criteria with purposive sampling technique, a number of four respondents drop-out from this study because not completed diets Preeclampsia program. The total samples completed all diet programs and measurement were 16 participants. The inclusion criteria were pregnant women who have a blood pressure minimum of 140/90 mm Hg or more, age range from 20 years to 34 years, gravida no more than 3.

*Instruments*

Instrument was used demographics data including age, gravidity, gestational age, and history preeclampsia while sphygmomanometer to measure blood pressure. Table of food diet program for pregnant women with preeclampsia was consulted to Nutritionist expert. Check-list diet programs for preeclampsia as tool to control diet consuming by participants filled-in by their participants. Researcher then check diet program list every day by phone. Data collecting was done three times: before intervention (Pre-test), one week after intervention (post-test 1) and two weeks after intervention (Post-test 2). Data collection was performed by visiting home.

*Intervention*

Intervention of diet program was performed within two weeks. First, researcher explained about diet program, benefit, and how participants follow the diets program. The list of food should consume by participants and fill-in the list table every day. The researcher control diet by asking participants every day in the morning, noon and at night.

*Data Analysis*

The multivariate analysis using Repeated Measures ANOVA was performed to figure out the before and after intervention because in this study we collected three-time measurement of blood pressure. Also test of the effectiveness of the preeclampsia diet against the control of blood pressure in pregnant women after a variable controlled potential as a confounding variable. Level of significance was 95% ($\alpha$ = 0.05).

*Ethical Consideration*

Informed consent had been signed by all participant who agreed to participated in this study. Before signing, all participants were explained about purpose and processed of the study. All participants were assured of confidentiality and could withdrawal from the study at any time without effect to health service. Study approval was obtained from the Ethics Committee of the Faculty of Health Sciences, Universitas Islam Negeri Syarif Hidayatullah Jakarta, Indonesia Number Un.01/F.10/KP.01.1/KE.SP/07.08.010/2019.

## RESULTS

*Characteristics of Respondents by Age, Gestational Age, Gravidity, and History of Hypertension*

The figure indicated that there are several respondents who are pregnant with preeclampsia on a range of reproductive time with the mean age of respondents to the study was 30.31 (SD = 3.30) years old. The gestational is in the second and third trimester ranges in the range of 20 – 33 weeks (Mean = 27.25 weeks; SD = 4.79) (Table 1).

**Table 1.** Distribution Frequency of Respondents by Age and Gestational Age in Public Health Center in Ciputat, South Tangerang on March until May 2019 (n = 16).

|  | Mean (SD) | Median | Min – Max |
|---|---|---|---|
| Age (year) | 30.31 (3.30) | 30.00 | 25 – 35 |
| Gestational (week) | 27.25 (4.79) | 29.50 | 20 – 33 |

Sources: Primary Data of Questionnaire, 2019.

Almost participants in the first-time pregnancy (87.5%) and no have history of hypertension (75%) (Table 2).

**Table 2.** Distribution Frequency of Respondents by Gravidity and History of Hypertension in Public Health Center in Ciputat, South Tangerang on March until May 2019 (n = 16).

| Characteristics | n | % |
|---|---|---|
| Gravidity | | |
| Primigravida | 14 | 87.5 |
| Multigravida | 2 | 12.5 |
| History of Hypertension | | |
| Have | 4 | 25.0 |
| Have not | 12 | 75.0 |

Sources: Primary Data of Questionnaire, 2019.

*Blood Pressure Before and After Preeclampsia Diet*

Table 3 showed that the average of systolic blood pressure before intervention was 147.06/102.31 mm Hg. After intervention during first week after intervention results of statistical data analysis after the intervention showed the average blood pressure results of pregnant women who experienced preeclampsia after one week of intervention of 143.81/99.00 mm Hg and 140.38/91.56 mm Hg in second week.

**Table 3.** Descriptive of Blood Pressure Pre-Test, Post-Test 1, and Post-Test 2 of Respondents in Public Health Center in Ciputat, South Tangerang on March until May 2019 (n = 16).

| | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|
| **Systolic Blood Pressure** | | | | |
| Pre- Test | 140 | 158 | 147.06 | 5.62 |
| Post-1 | 139 | 154 | 143.81 | 4.44 |
| Post-2 | 137 | 150 | 140.38 | 3.18 |
| **Diastolic Blood Pressure** | | | | |
| Pre-test | 91 | 114 | 102.31 | 6.89 |
| Post-test 1 | 88 | 115 | 99.00 | 8.16 |
| Post-test 2 | 81 | 100 | 91.56 | 5.75 |

Sources: Primary Data of Questionnaire, 2019.

*The Effectiveness of Diets Program for Preeclampsia on Blood Pressure*

To investigate the effectiveness of Diets program for preeclampsia on blood pressure, repeated measure ANOVA was applied. First step analysis repeated measure ANOVA was to determine the variation in differences data by using Mauchly's Test of Sphericity. The results of Mauchly's Test of Sphericity showed that systolic blood pressure data is 0.916 (*p*-value = 0.540). Diastolic blood pressure data is 0.792 (*p*-value = 0.195). This means that blood pressure data from measurements before the intervention, after one week of intervention, and two weeks of intervention are equal. Therefore, the

Repeated Measures ANOVA test uses the value of the Greenhouse-Geisser.

The finding showed that the mean score of Systolic blood pressure in pregnant women with preeclampsia decreased within two weeks after intervention, from 147,06 mmHg to 140,38 mmHg. Statistics analysis using Greenhouse-Geisser yielded there are difference over time systolic blood pressure decreasing within two weeks after intervention (F-value = 31.30; p-value = 0.0001). Eta Squared was 0.676, explained that the diets program was effectively decreased systolic blood pressure 67,6%. The mean score of diastolic blood pressure decreased from 102,31 (SD=6.89) to 91,56 (5.75). Greenhouse-Geisser found

significantly effective decrease diastolic blood pressure overtime (F=19.05; df=1.65; *p*-value= 0.0001). Eta Squared results obtained a value of 0.560 means that

diets program for preeclampsia pregnant women impact to 56% decreasing diastolic blood pressure (Table 4).

**Table 4.** Effectiveness Program Diet on Blood Pressure in Public Health Center in Ciputat, South Tangerang on March until May 2019 with Repeated Measures ANOVA (n = 16).

| | Mean (SD) | | | *Greenhouse-Geisser* | *Partial Eta-Squared* |
|---|---|---|---|---|---|
| | Pre | Post 1 | Post 2 | *Difference over time* | |
| Systolic Blood Pressure | 147.06 (5.62) | 143.81 (4.44) | 140.38 (3.18) | F = 31.30 P-Value = 0.000 df = 1.84 | 0.676 |
| Diastolic Blood Pressure | 102.31 (6.89) | 99.00 (8.16) | 91.56 (5.75) | F = 19.05 P-Value = 0.000 df = 1.65 | 0.560 |

Sources: Primary Data of Questionnaire, 2019.

Based on Bonferroni's post hoc exhibited that the mean difference in systolic blood pressure before and after the intervention for one week was 3.25 (*p*-value= 0.001). This shows that statistically the preeclampsia diet has an effect against a decrease in blood pressure before and after one week of intervention. The mean systolic blood pressure before and after the intervention for two weeks was 6.68 with a significance value of 0.000. And the value in the mean systolic blood pressure decreased after one week of intervention and two weeks of intervention was 3.43 with a significance value of 0.0001.

Meanwhile, the mean difference of diastolic blood pressure before and after the intervention for one week was 3.31 (*p*-value= 0.145). The mean systolic blood pressure before and after the intervention for two weeks was 10.75 (*p*-value= 0.0001). The value in the mean systolic blood pressure decreased after one week and two weeks was 7.43 (*p*-value= 0.000). Therefore, the p-value of the three comparisons of blood pressure measurements was more than 0.05, so it can be concluded that diet program for women with preeclampsia had an effect on reducing blood pressure in pregnant women who experience preeclampsia (Table 5).

**Table 5.** The Result of Pairwise Comparison (Bonferroni) Test.

| | Mean Difference (I – J) | | *p*-value | |
|---|---|---|---|---|
| | Systolic | Diastolic | Systolic | Diastolic |
| Blood pressure before and after 1 week of intervention | 3.25 | 3.31 | 0.001 | 0.145 |
| Blood pressure before and after 2 weeks of intervention | 6.68 | 10.75 | 0.0001 | 0.0001 |
| Blood pressure after 1 week of intervention and after 2 weeks of intervention | 3.43 | 7.43 | 0.0001 | 0.0001 |

Sources: Primary Data of Questionnaire, 2019.

In addition, confounding variables were controlled in order to prevent bias in intervention of diet program for pregnant women with preeclampsia including history of preeclampsia and gravidity. Based on the results in Table 6 found that statistically the effect of previous history of preeclampsia and gravidity did not affect the decrease in both systolic and diastolic blood pressure.

**Table 6.** Confounding Factors for Systolic and Diastolic Blood Pressure.

| Source | Time | Mean Square | F | p-value | Partial Eta Squared |
|---|---|---|---|---|---|
| **Systolic Blood Pressure** | | | | | |
| Factor1 | Linear | 0.398 | 0.061 | 0.809 | 0.005 |
| Factor1 * history of Preeclampsia | Linear | 16.00 | 2.454 | 0.143 | 0.170 |
| Factor1 *gravida | Linear | 15.18 | 2.329 | 0.153 | 0.163 |
| Error (factor1) | Linear | 6.521 | | | |
| **Diastolic Blood Pressure** | | | | | |
| Factor1 | Linear | 5.748 | 0.309 | 0.589 | 0.025 |
| Factor1 * history of Preeclampsia | Linear | 0.444 | 0.204 | 0.880 | 0.002 |
| Factor1 *gravida | Linear | 66.89 | 3.596 | 0.082 | 0.231 |
| Error (factor1) | Linear | 7.967 | | | |

Sources: Primary Data of Questionnaire, 2019.

## DISCUSSION

The number of preeclampsia in the Healthy age range is due to the most common pregnancy and childbirth in the productive age of 20-35 years. The study by Khusen and Polim (2012) also showed that the average preeclampsia patients who could not be saved were at the age range of 20 – 39 years with an average age of 28.2 years. Cell function and body system in mothers are in the range risk differently than mothers at healthy age. The ability of the cells to change (remodeling) at the beginning of pregnancy is crucial for the normal placenta to run and the fetus has sufficient supply of oxygen. If at the time of metabolic need of Fetoplasenta unit increases during pregnancy, while the Arteriola spiralist can be not accommodate the necessary increase in blood flow, it will occur that placental dysfunction is clinically manifested as preeclampsia (Errol R Norwitz & John O. Schorge, in Ekaputra, 2014).

The range of gestational was 20 – 33 weeks. The gestational has a close association with preeclampsia because preeclampsia is a specific syndrome that occurs in pregnancy after reaching the gestational of 20 weeks and the discovery of proteinuria (Cunningham, 2016). Based on the characteristics of the respondent's gestational age, it is certain that the high blood pressure experienced by the respondent is correct because of the preeclampsia can occur gestational 20 week or more. Also, a risk factor of preeclampsia is the various primigravida as well as the previous preeclampsia history or history of hypertension before pregnancy (Cunningham, 2014).

This study is consistent with the other study. Mafikasari (2014) stated that the first-time mothers (primigravida) have a chance of 1.458 times preeclampsia compared with non-primigravida. Karkata (2011) conducted research in Denpasar hospital obtained the result of data that the preeclampsia incident in Primigravida amounted to 11.03%. While

Khusen and Polim (2012) yielded the case of a mother's death in the preeclampsia primigravida was 31.6%.

Based on the results of data analysis before the intervention is obtained that the average blood pressure results of pregnant mothers who have preeclampsia before the implementation of the preeclampsia Diet of 147.06/102,31 mm Hg. According to Lalenoh (2018) the figure is still Categorized as mild preeclampsia ranging from 140/90 mm Hg to 160/110 mm Hg. Therefore, in this study the blood pressure of the mother who had preeclampsia before implemented preeclampsia diet can be categorized as preeclampsia Light.

This study showed that Eta Squared formula used to measure the effectiveness of preeclampsia diet which has been given the result of 0.67 for systolic blood pressure and Eta Squared result for diastolic blood pressure of 0.56. It can be concluded that the intervention in the form of preeclampsia diet in pregnant women within a period of two weeks has had a large effectiveness in the decrease of blood pressure in pregnant women who have preeclampsia.

Lack of micronutrient eventually causes blood pressure to be high in both systolic and diastolic blood pressure (Whitney, 2011). Proteins and various minerals (calcium, and potassium) are excellent for maintaining the body's metabolic stability. Preeclampsia diet adequacy of nutrients was fulfilled to lead reduce blood pressure in pregnant women with preeclampsia. Calcium also important for the body, especially for pregnant women. If the rate of calcium in the body is low, the parathyroid hormone will work to maintain the balance of calcium in the blood. Calcium in the blood will bind to free fatty acids so that the blood vessels become thickened and hardened therefore can reduce the elasticity of the heart that will later increase blood pressure (Weber, 2014).

Dietary intake containing protein-rich and potassium can lower blood pressure in preeclampsia expectant mothers. Potassium in the body will deliver nerve impulses in line with the release of energy from proteins, carbohydrates, and fats during the metabolism of the body (Walanda, 2014). Increasing the level of potassium in the blood will balance the sodium levels and reduce the levels of urine sodium so as to avoid increased blood pressure in patients with high blood. With the occurrence of sodium balance, edema in pregnant women who have preeclampsia can be reduced (Tripeni, 2015). In addition to consuming foods with high protein and potassium, a diet low in sodium can be one of the alternative therapies in lowering blood pressure that occurs in pregnant women with preeclampsia.

Previous research from Tangkilisan (2014) showed that consuming foods that are high in potassium such as those found in banana Ambon for one week can lower blood pressure by 10% or equivalent to 9.27 mm Hg. Diana (2016) stated that there was a difference in blood pressure before and after given Yogurt therapy for two weeks. Based on previous research, this study carried out a preeclampsia diet intervention for two consecutive weeks.

In line, Parul (2012) stated there was a significant influence of calcium administration on the incidence of preeclampsia. Low calcium intake will cause an increase in blood pressure by stimulating the release of parathyroid hormones and or renin, therefore the increase of intracellular calcium in the smooth muscles of blood vessels will cause blood vessels vasoconstriction (Sibai, 2017). Pujiani (2017) also stated that consuming foods that contain high in potassium and protein such as banana fruit can lead lower blood pressure in preeclampsia patients. Furthermore, Devi (2016) argued that magnesium levels had an important role in the control of blood pressure. Less optimal function of magnesium levels derived from food in lowering blood pressure can be caused by fiber deficiency that can inhibit magnesium levels.

**CONCLUSION**

There are a significantly influence diet program for preeclampsia and decreasing blood

pressure both systolic and diastolic (p value = 0.0001) after controlled by history of preeclampsia and gravidity. The average value of blood pressure of pregnant women who have preeclampsia before the preeclampsia diet intervention is 147.06/102.31 mm Hg. While the blood pressure of pregnant mothers who have preeclampsia after intervention during one week of diet Preeclampsia suffered a decrease in blood pressure of 143.81/99.00 mm Hg. In the last intervention of two weeks, the results of the average blood pressure also decreased by 140.38/91.56 mm Hg.

## SUGGESTIONS

Diets Programs for Preeclampsia could decrease both systole and diastole blood pressure. The recommendation for pregnant women who have Preeclampsia is to manage preeclampsia diets regularly. For Nurse and midwife in Public Health center to provide education and list of menu diets for preeclampsia women in order to increasing patient's obedience.

## ACKNOWLEDGMENT

## DECLARATION OF CONFLICTING INTEREST

There was no conflict of interest regarding the publication of this study.

## FUNDING

## AUTHOR CONTRIBUTION

**Aanisah Zahran:** Conceptualized the study, study design, collected data, data management and drafted the original version of the manuscript.

**Irma Nurbaeti:** Developed the study conception and design, data analyses, revision original version of the manuscript and provided critical revisions.

## ORCID
**Aanisah Zahran**
https://orcid.org/0000-0002-9528-5648

**Irma Nurbaeti**
https://orcid.org/0000-0003-1477-2311

## REFERENCES

Cunningham, Gery F. (2016). *Obstetri Williams Edisi 23, Vol. 2*. Jakarta: EGC.

Devita, Hendri dan Amran, Vitri Yuli Afni (2016). 'Hubungan Kadar Magnesium dengan Kejadian Preeklampsi pada Ibu Hamil Trimester III di RSUP Dr. M. Djamil Padang Tahun 2015'.

Ekaputra, VG. (2014). *Perbedaan Kadar Soluble Endoglin Serum dan Ekspresi Endoglin Placenta pada Preeklampsia/Eklampsia dan Kehamilan Normotensi. Program Pendidikan Dokter Spesialis 1 Obstetri & Ginekologi* Semarang: Fakultas Kedokteran Universitas Diponegoro Semarang.

Kementerian Kesehatan Republik Indonesia. (2014). *Pusat Data dan Informasi Kementerian Kesehatan Republik Indonesia*.

Kementerian Kesehatan Republik Indonesia. (2015). *Profil Kesehatan Indonesia Tahun 2015*.

Kementerian Kesehatan Republik Indonesia. (2017). *Profil Kesehatan Indonesia Tahun 2017*.

Khusen, D & Polin, A. (2012). *Factors Influencing Maternal Mortality from Severe Preeclampsia and Eclampsia*. Maj Obstetry Ginekolog. Indonesia.

Lalenoh, Diana Christine. (2018). *Preeklampsia Berat dan Eklampsia: Tatalaksana Anastesa Perioperatif*. Yogyakarta: Deepublish.

Leifer, G. (2015). *Introduction to Maternity and Pediatric Nursing, Seventh Edition*. Missouri: Elsevier.

Mafikasari, A & Kartikasari, R A. (2015). *Posisi Tidur dengan Kejadian Back Pain (Nyeri Punggung) pada Ibu Hamil Trimester III*. Jurnal Keperawatan Padjadjaran.

Parul S. (2012*). Benefit of Vitamin D supplementation in Pregnancy for Prevention of Preeclampsia*. Dept Of Biochemistry Pt. B.D. Sharma PGIMS, Rohtak, India.

Purwani, R. (2015). *'Hubungan asupan protein dengan tekanan darah pada remaja'*.

Pujiani, Ira, et all (2017). '*Effect of Ambon Banana Consumption to Decrease Blood Pressure in Pregnant Woman with Preeclamps*'.

Sibai BM and Ewell M, Levine RJ. (2017). *Risk factors associated with preeclampsia in healthy nulliparous women, the Calcium for Preeclampsia Prevention (CPEP) Study Group*. Am J Obstet Gynecology.

Tangkilisan LR, Kalangi S, Masi G. *Pengaruh Terapi Diet Pisang Ambon (Musa Paradisiaca Var. Sapientum Linn) Terhadap Penurunan Tekanan Darah Pada Klien Hipertensi Di Kota Bitung*. Jurnal Keperawatan. 2014.

Tripeni T, Sulisdiana S. (2015). *Efektivitas Jus Pisang Dan Air Kelapa Muda Terhadap Tensi Lansia Penderita Hipertensi*. Hospital Majapahit.

Villareal, H. (2008). *Hypertension*. United States of America : A Wiley Medical publication.

Weber MA, Schiffrin EL, White WB, Mann S, Lindholm LH, Kenerson JG, et all. (2014). *Clinical Practice Guidelines For The Management Of Hypertension In The Community*. The Journal Of Clinical Hypertension.

Whitney EN, Rolfes SR, Crowe T, Cameron-Smith D, Walsh A. (2011). *Understanding Nutrition: Cengage Learning*.

William dan Wilknis. (2013). Modern Nutritions In Health And Disease Tenth Edition. Wolters Kluwer Company. Philadelphia.
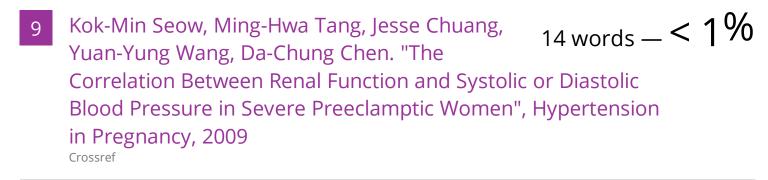
Mafikasari, A. & Kartikasari, R. A. (2015). *Posisi Tidur Dengan Kejadian Back Pain (Nyeri Punggung) Pada Ibu Hamil Trimester III*. Jurnal Keperawatan Padjadjaran.

Villareal, H. (2008). *Hypertension*. United States of America : A Wiley Medical publication.

Weber MA, Schiffrin EL, White WB, Mann S, Lindholm LH, Kenerson JG, et all. (2014). *Clinical Practice Guidelines For The Management Of Hypertension In The Community*. The Journal Of Clinical Hypertension.

Whitney EN, Rolfes SR, Crowe T, Cameron-Smith D, Walsh A. (2011). *Understanding Nutrition: Cengage Learning*.

William dan Wilknis. (2013). Modern Nutritions In Health And Disease Tenth Edition. Wolters Kluwer Company. Philadelphia.

# THE EFFECTIVENESS OF DIETS PROGRAM FOR PREECLAMPSIA ON BLOOD PRESSURE CONTROL AMONG PREGNANT WOMEN IN SOUTH TANGERANG

## ORIGINALITY REPORT

# 11%
SIMILARITY INDEX

9   Kok-Min Seow, Ming-Hwa Tang, Jesse Chuang, Yuan-Yung Wang, Da-Chung Chen. "The Correlation Between Renal Function and Systolic or Diastolic Blood Pressure in Severe Preeclamptic Women", Hypertension in Pregnancy, 2009
Crossref
14 words — < 1%

10  Antonio E Frias, Michael A Belfort. "Post Magpie: how should we be managing severe preeclampsia?", Current Opinion in Obstetrics and Gynecology, 2003
Crossref
13 words — < 1%

11  "Proceedings of the Andalas International Public Health Conference 2017", BMC Public Health, 2017
Crossref
12 words — < 1%

12  www.isrctn.com
Internet
12 words — < 1%

13  etheses.whiterose.ac.uk
Internet
10 words — < 1%

14  shizuoka.repo.nii.ac.jp
Internet
10 words — < 1%

15  www.hindawi.com
Internet
10 words — < 1%

16  www.tandfonline.com
Internet
10 words — < 1%

17  ies.ed.gov
Internet
9 words — < 1%

**18** www.scilit.net
Internet
9 words — < 1%

**19** Esashi, Masayoshi, Keizo Ishii, Noriaki Ohuchi, Noriko Osumi, Masaaki Sato, and Takami Yamaguchi. "ANATOMICAL AND FUNCTIONAL MAPPING OF THE HUMAN BRAIN: JAPANESE BRAIN IMAGE DATABASE PROJECT", Future Medical Engineering Based on Bionanotechnology, 2006.
Crossref
8 words — < 1%

**20** garuda.ristekbrin.go.id
Internet
8 words — < 1%

**21** jurnal.syntaxliterate.co.id
Internet
8 words — < 1%

**22** link.springer.com
Internet
8 words — < 1%

**23** ojs.unm.ac.id
Internet
8 words — < 1%

**24** qdoc.tips
Internet
8 words — < 1%

**25** www.thejcdp.com
Internet
8 words — < 1%

**26** "Abstracts of the Asian Congress of Nutrition 2019", Annals of Nutrition and Metabolism, 2019
Crossref
7 words — < 1%

**27** Graziella R. Paniz, Fray M. Arroyo-Mercado, Christina L. Ling, E. Eunice Choi, Harry E. Snow, Neal E. Rakov, Eliseo F. Castillo. "Assessment of mesalamine in the alterations of metabolic parameters in comorbid ulcerative
7 words — < 1%

colitis and metabolic syndrome patients: A retrospective study",
Cold Spring Harbor Laboratory, 2021

Crossref Posted Content

---

28　Lina M. Vera-Cala, Myriam Orostegui, Laura I.
Valencia-Angel, Nahyr López, Leonelo E. Bautista.
"Precisão do aparelho Omron HEM-705 CP na medida de
pressão arterial em grandes estudos epidemiológicos",
'FapUNIFESP (SciELO)'

6 words — < 1%

Internet

---

EXCLUDE QUOTES　　　OFF　　　　　　EXCLUDE MATCHES　　　OFF

EXCLUDE BIBLIOGRAPHY　ON