Jurnal Keluarga Berencana
P-ISSN: 2527-3132 E-ISSN: 2503-3379
Vol. 11No. 1, 2026
https://ejurnal.kemendukbangga.go.id/
Kementerian Kependudukan dan Pembangunan Keluarga/BKKBN

THE RELATIONSHIP BETWEEN HISTORY OF HORMONAL CONTRACEPTIVE USE AND BLOOD PRESSURE IN PREGNANT WOMEN

[1]Kansa Putri Sholihah, [2]Ni Wayan Dwi Rosmalawati, [3]Retno Dumilah, [4]Duhita Dyah Apsari
[1,2,3,4]Malang Ministry of Health Polytechnic, Malang, Indonesia
E-mail: kansaputri71@gmail.com, dwi_rosmalawati@poltekkes-malang.ac.id, retno.dumilah2079@gmail.com, duhita.d.apsari@gmail.com

ABSTRACT
Acceptors of hormonal contraception over a certain period often experience health complaints, one of the most common being hypertension or elevated blood pressure. The purpose of the study was to determine the relationship between history hormonal contraceptives use and blood pressure in pregnant women. This study used a quantitative observational analytical design with a cross-sectional research design. The sample in this study was pregnant women who met the inclusion criteria, namely respondents who used hormonal contraception before pregnancy and respondents with a gestational age of ≥28 weeks. This research was conducted at the Wajak Community Health Center, Malang Regency using the consecutive sampling technique with 50 respondents from February to April 2025. Data were analyzed using the chi-square test. The analysis demonstrated a statistically significant association between the use of hormonal contraceptives and blood pressure among pregnant women at the Wajak Health Center, Malang. This study found a statistically significant association between the use of hormonal contraceptives and blood pressure among pregnant women. Pregnant women with a history of hormonal contraceptive use showed differences in blood pressure status compared to those without such history, indicating that prior hormonal contraceptive use is related to blood pressure levels during pregnancy.

Keywords: blood pressure; hormonal contraception; pregnant women.

INTRODUCTION
Maternal mortality in Indonesia is dominated by three main causes: hemorrhage (28%), hypertension in pregnancy (24%), and infection (11%) (Indonesian Ministry of Health, 2024). Hypertension is defined as systolic blood pressure of 140 mmHg and diastolic blood pressure of 90 mmHg (Abdi, 2021). The risk of increased blood pressure is associated with age, parity, obesity, a history of maternal hypertension, a family history of hypertension, and the use of hormonal contraceptives. Hormonal contraceptive users often complain of health problems over a period of time, one of which is hypertension or high blood pressure (Hutasoit & Azwar, 2019).

Based on the results of the Indonesian Demographic Health Survey (SDKI) in 2023, there was a significant increase in the Maternal Mortality Rate (MMR), namely 359 per 100,000 live births (National Research and Innovation Agency, 2025). Meanwhile, the MMR in East Java in 2023 experienced a slight increase compared to the previous year. In 2023, there was a slight increase to 93.73 per 100,000 live births. According to data from the Ministry of Health in 2023, the most common cause of MMR in East Java was hypertension during pregnancy, childbirth, and the postpartum period. obstetric hemorrhage, and non-obstetric complications. In terms of maternal mortality, East Java recorded 499 maternal deaths in 2023. The three regions with the highest maternal mortality rates were Malang Regency, Jember Regency, and Banyuwangi Regency (East Java Provincial Health Office, 2024).

The leading cause of maternal mortality in Malang Regency is hypertension during pregnancy. Based on a preliminary study conducted by the Malang Regency Health Office, the incidence of hypertension during pregnancy in Malang Regency in 2023 was 552, an increase from the previous year's 488. The highest incidence of hypertension in pregnancy in 2023 was in the three sub-districts, namely Wajak Sub-district with 36 incidents, Turen Sub-district with 35 incidents, and Karangploso Sub-district with 32 incidents (Malang Regency Health Office, 2024).

Email Corresponding:
kansaputri71@gmail.com
Article History
Received: 05-11-2025 Accepted: 30-06-2026

© 2026 The Author(s). This is an open-access article under Attribution-NonCommercial-ShareAlike 4.0 International License (https://creativecommons.org/licenses/by-nc-sa/4.0/)

The incidence of hypertension in pregnancy is caused by several factors. The results of research by Maharani and Oevita (2023), factors that influence the incidence of preeclampsia include maternal age, history of hypertension, history of preeclampsia, history of diabetes mellitus, and history of hormonal contraceptive use. The use of hormonal contraceptives can cause side effects including changes in bleeding patterns, nausea, dizziness, acne, weight changes, mood changes, breast disorders, and the risk of increased blood pressure (World Health Organization, 2018). This is caused by the content of estrogen and progesterone hormones that can facilitate sodium ion retention and water secretion as well as increase plasma renin activity and angiotensin formation, which can trigger increased blood pressure (Setiawan in Suryani & Wulandari, 2018).

Previous studies have reported an association between hormonal contraceptive use and increased blood pressure; however, most of these studies were conducted among non-pregnant women or focused on current contraceptive users. Several studies also examined hypertension during pregnancy, but primarily emphasized obstetric risk factors such as age, parity, obesity, or pre-existing hypertension, without specifically considering a history of hormonal contraceptive /use prior to pregnancy (Yakub et al., 2020). As a result, evidence regarding the relationship between prior hormonal contraceptive use and blood pressure status during pregnancy remains limited and inconsistent. This gap indicates a lack of focused research on pregnant women as a distinct population with prior exposure to hormonal contraception, particularly within primary healthcare settings where early screening and routine antenatal care are conducted.

Mothers with a history of hypertension in pregnancy are at increased risk of developing hypertension in subsequent pregnancies, which contributes to increased neonatal morbidity and mortality. This condition can be prevented by addressing the risk factors for hypertension in pregnancy. One such behavior is the appropriate use of contraceptive methods (Notoatmodjo, 2014). Correct and consistent use of effective contraception is the best way to reduce the risk of unplanned pregnancy.

Based on the results of a preliminary study at the Wajak Community Health Center conducted in December 2024, 6 out of 10 pregnant women used hormonal contraception, and 1 of them had hypertension with a progestin-only injectable contraceptive for 4 years. The purpose of the study was to determine the relationship between history hormonal contraceptives use and blood pressure in pregnant women. Therefore, researchers were interested in examining the relationship between hormonal contraception use and blood pressure in pregnant women at the Wajak Community Health Center.

METHOD

This study is quantitative research using an observational analytic design with a cross-sectional approach. The research was conducted at Wajak Public Health Center. Data collection took place from February to April 2025. The population in this study includes all pregnant women at the Wajak Community Health Center during February to April 2025, totaling 120 pregnant women. The sample consisted of 50 pregnant women from the same period, selected using the consecutive sampling method. Inclusion criteria for this study included respondents residing in the Wajak Community Health Center's work area, having a history of hormonal contraceptive use before pregnancy, being 28 weeks or older, and pregnant women diagnosed with hypertension as evidenced by previous medical records. Exclusion criteria for this study included respondents with hypertension and comorbidities such as kidney disease, diabetes mellitus, heart disease, and asthma.

Data collection for the independent variable was carried out through interviews using a structured interview guide. The guide included questions on name, age, occupation, last education level, parity, history of maternal hypertension, family history of hypertension, and contraceptive use. Meanwhile, data for the dependent variable were collected through observation. Observation involved directly measuring the blood pressure of the respondents using a digital sphygmomanometer (Nursalam, 2017).

Data processing in this study was carried out through several stages: editing, coding, scoring, transferring, and tabulating. Editing was performed by re-examining all collected data to ensure completeness, consistency, and accuracy (Arikunto, 2019). Next, coding was carried out by assigning a numeric code to each research variable, such as respondent characteristics (age, education, occupation, parity, obesity), maternal and family history of hypertension, duration of contraceptive use, and type of hormonal contraceptive used, to facilitate data processing and analysis.

The scoring stage involved assigning scores based on blood pressure measurements, which were classified as normal, pre-hypertension, stage 1 hypertension, and stage 2 hypertension. The coded and scored data were then transferred to a data processing tool (mastersheet) during the transferring stage to facilitate computerized calculations. The final stage of data processing was tabulation, which involved organizing the data into tables so that they could be systematically compiled, summarized, and analyzed (Sugiyono, 2018).

Univariate analysis aims to describe the characteristics of respondents, namely age, last education, occupation, parity, obesity, maternal history of hypertension, family history of hypertension, and duration of contraceptive use, which are presented in the form of a frequency distribution table. Bivariate analysis was used to determine the relationship between the two variables: hormonal contraceptive use and pregnant women's blood pressure. Bivariate analysis was performed using a computer, and the chi-square test was used with a 95% confidence interval and alpha = 0.05.

This research has received approval from the Institutional Review Board (Ethics Commission) by the Health Research Ethics Commission (KEPK) of the Malang Ministry of Health Polytechnic with No.DP.04.03/F.XXI.30/0064/2025. All participants were provided with complete information regarding the study objectives, procedures, potential risks, and benefits, and written informed consent was obtained prior to their voluntary participation in the study.

RESULTS AND DISCUSSION

The research results are shown in the table below describing the frequency distribution of general characteristics of respondents at Wajak Public Health Center, Malang Regency. Table 1 presents the distribution of respondent characteristics such as age, education, occupation, parity, obesity), maternal and family history of hypertension, duration of contraceptive use.

Table 1: Frequency distribution of general characteristics of respondents.

Respondent Characteristics	f	%
Age		
<20 years	1	2
20-35 years	36	72
>35 years	13	26
Amount	50	100
Last education		
Elementary School	4	8
Junior High School	14	28
Senior High School	31	62
College	1	2
Amount	50	100
Work		
Doesn't work	42	84
Self-employed	7	14

Civil servant	1	2
Amount	50	100
Parity		
1 and ≥4	37	74
2-3	13	26
Amount	50	100
Obesity		
Obesity	7	14
Not obese	43	86
Amount	50	100
Maternal History of Hypertension		
Hypertension	0	0
No hypertension	50	100
Amount	50	100
History of Hypertension Family		
There is	5	10
There isn't any	45	90
Amount	50	100
Duration of Use Contraception		
<2 years	18	36
>2 years	32	64
Total	50	100

Source: Primary data, 2025.

Based on Table 1, the results show that the age of pregnant women respondents at the Wajak Health Center is mostly 20-35 years old (72%). From the level of education, the results show that most pregnant women respondents at the Wajak Health Center have a high school education (62%). From the occupation, the results show that most pregnant women respondents at the Wajak Health Center are unemployed (84%). From the parity, the results show that most pregnant women respondents at the Wajak Health Center have a parity of 2-3 (26%). From obesity, the results show that (14%) pregnant women respondents at the Wajak Health Center are obese.

Based on maternal hypertension history, it was found that all (100%) pregnant women at Wajak Community Health Center did not have a history of hypertension. Based on family history of hypertension, it was found that 10% of pregnant women respondents at Wajak Community Health Center had a family history of hypertension. Regarding the duration of contraceptive use, it was found that the majority of pregnant women respondents at Wajak Community Health Center had used contraception for more than 2 years (64%).

Table 2: Frequency distribution of hormonal contraceptive use in pregnant women at Wajak Community Health Center.

Use of Hormonal Contraception	Total		
	f		%
Implant	2		4
Injectable Contraception	34		68
Pill Contraception	14		28
Total	50		100

Source: Primary data, 2025.

Based on Table 2, the distribution of the frequency of use of hormonal contraception shows that the majority of pregnant women at the Wajak Community Health Center use progestin injectable contraception (68%).

Table 3: Frequency distribution of blood pressure of pregnant women at Wajak Community Health Center.

Clasification of Blood Pressure in Pregnant Women	Total	
	f	%
Normal	13	26
Hypertension	37	74
Total	50	100

Source: Primary data, 2025.

Based on Table 3, the distribution of blood pressure frequency in pregnant women shows that the majority of mothers experience hypertension (74%).

Table 4: Cross tabulation of the relationship between the use of hormonal contraception and blood pressure of pregnant women at Wajak Community Health Center.

Use of Hormonal Contraception	Blood Pressure in Pregnant Women				Total		*P Value*
	No Hypertension		Hypertension				
	n	%	n	%	n	%	
Implant	1	50	1	50	2	100	0.018
Injectable Contraception	7	20.5	27	79.5	34	100	
Pill Contraception	5	35.7	9	64.3	14	100	
Total	13		37		50	100	

Source: Primary data, 2025.

Based on Table 4, the results of the bivariate analysis using the *Chi-Square test* showed that *the p-value* was 0.018, so p <0.05, which means there is a relationship between the use of hormonal contraception and the blood pressure of pregnant women at the Wajak Community Health Center.

DISCUSSION

Use of Hormonal Contraception in Pregnant Women at Wajak Community Health Center

This study found that the majority of respondents used contraceptive injections (68%). This is consistent with research conducted by Emilda et al. (2022), which found that respondents using progestin-only contraceptives experienced a 2.8-fold increase in blood pressure compared to those using other contraceptive methods. The effect of depo medroxyprogesterone acetate injections on lipid profiles is that they can increase insulin levels and decrease HDL-cholesterol levels after 12 months or more. This, in turn, can lead to increased blood pressure.

This study also found that pregnant women with a history of using combined injectable contraceptives and combination pills experienced hypertension. This is in line with research conducted by Hayati et al. (2022), which stated that combined pills and combination injections

share the same characteristics, namely containing synthetic estrogen hormones, only the type of synthetic estrogen differs. Almost all estrogen preparations exhibit the same hormonal effects, the only difference being their estrogenic potency. The estrogenic potency of ethinylestradiol is almost 20 times that of estradiol. Therefore, ethinylestradiol contained in combination pills has greater side effects than combination injections. The proportion of injections is the largest compared to other contraceptives besides combination pills. Compared to contraceptives that do not contain combined hormones, the increase in blood pressure with combination injections is higher.

The choice of contraceptive method is influenced by several factors, including age and education. This study found that most respondents were aged 20-35 years. Research by Trijayanti et al. (2022) found a relationship between age and the choice of contraceptive method, which acts as an intrinsic factor. Age is related to organ structure, physiological function, and biochemical composition, including a woman's hormonal system (Ayue, 2019). Differences in physiological function, biochemical composition, and hormonal systems lead to differences in contraceptive needs. Age influences women's use of long- term contraception; the younger a woman of childbearing age, the lower the likelihood of using long- term contraception compared to older women. This study also found that most respondents had a high school education. Research by Pertiwi et al. (2024) found that low educational attainment cannot be a determining factor in contraceptive method choice. Several factors contribute to the high rate of progestin-only contraceptive use, such as mothers' fear of using long-term contraception, such as the intrauterine device (IUD), due to its intrauterine placement.

This study found that 64% of respondents had used hormonal contraception for more than 2 years. These results align with research conducted by Sagita et al. (2024), where the majority of respondents were hormonal contraceptive users with a duration of use of more than 2 years. The study stated that respondents who used hormonal contraception for more than 2 years experienced hypertension, while those who used it for less than 2 years did not experience hypertension. The hormone estrogen functions to increase fluid and electrolyte retention in the kidneys, thereby increasing sodium and water reabsorption, which can cause hypervolemia and increased cardiac output, resulting in increased blood pressure or hypertension. This process takes a long time and is gradual, so the increase in blood pressure does not occur immediately. Women who use hormonal contraception for a long period of time are at risk of experiencing increased blood pressure (Toar & Bawiling, 2022). Another study conducted by Setyorini and Ismarwati (2022) found that using hormonal contraception for more than 5 years can increase the risk of hypertension by 2-3 times compared to non-hormonal contraceptive users, with the risk of hypertension being around 13% after 5 years of use. Using depo medroxyprogesterone acetate for more than 12 months was also associated with a 1.7-fold greater risk of hypertension compared to use for 6-12 months. This was due to respondents' perceived comfort and lack of problems while using hormonal contraception. Furthermore, this contraceptive can be used long-term, so mothers need not worry about pregnancy.

Pregnant women with a history of hormonal contraceptive use are at greater risk of developing gestational hypertension (Evitasari & Nuraeni, 2020). Most hormonal contraceptives contain estrogen and progesterone in amounts nearly identical to those found in the body. Long-term use can cause health problems. The estrogen and progesterone contained in hormonal contraceptives cause sodium ion retention and water secretion, accompanied by increased plasma renin activity and angiotensin formation, which ultimately triggers increased blood pressure (Nurhasanah, 2017).

Based on the data above, the researcher believes that the history of hormonal contraceptive use among pregnant women at the Wajak Community Health Center, most of whom use progestin-only injections, is due to several factors, including ease of use, requiring only an injection once every three months, reducing the risk of forgetting and being more practical than other contraceptive methods that require daily or monthly use. Furthermore, progestin-only injections are highly effective in preventing pregnancy, making mothers feel safer and more confident. Despite the ease of use, this contraceptive method has side effects that are experienced by almost all users, including changes in the menstrual cycle, such as irregular bleeding or no

menstruation at all. Most users complained of not menstruating at all while using progestin-only injections. This is because the progestin hormone can inhibit ovulation, preventing fertilization of eggs. Furthermore, progestin-only injections have the side effect of increasing maternal weight gain. This is because the progestin hormone affects the body's metabolism, causing changes in the way the body processes carbohydrates and fats. The hormone progestin can also increase appetite, resulting in greater calorie consumption.

Blood Pressure of Pregnant Women at Wajak Community Health Center

This study found that 37 women had hypertension and 27 used injectable contraceptives. This is in line with the study conducted by Inayah et al. (2021), which showed that most respondents who used Depo-medroxyprogesterone acetate (DMPA) injectable contraceptives for more than 12 months had blood pressure in the hypertensive category, while a small portion of respondents who used DMPA for more than 12 months had normal blood pressure levels.

Blood pressure in pregnant women is influenced by several factors, including age, parity, obesity, maternal history of hypertension, family history of hypertension, and the use of hormonal contraceptives. Hypertension during pregnancy is influenced by a history of hormonal contraceptive use. Estrogen in women functions to prevent blood clotting and maintain healthy blood vessel walls. An imbalance between estrogen and progesterone can affect blood pressure levels and the condition of blood vessels (Nurfatimah et al., 2020). When choosing a contraceptive method, women should consider various factors, including the long-term side effects. One of the side effects of hormonal contraceptive use is an increased risk of cardiovascular disorders, especially those related to high blood pressure (Inayah et al., 2021).

Based on the above explanation, the researcher concludes that blood pressure in pregnant women at Wajak Health Center is influenced by several factors, including age, parity, obesity, maternal and family history of hypertension, and the use of hormonal contraceptives. Most pregnant women with hypertension were found to be using progestin-based injectable contraceptives. The progestin content in these contraceptives causes fluid and sodium retention, which can lead to increased blood pressure. Pregnant women with hypertension should undergo closer blood pressure monitoring to detect potential complications early.

The Relationship Between the Use of Hormonal Contraceptives and Blood Pressure in Pregnant Women at Wajak Health Center

Based on the results of this study, the majority of respondents who used progestin injectable contraceptives experienced stage 1 hypertension, accounting for 62%. The bivariate analysis using the chi-square test showed a p-value of 0.018 ($p < 0.05$), indicating a statistically significant relationship between the use of hormonal contraceptives and blood pressure in pregnant women at Wajak Health Center.

These findings are consistent with a study by Setyorini et al. (2022), which showed that users of 3- month injectable contraceptives experienced increased blood pressure. This increase in blood pressure may be due to elevated liver production of angiotensinogen, which activates the Renin Angiotensin Aldosterone System (RAAS). A study conducted by Emilda et al. (2022) also explained that nearly all respondents using DMPA contraceptives experienced an increase in blood pressure. Long-term use of DMPA has been shown to cause changes in lipid profiles, including a reduction in HDL cholesterol levels, which increases the risk of high blood pressure and negatively impacts cardiovascular health. The risk of hypertension increases with age, duration of contraceptive use, and long-term use.

According to Inayah et al. (2021), oral contraceptive use may also affect hormonal balance by increasing estrogen and progesterone levels in the blood, which can interfere with the RAAS system, an important regulator of blood pressure. Long-term use of oral contraceptives may lead to hormonal imbalances that affect both blood pressure and vascular conditions. Synthetic estrogen and progesterone, which function to suppress fertility, can cause side effects such as increased blood pressure that may lead to hypertension.

Hormonal contraceptive use has been associated with a higher risk of elevated blood pressure. Most hormonal contraceptives contain estrogen and progesterone in amounts similar

to the body's natural hormones (Safitri & Martha, 2025). These hormones may reduce sodium and water excretion due to increased plasma renin activity and angiotensin formation, which can subsequently trigger elevated blood pressure (Nurhasanah, 2017).

Based on the findings above, the researcher concludes that there is a relationship between the use of hormonal contraceptives and blood pressure in pregnant women. Several studies have shown that compared to non-hormonal contraceptives, hormonal contraceptive users are more likely to experience increased blood pressure. While many respondents reported feeling comfortable and did not experience complications while using hormonal contraceptives, some did report health issues such as weight gain, amenorrhea, and increased blood pressure.

The researcher emphasizes that selecting the appropriate contraceptive method is important to prevent health complications, especially among women with a history of hypertension or other medical conditions. Pregnant women with a history of hypertension are advised to avoid hormonal contraceptives that may elevate blood pressure. Hypertensive pregnant women are at a higher risk of pregnancy complications affecting both mother and fetus, including preeclampsia, eclampsia, kidney failure, heart attacks, fetal growth restriction, and preterm birth. Therefore, safer contraceptive methods that do not pose a risk of increasing blood pressure such as IUD, condoms, or natural methods are recommended (Asare et al., 2021).

The limitation of study is the cross-sectional design limits the ability to establish a causal relationship between prior hormonal contraceptive use and blood pressure during pregnancy. In addition, the use of consecutive sampling and a relatively small sample size may limit the generalizability of the findings. Potential confounding factors that could influence blood pressure, such as dietary intake, stress levels, and genetic predisposition, were not fully controlled in this study.

CONCLUSION

Based on the findings of this study, it can be concluded that the majority of pregnant women at the Wajak Community Health Center use injectable hormonal contraceptives. Furthermore, most respondents experienced hypertension. This study also found a significant association between hormonal contraceptive use and blood pressure among pregnant women at the Wajak Community Health Center.

This research is expected to increase knowledge among pregnant women regarding complications of using hormonal contraception, including causing weight gain, increased risk of stroke, and increased risk of hypertension, so that mothers can plan safe and appropriate contraceptive use to avoid complications due to the use of hormonal contraception.

Research sites are expected to conduct routine blood pressure checks on pregnant women who have previously used hormonal contraception to prevent complications during pregnancy early on. They are also expected to provide education and counseling to pregnant women regarding choosing safe contraceptive methods for their health.

For future researchers, it is hoped that this can be used as input for future researchers so that they can develop this research with other different variables, including lifestyle factors, nutrition, stress, and genetics.

This study supports the inclusion of hormonal contraceptive history in routine antenatal screening to improve early identification of pregnant women with altered blood pressure and highlights the importance of considering prior hormonal contraceptive use in blood pressure monitoring during pregnancy to support more targeted antenatal care. Future research is needed to examine the effects of different types and durations of hormonal contraceptive use on blood pressure during pregnancy using longitudinal designs. Furthermore, this study contributes to existing knowledge by providing evidence on the association between prior hormonal contraceptive use and blood pressure in pregnant women.

REFERENCES

Abdi, T. R. (2021). Characteristics of hypertension patients at Tabaringan Community Health Center, Makassar. *Indonesian Journal of Health, 1*(2), 112–119. https://doi.org/10.33368/inajoh.v0i0.24

Arikunto, S. (2019). *Research Procedures*. Jakarta: Rineka Cipta.

Asare, L., Asare, G. A., Owiredu, W. K. B. A., Obikorang, C., Appiah, E., Tashie, W., & Seidu, L. (2021). The use of hormonal contraceptives and preeclampsia among Ghanaian pregnant women. *Open Journal of Obstetrics and Gynecology, 11* (04), 419-433. https://doi.org/10.4236/ojog.2021.114041

Ayue, H.I. (2019). *Holistic Physiological Midwifery Practice Module in Pregnancy*. 1st Edition. Palangka Raya: Department of Midwifery, Ministry of Health Polytechnic, Palangka Raya.

East Java Provincial Health Office. (2024). *East Java Province Health Profile 2023*. Surabaya: East Java Provincial Health Office.

Emilda, D., Haryani, H., & Yusniarta, Y. (2022). The relationship between depot medroxyprogesterone acetate injectable contraceptive use and blood pressure. *Journal of Nursing and Public Health, 10*(1), 135–141. https://doi.org/10.37676/jnph.v10i1.2435

Evitasari, D., & Nuraeni, R. (2020). *Factors associated with the incidence of gestational hypertension in pregnant women at the UPTD Sumberjaya DTP Community Health Center, Majalengka Regency. Prosiding SENANTIAS: Seminar Nasional Hasil Penelitian dan Pengabdian kepada Masyarakat,* 1(1), 1203–1214. Retrieved from https://openjournal.unpam.ac.id/index.php/Senan/article/view/8389

Hayati, M., Azamti, B. N. A., & Wardani, A. K. (2022). Relationship between history of hormonal contraceptive use and preeclampsia. *Research of Service Administration Health and Science Healthys, 3*(1), 59–63. https://doi.org/10.36555/rsahsh.v3i1.182

Hutasoit, E. S., & Azwar, Y. (2019). Analysis of hormonal contraceptive use on blood pressure. *Health Care: Jurnal Kesehatan*, *8*(1), 54–57. https://doi.org/10.36763/healthcare.v8i1.43

Inayah, M., Utami, T., & Haniyah, S. (2021). Hormonal contraceptive use and blood pressure: A literature review. *Jurnal Sains Kebidanan, 3*(1), 1–8. https://doi.org/10.31983/jsk.v3i1.6922

Indonesian Ministry of Health. (2024). *Indonesian Health Profile 2023*. Ministry of Health of the Republic of Indonesia. https://www.kemkes.go.id

Maharani, D. E., & Oevita, W. E. (2023). Maternal characteristics and history of hormonal contraceptive use associated with preeclampsia. *Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal, 13*(2), 737–750. https://doi.org/10.32583/pskm.v13i2.2125

Malang Regency Health Office. (2024). *Malang Regency health profile 2024*. https://dinkes.malangkab.go.id/download/417

National Research and Innovation Agency (BRIN). (2025). *Demographic and Health Survey Indonesia 2023–2024*. https://doi.org/10.55981/brin.2312

Notoatmodjo, S. (2014). *Health Promotion and Health Behavior*. Jakarta: Rineka Cipta.

Nurfatimah, N., Mohamad, M. S., Entoh, C., & Ramadhan, K. (2020). Risk factors of hypertension in third trimester pregnant women. *Jurnal Ilmu Kesehatan, 14*(1), 45–52. https://doi.org/10.32831/jik.v14i1.301

Nurhasanah, D. N. (2017). *Factors associated with preeclampsia in pregnant women*. Undergraduate thesis, Universitas ‘Aisyiyah Yogyakarta.

https://digilib.unisayogya.ac.id/5346/1/Lena%20Marlina_1910104083_Sarjana%20Terapan%20Kebidanan_Naspub%20-%20Hanip%20Alamsyah.pdf

Nursalam. (2017). *Research methodology and nursing science* (3rd ed.). Jakarta: Salemba Medika.

Pertiwi, Y., Ardiani, Y., Julianingsih, I., & Adila, W. P. (2024). The relationship of age, education, and occupation with the selection of long-term contraceptive methods. *Health Care: Jurnal Kesehatan*, *13*(2), 287–294. https://doi.org/10.36763/healthcare.v13i2.512

Safitri, D., & Martha, E. (2025). Impact of hormonal contraceptive use on depression and anxiety disorders among women. *Jurnal Keluarga Berencana, 10*(1), 16–29. https://doi.org/10.37306/w5jzgm59

Sagita, P., Hutabarat, J., & Sitorus, S. (2024). The relationship between the length of hormonal contraceptive use and the incidence of hypertension in fertile couples. *Jurnal Sehat Indonesia (JUSINDO), 6*(2), 661–670. https://doi.org/10.59141/jsi.v6i02.127

Setyorini, C., Hanifah, L., Lieskusumastuti, A. D., & Febriani, A. (2022). Analysis of the use of injectable contraceptives on increased blood pressure. *Jurnal Komunikasi Kesehatan*, *13*(2), 56– 61. https://doi.org/10.56772/jkk.v13i2.261

Setyorini, C., & Ismarwati. (2022). The effects of hormonal contraceptive use on blood pressure: A scoping review. *Jurnal Kebidanan Indonesia*, *13*(2), 131–153. https://doi.org/10.36419/jki.v13i2.634

Sugiyono. (2018). *Administrative Research Methods Supplemented with R&D Methods*. Bandung: Alfabeta.

Suryani, S., & Wulandari, R. (2018). History of contraceptive use and hypertension in pregnancy. *Jurnal Kebidanan, 10*(2), 103–115. https://doi.org/10.26714/jk.10.2.2018.103-115

Toar, J., & Bawiling, N. (2022). The relationship between duration of hormonal contraceptive use and incidence of hypertension among women at Tonsea Lama Health Center. *Jurnal Kesehatan Masyarakat*, *7*(2), 281–287. https://doi.org/10.31943/afiasi.v7i2.173

Trijayanti, O., Afriyani, L. D., Rusmayani, H., Khasanah, U., Ulmi, A., & Angriani, N. (2022). Literature review of the relationship between age and contraceptive choice. *National Seminar and Call for Papers in Midwifery Universitas Ngudi Waluyo, 1*(2), 886–891. https://callforpaper.unw.ac.id/index.php/semnasdancfpbidanunw/article/view/205

World Health Organization (WHO). (2018). *Family planning: A global handbook for providers*. Geneva: WHO. https://www.who.int/publications/i/item/9780999203705

Yakub, A. S., Sain, I., & Saeni, S. (2019). Study of correlation of age and parity of mothers with pre-eclampsia in pregnant women in the working area of Mangasa Health Center in Makassar City. *Media Kesehatan Politeknik Kesehatan Makassar, 14*(2), 163–171. https://doi.org/10.32382/medkes.v14i2.749