GENIUS JOURNAL
general nursing science journal
e-ISSN: 2723-7729
Vol. 06 No. 02 PP. 369-378 E-ISSN 2723-7729

Determinant Factors Associated with the Incidence of Varicose Veins among Pregnant Women

Wanda Dwi Putri[1], Agustin[1], Rima Berti Anggraini[1]
[1]*Department of Nursing, Institut Citra Internasional, Bangka Belitung, Indonesia*

Correspondence author: Wanda Dwi Putri
Email: wandadwiputri27@gmail.com
Address: Jl. Yos Sudarso, Gg. Pala pinang 2, Kel.Gabek, Kota Pangkalpinang 082183017248
DOI: https://doi.org/10.56359/gj.v6i2.796

ABSTRACT

Introduction: Pregnancy causes physiological changes that may increase the risk of varicose veins, which can lead to discomfort and complications for both mother and fetus.
Objective: This study aims to identify factors associated with the incidence of varicose veins in pregnant women at Selindung Primary Health Center in 2025.
Method: This study used a quantitative method with a descriptive analytical design using a cross-sectional approach, which involved cross-tabulating the dependent and independent variables. The sample in this study was 110 women who underwent pregnancy check-ups at the Selindung Community Health Center. The sample size for this study was 60. Data analysis used the chi-square test with a 95% confidence interval.
Result: The results of this study were to determine the relationship between the dependent variable, namely the incidence of varicose veins, and the independent variables. The statistical test results for the family history variable yielded a p-value of 0.001, the pregnancy gravida variable yielded a p-value of 0.005, the gestational age variable yielded a p-value of 0.012, the prolonged standing habit variable yielded a p-value of 0.026, and the harmonic contraception variable yielded a p-value of 0.001.
Conclusion: The study concluded that the most influential factor was family history, with a POR value of 7.540. This is because genetic factors can influence the strength and elasticity of the vein walls, which are then exacerbated by physiological changes during pregnancy. Therefore, there is a significant association between family history and the incidence of varicose veins in pregnant women at the Selindung Primary Health Center in 2025.

Keywords: pregnant women, primary health center, varicose

Introduction

Pregnancy is a fertilization process that lasts 40 weeks, or 9 months. Gestation is defined as the union of the sperm and ovum, followed by nidation and implantation. Pregnancy is divided into three periods: the first trimester lasting 12 weeks, the second trimester from week 13 to week 27, and the third trimester from week 28 to week 40. A pregnant woman is a woman who is carrying a fetus, from conception to birth (Hafid, 2021). Pregnancy data in Indonesia is estimated to reach 4.8 million people annually, with women aged 25–40 years old. In Bangka Belitung, according to data from the Bangka Belitung Provincial Health Office over the past five years, the number of deliveries in Bangka Belitung is approximately 25,467 people per year, of which 9% receive ANC checkups at the Selindung Community Health Center (Bangka Belitung Provincial Health Office, 2025). Hormonal changes occur in pregnant women due to increased progesterone production. In addition, anatomical and physiological changes occur, resulting in physical and psychological changes. These psychological changes will affect the pregnant woman's mood, acceptance, attitude, and even appetite. (Puspita, 2023).

Discomfort in pregnancy arises from significant physical and body alignment changes. In the first trimester, pregnant women often experience nausea, vomiting, dizziness, chills, and weakness. As the pregnant woman enters the second and third trimesters, the symptoms she experiences change along with the physical changes she experiences and the growing size of the fetus. Common complaints in the second and third trimesters include lower back pain, swollen legs, vaginal discharge, constipation, frequent urination, leg cramps, and varicose veins (Mardliyana, 2022). During pregnancy, blood volume in the body increases. This can put pressure on the veins and can trigger the appearance of varicose veins in pregnant women. Varicose veins are swollen and dilated veins that commonly occur in the legs due to blood pooling. This condition causes the veins to appear purplish or dark blue and prominent (Directorate General of Health Services, (2023).

The accumulation of veins, or varicose veins, can cause muscle cramps due to pressure on the nerves in the lower extremities and increased blood flow, which can lead to changes in bladder function. Furthermore, mild varicose veins can cause discomfort, particularly in terms of appearance. In severe cases, complications can occur, requiring leg amputation and can lead to death. Venous insufficiency presents with symptoms such as pain, burning, itching, cramps, muscle fatigue, and restless legs. Over time, chronic venous insufficiency causes gradual changes in the skin and soft tissues, starting with mild swelling and progressing to skin discoloration, inflammatory dermatitis, chronic or recurrent cellulitis, skin infarction, ulceration, and even degeneration.

According to data from various studies, the prevalence of varicose veins in pregnant women is quite high, with rates varying depending on certain factors. Epidemiological data on varicose veins is estimated to reach 25% and is three times more common in women than in men. The reported incidence of varicose veins worldwide ranges from 10% to 60%. This rate is higher in Asia compared to the West (Tarigan, 2023). Globally, according to a Davies review, recent evidence supports a trend of varicose vein rates of 51.9% per 1,000 women and 39.4% per 1,000 men. Data on the prevalence of varicose veins in Indonesia is still unknown, but it is estimated that the disease affects approximately 5-30% of patients annually (Hutalagung, 2023).

Various risk factors contribute to the occurrence of varicose veins, including genetic, hormonal, and environmental factors. According to the Vain Center of Arizona (2025), there are eight risk factors for varicose veins, including genetics, age, gender, pregnancy, obesity,

prolonged standing, smoking, and damaged veins. During the initial survey conducted in January 2024 targeting pregnant women respondents in the Selindung Community Health Center work area, the results obtained were 40% of pregnant women who experienced varicose veins had a family history of risk factors, 30% had a habit of standing for long periods, and 30% were influenced by other factors such as gestational age, number of pregnancies, and the use of harmonic contraception. The importance of understanding these risk factors is not only to prevent varicose veins, but also to reduce the potential for complications that can occur. Complications such as deep vein thrombosis can have serious consequences for the health of the mother and fetus. From the phenomena and theories that have been described above, the author is interested in conducting research on "Factors related to the occurrence of varicose veins in pregnant women in the Selindung Community Health Center work area in 2025."

Objective

The factors associated with the occurrence of varicose veins in pregnant women in the Selindung Community Health Center work area in 2025 are known.

Method

This study employed a quantitative method with a descriptive analytical design using a cross-sectional approach, involving cross-tabulation of dependent and independent variables. The sample consisted of 110 women undergoing prenatal care at the Selindung Community Health Center. The sample size was 60.

Data collection was conducted using a closed-ended questionnaire containing five questions related to risk factors for lower leg varicose veins. Participants signed a consent form and then completed the questionnaire.

Data analysis used the chi-square test with a 95% confidence interval. This test was chosen because the researchers wanted to obtain categorical results.

Result

Tabel 1. Family History and Varicose Veins in Pregnant Women

Family History	Varicose Veins in Pregnant Women				ρ value	odd ratio
	Has Varicose Vein		No Varicose Vein			
	N	%	N	%		
Yes	1	67.9	9	32.1	0.001	7.540
No	7	21.9	25	78.1		

Based on Table above, the analysis of the relationship between family history and the incidence of varicose veins in pregnant women at Selindung Community Health Center shows that pregnant women with varicose veins are more common among those with a family history (19 individuals (67.9%) compared to those with a family history (19 individuals (67.9%)). do not have a family history, while pregnant women who do not have varicose veins are more often found in the category of those who do not have a family history, as many as 25 people (78.1%).

The results of the Chi-Square test obtained a p value = (0.001) < α (0.05), this indicates that there is a relationship between family history and the incidence of varicose veins in pregnant women at the Selindung Health Center in 2025. The results of further analysis

obtained a POR value = 7.540 (95% CI = 2.378-123.904), thus it can be said that pregnant women who have a family history of varicose veins have a 7.540 times greater risk of experiencing varicose veins than pregnant women who do not have a family history of varicose veins.

Tabel 2. Gravidity and Varicose Veins in Pregnant Women

Gravidity Pregnancy	Varicose Veins				ρ value	odd ratio
	Has Varicose Vein		No Varicose Vein			
	N	%	N	%		
Multigravida	18	64.3	10	35.7	0.005	5.400
Primigravida	8	25.0	24	75.0		

Based on Table above, the analysis of the relationship between gravida and the incidence of varicose veins in pregnant women at Selindung Community Health Center shows that pregnant women with varicose veins are more likely to have varicose veins. There were 18 multigravida (64.3%) women compared to primigravida (75.0%). There were more pregnant women without varicose veins in the primigravida category, with 24 pregnant women (75.0%).

The chi-square test yielded a p-value of (0.005) < α (0.05), indicating a relationship between gestational age and aricose veins in pregnant women. Further analysis yielded a POR of 5.400 (95% CI = 1.775-16.428). Therefore, multigravida (5.400 times more likely to experience varicose veins than primigravida (5.400 times more likely to experience varicose veins)

Tabel 3. Gestational Age and Varicose Veins in Pregnant Women

Gravidity Pregnancy	Varicose Veins in Pregnant Women				ρ value	odd ratio
	Has Varicose Vein		No Varicose Vein			
	N	%	N	%		
Late Pregnancy	17	63.0	10	37.0	0.012	4.533
Early Pregnancy	9	21.9	24	72.7		

Based on Table above, the analysis of the relationship between gestational age and the incidence of varicose veins in pregnant women at Selindung Community Health Center shows that 17 pregnant women (63.0%) had varicose veins more often in late pregnancy compared to those in early pregnancy. early pregnancy, while pregnant women without varicose veins were more likely to be in the early gestational age category, as many as 24 people (72.2%).

The Chi-Square test results obtained a p-value of (0.012) < α (0.05), indicating a relationship between gestational age and the incidence of varicose veins in pregnant women at the Selindung Community Health Center in 2025. Further analysis obtained a POR value of 4.533 (95% CI = 1.518-13.538), thus it can be said that pregnant women with advanced gestational age have a 4.533 times greater risk of experiencing varicose veins than pregnant women with younger gestational age.

Tabel 4. Prolonged Standing Habits and Varicose Veins in Pregnant Women

Prolonged Standing	Varicose Veins in Pregnant Women				ρ value	odd ratio
	Has Varicose Vein		No Varicose Vein			
	N	%	N	%		
Prolonged Standing	16	61.5	10	38.5	0.026	3.840
Not Standing prplonged	10	29.4	24	70.4		

Based on Table above, the analysis of the relationship between prolonged standing habits and the incidence of varicose veins in pregnant women at Selindung Community Health Center shows that pregnant women with varicose veins are more likely to be in the prolonged standing category. 16 people (61.5%) compared to those without, while pregnant women who did not have varicose veins were more numerous in the category of not, as many as 24 people (70.6%).

The Chi-Square test results obtained a p-value = (0.026) < α (0.05), this indicates that there is a relationship between the habit of prolonged standing and the occurrence of varicose veins in pregnant women. The results of further analysis obtained a POR value = 3.840 (95% CI = 1.303-11.318), thus it can be said that pregnant women who have a habit of prolonged standing have a 3.840 times greater chance of experiencing varicose veins than pregnant women who do not have a habit of prolonged standing.

Tabel 5. Hormonal Contraceptive Use and Varicose Veins Among Pregnant Women

Hormonal Contraceptive Use	Varicose Veins in Pregnant Women				ρ value	odd ratio
	Has Varicose Vein		No Varicose Vein			
	N	%	N	%		
User	18	69.2	8	30.8		
Not user	8	23.5	26	76.5	0,001	7.313

Based on Table above, the analysis of the relationship between hormonal contraceptive use and the incidence of varicose veins among pregnant women at Selindung Community Health Center shows that more pregnant women have varicose veins among those using hormonal contraceptives. Eighteen women (69.2%) were compared to those not using hormonal contraception, while 26 women (76.5%) were more likely to experience varicose veins in the category not using hormonal contraception.

The Chi-Square test yielded a p-value of (0.001) < α (0.05), indicating a relationship between hormonal contraception use and the incidence of varicose veins in pregnant women in the Selindung Community Health Center area in 2025. Further analysis yielded a POR value of 7.313 (95% CI = 2.316-23.085). Therefore, it can be concluded that pregnant women using hormonal contraception are 7.313 times more likely to experience varicose veins than those not using hormonal contraception.

Discussion

Family history is information about the physical and mental health of biological family members (father, mother, siblings, grandparents, and other blood relatives) that reflects a

genetic predisposition or hereditary factors to a particular disease (Puspita & Kurniasari, 2022).

Family history also relates to the association between a blood relative (such as a mother, father, or sibling) who has had varicose veins and the likelihood of developing varicose veins in the mother during pregnancy. Family history is a genetic risk factor that can affect the elasticity and strength of vein walls. During pregnancy, physiological changes such as increased progesterone, uterine pressure on the pelvic veins, and increased blood volume exacerbate the risk of varicose veins, especially in individuals with a hereditary predisposition (Hasanah & Rahmawati, 2023).

This is also supported by Hasanah & Rahmawati (2023) who, with 46 respondents, obtained a p-value of 0.003 ($\alpha < 0.05$). They concluded that there is a relationship between family history and varicose veins in pregnant women in the South Denpasar Community Health Center area. Pregnant women with a family history of varicose veins are at higher risk of developing varicose veins during pregnancy. This is due to genetic factors that affect the strength and elasticity of the vein walls, which are then exacerbated by physiological changes during pregnancy such as increased blood volume, uterine pressure on the pelvic veins, and hormonal changes.

According to the researchers' assumptions, based on the above research results, family history is related to varicose veins in pregnant women. Pregnant women with a family history of varicose veins have a significantly increased risk of developing varicose veins due to a combination of genetics and pregnancy factors. Prevention such as compression and a healthy lifestyle remain important, but genetic history remains the key.

Gestational gravida is a term in obstetrics used to describe the total number of pregnancies a woman has experienced, including the current pregnancy, regardless of gestational age, location (intrauterine or ectopic), or outcome, whether resulting in a live birth, fetal death, miscarriage, or medical termination (Sari & Handayani, 2024).

Each pregnancy increases intra-abdominal pressure and venous return, influenced by the hormone progesterone, which causes relaxation of the venous walls. In multigravida women, these changes recur and increase the risk of varicose veins, particularly in the lower extremities and genital area (Linda & Rahman, 2022).

This research aligns with that conducted by Sari & Handayani (2024) with 74 respondents regarding factors associated with varicose veins in pregnant women at the Gamping II Community Health Center, which concluded a relationship between gestational age and varicose veins, with a p-value of 0.004 ($\alpha < 0.05$). The greater the number of pregnancies a woman has had (multigravida), the greater the risk of varicose veins due to increased intra-abdominal pressure, repeated venous dilation, and the cumulative hormonal influences that occur with each pregnancy.

According to the researchers' assumptions, based on the above research results, gravida pregnancy is associated with varicose veins in pregnant women because each pregnancy triggers an increased circulatory load, mechanical pressure from the fetus on the veins, and hormonal changes that impact the dilation and weakening of the vein walls, cumulatively increasing the risk of varicose veins.

Gestational age is the length of time calculated from the first day of the last menstrual period (LMP) to the time of prenatal checkup or delivery. This is used to determine the stage of fetal development in the womb and as a basis for determining medical procedures during pregnancy and delivery (Rahayu & Sari, 2023).

The duration of the ongoing pregnancy (in weeks) is associated with the possibility of varicose veins. As gestational age increases, especially during the second and third trimesters, the risk of varicose veins increases due to increased pressure from the fetus and uterus on the veins in the lower extremities, as well as increased blood volume and the influence of the hormone progesterone, which causes blood vessel dilation. (Puspitasari & Pratiwi, 2023).

The results of this study obtained a p-value (0.012) with an α <0.05, thus concluding that there is a relationship between gestational age and varicose veins in pregnant women. Further analysis yielded a POR of 4.533 (95% CI = 1.518-13.538). Therefore, it can be concluded that pregnant women with advanced gestational age are 4.533 times more likely to experience varicose veins than pregnant women with younger gestational age.

This study aligns with that conducted by Rahayu & Sari (2023) with 76 respondents regarding the relationship between gestational age and number of pregnancies and the incidence of varicose veins in pregnant women at the Ngemplak Community Health Center in Boyolali. They concluded that there is a relationship between gestational age and varicose veins in pregnant women (p-value = 0.006, α < 0.05). The older the gestational age, especially in the second and third trimesters, the greater the risk of varicose veins, due to increased uterine pressure on the veins, increased circulating blood volume, and hormonal changes that cause widening and decreased elasticity of the vein walls.

According to the researchers' assumptions, based on the above research results, gestational age is related to varicose veins in pregnant women. This refers to the increasing gestational age accompanied by physiological changes such as increased uterine weight and size, increased blood volume, and hormonal changes that cause dilation and fragility of the vein walls, thereby increasing pressure on the venous system and triggering varicose veins, especially in the lower extremities.

Prolonged standing is a condition in which a person maintains a standing position continuously for a considerable duration, either due to work demands or daily activities, without sufficient movement or rest. This physiologically can cause increased pressure on the veins in the lower limbs and impede venous return to the heart, potentially leading to circulatory disorders such as varicose veins (Sari & Pratiwi, 2022).

Prolonged standing, especially without rest or active movement, causes blood to pool in the veins of the lower limbs due to gravitational pressure. This condition is further exacerbated by physiological changes in pregnancy, such as increased blood volume, uterine pressure on the inferior vena cava, and the influence of the hormone progesterone, which weakens vein wall tone, thus triggering venous dilation or varicose veins in pregnant women. (Yulista & Supratno, 2022).

The results of this study obtained a p-value (0.026) with α <0.05, thus concluding that there is a relationship between prolonged standing and varicose veins in pregnant women. Further analysis yielded a POR value of 3.840 (95% CI = 1.303-11.318). Therefore, it can be concluded that pregnant women who have a habit of standing for long periods are 3.840 times more likely to experience varicose veins than pregnant women who do not.

This is also supported by Yulista & Supratno (2022) who, with 47 respondents, obtained a p-value of 0.004, α <0.05. It can be concluded that there is a relationship between prolonged standing and varicose veins in pregnant women in the Kalasan Community Health Center Work Area. Prolonged standing causes hydrostatic pressure in the lower veins, slowing blood return to the heart. This condition is exacerbated by anatomical and hormonal changes during pregnancy, which cause decreased venous tone and venous obstruction due to uterine pressure, thus triggering venous dilation or varicose veins.

According to the researchers' assumptions, based on the results of the study above, prolonged standing is associated with varicose veins in pregnant women because prolonged standing causes blood to pool in the lower leg veins due to increased gravitational pressure, thus disrupting venous return to the heart. When this condition persists throughout pregnancy, accompanied by physiological changes such as increased blood volume and uterine pressure on the pelvic veins, it will increase the likelihood of varicose veins, especially in the lower extremities.

Hormonal contraception is a pregnancy prevention measure that involves consuming or injecting synthetic hormonal substances such as estrogen, progesterone, or a combination of both into a woman's body, through various forms such as pills, injections, implants, or vaginal rings. These substances work by inhibiting ovulation, thickening cervical mucus to make it difficult for sperm to pass through, and altering the endometrial lining to prevent implantation. This makes them highly effective in temporarily and reversibly preventing pregnancy (Utami & Yuliasari, 2024).

The results of this study obtained a p-value (0.001) $\alpha < 0.05$, thus it can be concluded that there is a relationship between the use of hormonal contraception and varicose veins in pregnant women. Further analysis results obtained a POR value = 7.313 (95%CI = 2.316-23.085), thus it can be said that pregnant women who use hormonal contraception have a 7.313 times greater risk of experiencing varicose veins compared to pregnant women who do not use hormonal contraception.

This study is in line with the study conducted by Utami & Yuliasari (2024) with 61 respondents regarding factors related to the occurrence of varicose veins in pregnant women in the Jetis Community Health Center Work Area of Yogyakarta, which concluded there is a relationship between the use of hormonal contraception and varicose veins in pregnant women with a p-value = 0.002 $\alpha < 0.05$, thus it can be concluded there is a relationship between the use of hormonal contraception and varicose veins in pregnant women. The use of hormonal contraception before pregnancy is associated with an increased risk of varicose veins in pregnant women, as the estrogen and progesterone hormones contained in these contraceptives can cause venous dilation.

According to the researchers' assumptions, based on the results of the study above, hormonal contraception use is strongly associated with varicose veins in pregnant women. Hormonal contraception use in pregnant women has been shown to have a significant association with the occurrence of varicose veins, as exposure to hormones such as estrogen and progesterone over a certain period can affect the structure and function of veins, including decreased venous smooth muscle tone and an increased risk of blood stasis.

Conclusion

There is a relationship between family history, gestational age, long standing habits, and use of hormonal contraception with varicose veins in pregnant women in the Selindung Community Health Center Work Area in 2025.

References

1. Aisyah, Ainil. 2021. Hubungan Berdiri Lama sebagai Faktor Risiko Varises Vena Tungkai Bawah pada Wanita Pedagang dan Pembeli di Pasar Gambir Tebing Tinggi. https://repositori.usu.ac.id/handle/123456789/46143
2. Amalia, R., Ulfa, S.,Hikmah, N.,& Azizah, N (2022). Pendidikan Kesehatan tentang ketidaknyamanan kehamilan pada trimester 3 dan cara mengatasinya. Jurnal Perak

Malahayati. Vol 4, No 2. E : ISSN 2684-8899
3. Argaheni, N.Bayu (2012). Hubungan Graviditas dengan varises tungkai bawah. Perpustakaan uns.ac.id
4. Arikunto, S. (2023), Prosedur Penelitian: Suatu Pendekatan Praktik. Jakarta: Rineka Cipta.
5. Hafid, A & Hasrul, E. 2021. Hubungan Kejadian Pandemi COVID 19 dengan Kecemasan Ibu hamil Trimester ketiga. Jurnal Keperawatan Muhammadiya, 6 (2), 151-155
6. Hasanah, U., & Rahmawati, A. (2023). "Hubungan Riwayat Keluarga dengan Kejadian Varises pada Ibu Hamil di Wilayah Puskesmas Denpasar Selatan". Jurnal Kebidanan Indonesia, 10(2), 120-128.
7. Kementerian Kesehatan Republik Indonesia (2021). Profil Kesehatan Indonesia. https://www.kemkes.go.id/index.php
8. Linda, T., & Rahman, S. (2022). "Hubungan Gravida Kehamilan dengan Kejadian
9. Varises pada Ibu Hamil". Jurnal Ilmu dan Teknologi Kesehatan, 8(2), 77-
10. Lohr, Joann M.et al. Venous disease in women : Epidemiology, Manifestations, and treatment, Journal of Vascular Surgery, Vol 57 (4), 37S-45S
11. Lubis, D., Samutri, E.,Murniasih, E.,Dewi, I.,Haryanti, P & Wahyuningsih, W. 2022. Buku Ajar Keperawatan Maternitas. Yogyakarta : K-Media
12. Mafticha, E (2017). Buku Ajar Asuhan Kebidanan Ibu Hamil. Surakarta : CV Kekata Group. ISBN : 978-602-6612-33-2
13. Mardliyana, Nova E. 2022. Peningkatan Pengetahuan Ibu Hamil Tentang Penangana Keluhan Fisiologis dengan Media Video Pakbuto di Kelurahan Sutorejo Kecamatan Mulyorejo Surabaya. Jurnal Pengabdian Masyarakat Kebidanan. Vol 4 (2), 11-15
14. Notoadmojo, S. 2018. Metodologi Penelitian Kesehatan. Jakarta : Rineka Cipta. Pratiknyo, K.A.,Budiastuti, A.,Widodo,A (2016). Faktor risiko terjadinya varisesvena tungkai bawah pada pramuniaga di kota semarang. Jurnal Kedokteran Diponegoro, Vol 5: Nomor 1
15. Profil UPTD Puskesmas Selindung, 2022. Hal. 1-9
16. Puspita, R., & Kurniasari, R. (2022). "Faktor-Faktor yang Berhubungan dengan Kejadian Varises pada Ibu Hamil di Wilayah Kerja Puskesmas Sukoharjo. Jurnal Kesehatan Ibu dan Anak, 13(1), 45-52.
17. Puspitasari, R. D., & Pratiwi, N. L. (2023). "Faktor-Faktor yang Berhubungan dengan Kejadian Varises pada Ibu Hamil di Wilayah Kerja Puskesmas Wonosobo". Jurnal Kebidanan Malahayati, 8(2), 112-119.
18. Puspita, Ocha della (2023). Respon Psikologis pada ibu muda dalam menghadapi kehamilan pertama. Diploma thesis, Universitas Muhammadiyah Malang.https://eprints.umm.ac.id/id/eprint/7354
19. Rahayu, T. R., & Sari, M. (2022). "Hubungan Usia Kehamilan dan Jumlah Kehamilan dengan Kejadian Varises pada Ibu Hamil". Jurnal Ilmu Kesehatan Bhakti Husada: Health Sciences Journal, 11(1), 35-42.
20. Rahman, A,. & Sabhayati, A,.M 2022. Pengertian Pendidikan, Ilmu Pendidikan dan Unsur – Unsur Pendidikan. Jurnal Universitas Muhammadiah Makasar. Vol. 2. No. 1. 2022, Juni 2022. P-ISSN: 2775-4855.
21. Sabputra, R., Siregar, S. Deasy, & Ginting, R. (2019). Faktor yang mempengaruhi varises vena tungkai bawah pada guru SD di desa securai selatan. Jurnal Kesehatan Masyarakat & Gizi, Vol 2 : No 1, e-ISSN : 2655-0849
22. Sari, P., & Pratiwi, A. (2022). "Faktor-Faktor yang Berhubungan dengan Kejadian Varises pada Ibu Hamil di Wilayah Kerja Puskesmas Sukaraja". Jurnal Bidan Komunitas, 4(2), 74-

81.
23. Sugiyono 2015. Metode Penelitian Kombinasi (Mix Methods). Bandung: Alfabeta.
24. Yulista, W., & Supratno, A. (2022). “Hubungan Lama Berdiri dengan Kejadian Varises pada Ibu Hamil Trimester Tiga di Wilayah Kerja Puskesmas Kalasan. Jurnal Ilmu dan Praktik Kebidanan Indonesia, 5(1), 22-29.