

**ANALYSIS OF MATERNAL AGE AND GESTATIONAL HYPERTENSION
FACTORS ON THE RISK OF BBLR OCCURRENCE AT MEDICA CLINIC
EAST MEDAN DISTRICT IN 2026**

Herlina¹, Noer Desmie²,

^{1,2} Sekolah Tinggi Ilmu Kesehatan Darmo

email : bdherlinahasibuanmtrkeb@gmail.com

Received: 04-06-2026

Revised: 15-06-2026

Approved: 28-06-2026

ABSTRACT

Maternal health has a big role in determining children's health. According to the Health Profile, the Infant Mortality Rate (AKB) in Indonesia has decreased, but it still needs to accelerate efforts so that the target of 16/1,000 live births can be achieved. The biggest contributors of death in 2022 were Low Birth Weight (BBLR) (28.2%) and Asphyxia (25.3%). This research method uses quantitative research with a case control design. . The purpose of this study is to determine the Relationship between Age and Hypertension in Pregnant Women with the Incidence of BBLR at the Kasih Clinic, East Medan District, North Sumatra Province in 2026. Sampling technique with Total Sampling with 100 population and samples. The results of the Chi-Square test showed that the age of pregnant women with $p\text{-value} = 0.000 (<0.05)$ and hypertension in pregnant women with $p\text{-value} = 0.010 (<0.05)$. The conclusion of the study stated that there is a relationship between age and hypertension in pregnant women and the incidence of BBLR at the Kasih Clinic, East Medan District, North Sumatra Province in 2026.

Keywords: *Maternal Age, Gestational Hypertension, BBLR*

INTRODUCTION

Maternal health has a big role in determining child health, this means that the quality of the nation is influenced by maternal health so that it needs to be the main concern so that there is no loss of genetation and even the increase in Maternal Mortality Rate (AKI) and Infant Mortality Rate (AKB) has been widely done both in developed and developing countries such as Indonesia.

However, in reality, according to census data and population surveys, the AKI census in Indonesia in 2015 was

305/100,000 live births, while the Sustainable Development Goals SDGs target for 2030 was 131/100,000 live births if it followed the intervention scenario model, namely through policy intervention from the government. The infant mortality rate in 2015 was 34.7/1,000 live births with a target of 18.8/1,000 live births in 2030. (Safitri & Djaiman, 2021)

In the Regulation of the Minister of Health Number 25 of 2024 concerning Child Health Efforts, it is said that every child has the right to survival, growth and development, and the right to protection from violence and discrimination. In line with this, it is necessary to carry out child health efforts with an integrated, preventive, curative, and rehabilitative approach in an integrated, comprehensive, and sustainable manner. This effort is carried out from the fetus in the womb until the child is 18 years old. One of the goals of the Child Health effort is to ensure the survival and quality of children's lives through efforts to reduce the mortality rate, improve nutrition, and meet minimum service

The infant mortality rate (AKB) in Indonesia has decreased, but efforts are still needed to accelerate and maintain the target of 16/1,000 live births so that the target of 16/1,000 live births can be achieved by the end of 2024. With the highest number of deaths in 2022, the condition of low birth weight (BBLR) (28.2%) and Asphyxia (25.3%). (Ministry of Health of the Republic of Indonesia, 2022).

The success of the Maternal Health program can be assessed through the main indicator, namely the Maternal Mortality Rate (MMR). Maternal death is all deaths during the period of pregnancy, childbirth and postpartum that are caused by its management but not due to other causes such as accidents or incidents. AKI is all deaths within that scope for every 100,000 live births.

In addition to assessing maternal health programs, this indicator is also able to assess the degree of public health, because of its sensitivity to improving health services, both in terms of accessibility and quality. In general, there was a decrease in maternal mortality during the period 1991-2020 from 390 to 189/100,000 live births. This figure is almost reaching the 2024 RPJMN target of 183/100,000 live births. Even though there is a tendency to decrease maternal mortality, efforts are still needed to accelerate the reduction of AKI to achieve the SDGs target of 70/100,000 live births by 2030 the causes of maternal mortality in 2022 are hypertension in pregnancy as many as 801 cases, bleeding as many as 741 cases, heart as many as 232 cases, and other causes as many as 1,504 cases (Ministry of Health of the Republic of Indonesia, 2022)

The child mortality rate based on North Sumatra Province Health Profile data in 2022 is AKN of 2.3 per 1000 live births, AKB of 2.6 per 1000 live births, and AKABA of 0.1 per 1000 live births. The cause of neonatal mortality (0-28 days) in North Sumatra Province in 2022 was low birth weight/BBLR (131 cases). The Maternal Mortality Rate (AKI) is an indicator of the Sustainable Development Goals (SDGs) number 3, which by 2030 is expected to reduce the maternal mortality rate to less than 70 per 100,000 live births. Therefore, the government has a commitment to reduce AKI. The number of hypertension in pregnancy in North Sumatra in 2022 is 53 people. (North Sumatra Saharan Profile, 2022).

BBLR (<2,500 grams) is one of the main factors contributing to perinatal and neonatal mortality. Low Birth Weight (BBLR) is divided into two categories, namely premature BBLR (<37 weeks gestational age) and BBLR Intra Uterine Growth Retardation (IUGR), which is a full-term baby but underweight for its age. In HDK patients, the risk of artificial childbirth was 4.39 times more and had a higher tendency to have babies with low birth weight. 9 Babies with a birth weight low of 2500 grams to date are still the main cause of perinatal and neonatal morbidity and mortality. Low Birth Weight (BBLR) can be distinguished from babies born preterm and babies with stunted intrauterine growth. (Manullang & Simanjuntak, 2018)

The Maternal Mortality Rate (AKI) is an indicator of the Sustainable Development Goals (SDGs) number 3, which by 2030 is expected to reduce the

maternal mortality rate to less than 70/100,000 live births. Therefore, the government has a commitment to reduce AKI. Where the most maternal deaths were caused by hypertension in pregnancy in North Sumatra as many as 53 people. (North Sumatra Saharan Profile, 2022) Hypertension in Pregnancy (HDK) is defined as blood pressure > 140/90mmHg in two or more measurements. Based on the International Society for study of

Hypertension in pregnancy (ISHHP), there are 4 categories of hypertension in pregnancy, namely preeclampsia/eclampsia, gestational hypertension, chronic hypertension and 2 hypertensive preeclampsia superimposes. Hypertension in pregnancy is caused by an imperfect conversion of the spiral arteries due to improper invasion of the walls of blood vessels by extravilli trophoblast cells at the beginning of pregnancy. During the fetal period, the vascular connection between mother and fetus, the vascular connection between mother and fetus that is not well formed thus causing nutritional deficiencies. (Hestiyana Nita, 2019)

Hypertension in pregnancy can continue until childbirth which will cause intrauterine fetal growth disorders which will have an impact on low birth weight. This is caused by decreased uteroplacental perfusion, damage to blood vessel endothelial cells, and pasospasm, while in mothers who have normal blood pressure no abnormalities are found so that the perfusion of nutrients and oxygen for fetal growth will be adequate so that mothers who have high blood pressure have a higher risk of giving birth to a low birth weight baby. (Hestiyana Nita, 2019)

RESEARCH METHODS

The type of research used in this study is quantitative using case control design. The purpose of this study is to analyze causal relationships using reverse logic, namely determining the disease (outcome) first and then identifying the cause (risk factors). The population in this study is pregnant women with BBLR at Kasih Clinic. In this study, the number of samples based on the formula with the number of population and samples amounted to 100.

RESULTS

The results of the research that has been carried out at the Kasih Clinic which took place in March-June 2024 with a total of 100 children were obtained from Medical Record data and analyzed with the following results:

Univariate analysis

Distribution Table of Respondents Based on Mother's Age at Kasih Clinic

Subject Characteristics	Frequency (n)	Presentase (%)
Mother's Age		
No Risk	66	66%
Risk	34	34%

Based on table, it shows that the results of the distribution data from 100 samples obtained, the frequency of the majority respondents with no risk as

Distribution Table of Respondents Based on Hypertension in Pregnant Women at Kasih Clinic

Subject Characteristics	Frequency (n)	Presentase (%)
Hypertension		
Non Hypertension	67	67%
Hypertension	33	33%

Berdasarkan tabel 1.2 menunjukkan bahwa hasil data distribusi sebaran dari 100 sampel yang diperoleh ,frekuensi responden mayoritas dengan tidak hipertensi sebanyak 67 responden (67%) dan minoritas dengan status Hipertensi sebanyak 33 responden (33%).

Distribution Table of Respondents Based on Mother's Age at Kasih Clinic

Subject Characteristics	Frequency (n)	Presentase (%)
BBLR		
Non BBLR	66	66%
BBLR	34	34%

Based on table, it shows that the results of the distribution data from 100 samples obtained, the frequency of respondents with no BBLR was 66 respondents (66%) and the minority with BBLR status was 34 respondents (34%).

Bivariate Analysis

Table of Age Relationship with BBLR at Kasih Clinic

Usia	BBLR				PR (95% CI)	P-Value
	Normal		BBLR			
	N	%	N	%	%	
Non Risk	55	83,3%	11	32,4%		
Risk	11	16,7%	23	67,6%	10.455 (3.975-27.499)	0,000
Total	66	100%	34	100%		

Based on table 2.2, it is shown that the bivariate analysis of the relationship between age and the incidence of Low Birth Weight Infants (BBLR) from the Chi-Square test obtained p value = 0.000 which means that there is a gap between the age of the mother and the low birth weight baby with an OR of 10,455.

Table of Relationship between Hypertension and BBLR at Kasih Clinic

Hipertension	BBLR				PR (95% CI)	P-Value
	Normal		BBLR			
	N	%	N	%	%	

Normal	38	57,6%	29	85,3%		
Hipertensyon	28	42,4%	5	14,7%	0,234 (0.080-0.680)	0,010
Total	66	100%	34	100%		

Based on table it is shown that the bivariate analysis of the relationship between hypertension and the incidence of Low Birth Weight Infants (BBLR) from the Chi-Square test obtained a p value = 0.010 which means that there is a relationship between hypertension and low birth weight babies with an OR of 0.234.

DISCUSSION

Age Relationship with BBLR

The analysis of the results of the Chi-square statistical test regarding the relationship between maternal age and BBLR obtained a value of $p = 0.000$ which means that H_0 is rejected and H_a is accepted which means that there is a relationship between maternal age and BBLR.

This research is in line with the research conducted (Karentin, 2018) which examined the relationship between maternal age and Low Birth Weight (BBLR). The mother's age <20 years, the condition of the mother's reproductive organs has not been fully developed, including the condition of the uterine lining that is not optimal for implementation, and the age of the pregnant woman >35 years, the mother's condition can be caused by degenerative processes and lack of function of various organs such as muscles, cardiovascular system, endocrine system and reproductive system so that it can interfere with the ability to function so that it can affect the growth of reproductive results.

Young pregnancy is very risky because the baby and reproductive organs are simultaneously in the growth phase and there is a risk of food competition between mother and fetus, causing a risk in the form of bleeding caused by the uterine muscles being too weak in the involution process so that it is easier to experience premature delivery and has the risk of giving birth to Low Birth Weight Babies (BBLR). Pregnant women with the age of >35 years are at great risk of giving birth to Low Birth Weight Babies (BBLR), in maternal health tends to decline as well as the condition of the reproductive organs which can cause various pregnancy complications such as preeclampsia and eclampsia, bleeding and Low Birth Weight Babies (BBLR).

The Relationship of Hypertension with BBLR

The analysis of the results of the Chi-square statistical test obtained regarding the relationship between hypertension and BBLR was obtained with a value of $p = 0.010$, meaning that H_0 was rejected and H_a was accepted, which means that there is a relationship between hypertension and BBLR. This study is in line with the research conducted (Karentin, 2018) which examined the relationship between hypertension and BBLR, a value of $p = 0.000$ was obtained, which means that there is a relationship between hypertension and BBLR. Gestational hypertension causes problems such as Intra Uterine Growth Restriction (IUGR) and hypoxia due to decreased uteroplacental perfusion. Gestational hypertension also results in the failure of the invasion of trophoblast cell migration that enters the myometrium artery so that the arterioli are not

affected by the placental hormonal system to be able to grow and develop the fetus in the uterus so that there is a failure of nutrient transport which ultimately causes Intra Uterine Growth Restriction (IUGR).

CONCLUSION

Specifically, this research aims to: To find out the number of BBLR Incidence at the Kasih Clinic, East Medan District, North Sumatra Province in 2026. To find out the incidence rate of Pregnant Women with Hypertension at the Kasih Clinic, East Medan District, North Sumatra Province in 2026. To find out the relationship between age and hypertension in pregnant women with the incidence of BBLR at the Kasih Clinic, North Sumatra Province in 2026.

ADVICE

Based on the results of the bivariate test of the factors that cause BBLR at Kasih Clinic, the author makes the following suggestions:

1. For the community The public is advised to regularly check pregnancy with a doctor or midwife to avoid the possibility of BBLR.
2. For the government Hold socialization or counseling on the causes of BBLR.
3. For the Next Researcher Further research is needed to have more samples to determine the spread of factors that cause BBLR.

REFERENCE

- Alatas Haidar. (2019). *Hipertensi Pada Kehamilan*. *Herbt-Medicine Journal*, 2(2), 27-51.
- Anggreni, D., Mail, E., & Adiesti, F. (2018). *Hipertensi Dalam Kehamilan*. Mojokerto : STIKes Majapahit Mojokerto.
- Artini, N. K. M., Erawati, N. L. P. S., & Senjaya, A. A. (2023). Hubungan Paritas dan Usia Ibu dengan Kejadian Berat Badan Lahir Rendah di Rumah Sakit Umum Bali Royal Hospital. *Jurnal Ilmiah Kebidanan (The Journal Of Midwifery)*, 11(1), 33–40. <https://doi.org/10.33992/jik.v11i1.2312>
- Fitriani Aida, N. A. H. R. S. A. F. M. N. S. E. C. R. (2022). *Asuhan Kehamilan DIII Kebidanan Jilid II* (Grup TIm MCU, Ed.; Cetakan Pertama). PT Mahakarya Citra Utama Grup. www.mahakarya.academy
- Gultom L, H. J. (2020). *Asuhan Kebidanan Kehamilan* (Hutabarat Julietta, Ed.; Cetakan Pertama). Zifatama Jawa. Siduarjo : Indomedia Pustaka.
- Hatijar, S. I. S. Y. L. C. (2020). *Asuhan Kebidanan Pada Kehamilan* (Yunus Muh, Ed.; Cetkan Pertama). CV. Cahaya Bintang Gemerlang.
- Hestiyana Nita. (2019). *Korelasi Hipertensi Pada Persalinan Dengan Kejadian Bayi Berat Lahir Rendah (Bblr) di RSUD DR. H. Moch Anshari Saleh Banjarmasin*. 1(01), 2–6.
- Karentin, Y. U. N. (2018). Hubungan Antara Hipertensi Gestasional Dan Usia Ibu Terhadap Bayi Berat Lahir Rendah (BBLR). Universitas Muhamadiyah, 1-14.
- Kemendes RI. (2022). *Profil Kesehatan Indonesia 2022*.

- Liznindya, L. (2023). Hubungan Usia Ibu Hamil dengan Kejadian Bayi Berat Lahir Rendah (BBLR) Di Desa Serangmekar Ciparay Kab. Bandung Tahun 2021. *Cerdika: Jurnal Ilmiah Indonesia*, 3(1), 1–5. <https://doi.org/10.59141/cerdika.v3i1.516>.
- Manullang, & Simanjuntak. (2018). Hubungan Hipertensi Dalam Kehamilan Dengan Kejadian Berat Badan Lahir Rendah Di RS Graha Juanda Tahun 2018. *Jurnal Ayurveda Medistra*, 2(1), 1–6.
- Marbun, U., Asrina, A., Kadir, A., Jumriani, N., & Partiwi, Y. (2023). Asuhan Kebidanan Kehamilan (Sari Lili Purnama, Ed.; Cetakan Pertama). Widina Media Utama. www.freepik.com
- Marfuah, S., Paskalia Tri Kurniati, M., Wiwit Desi Intarti, Mk., Naomi Parmila Hesti SSiT, Mk. S., Sehmawati, Mk., Baharika Suci Dwi Aningsih, Mk., Sri Hadi Sulistyaningsih, Mk., Salwa Annisaa, Mk., Raina Lola Fauzia, M., Lailatul Mustaghfiroh, M., Sugi Purwanti, Mk., & Ellatyas Rahmawati Tejo Putri, Mk. (2023). Asuhan Kebidanan Pada Kehamilan (Uki, Ed.; Cetakan Pertama). K-Media 2023.
- Mendiri, K. (2021). *Buku Model Momming Guide Kmc_Ni Ketut Mendri_2021*. Angeewandle Chemie International Edition, 6(11), (Vol. 1). H.10-27
- Profil Kesehatan Sumatera Utara. (2022). Profil Kesehatan Sumatera Utra. www.dinkes.sumutprov.go.id.
- Proverawati, A., & Sulistyorini, C. I. (2023). *Berat Badan Lahir Rendah (BBLR)* (Cetakan III). Nuha Medika.
- Putri, I. M., & Ismiyatun, N. (2020). Deteksi Dini Kehamilan Beresiko. *JKM (Jurnal Kesehatan Masyarakat) Cendekia Utama*, Vol, 8 No. 1. H.40.
- Rika, R., Firdayanti, F., & Taherong, F. (2021). Manajemen Asuhan Kebidanan Antenatal pada Ny“I”dengan Hipertensi Gestasional Gestasi 36-38 Minggu di Puskesmas Bontomarannu Kabupaten Gowa Tanggal 15 Januari-12 Maret 2020. *Jurnal Midwifery*, 3(2). <https://doi.org/10.24252/jmw.v3i2.24348>.
- Safitri, A., & Djaiman, S. P. H. (2021). Hubungan Hipertensi dalam Kehamilan dengan Kelahiran Prematur: Metaanalisis. *Media Penelitian Dan Pengembangan Kesehatan*, 31(1). <https://doi.org/10.22435/mpk.v31i1.3881>
- Syapitri, H., & Amila. (2020). *Metode Penelitian Kesehatan*. Kota Malang: Ahlimedia Press. www.ahlimediapress.com