

Literature Review: Characteristics That Influence the Occurrence of Preeclampsia in Pregnant Women

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Article Info	Abstract
Article History Submitted, 2025-11-02 Accepted, 2025-11-30 Published, 2025-12-31 Keywords: Pregnancy, preeclampsia, characteristic	Preeclampsia is a complication of pregnancy characterized by high blood pressure (hypertension) and is often accompanied by protein in the urine (proteinuria) after 20 weeks of gestation. This condition can affect various organs, including the kidneys, liver, brain, and placenta. Preeclampsia is part of the spectrum of hypertension in pregnancy that also includes gestational hypertension and eclampsia. Preeclampsia, if not treated quickly and appropriately, will become eclampsia. Preeclampsia in Indonesia is still one of the leading causes of maternal death. Based on data from the Indonesian Health Profile in 2024, maternal deaths caused by hypertension in pregnancy, childbirth, and postpartum are the second leading cause after non-obstetric complications, which account for 23.8% of maternal deaths. The purpose of this literature review is to determine the relationship between characteristics that affect the incidence of preeclampsia in pregnant women. This literature review uses search results from ProQuest/PubMed and Google Scholar for the last 10 years, both using nationally and internationally reputable databases. The search uses the keywords preeclampsia, pregnancy, and characteristics. The conclusion of the literature review search for journal articles was obtained from 12 journals with the results of several characteristics related to the incidence of preeclampsia, namely the age of pregnant women, parity, pregnancy distance, gestational age, abortion history, history of preeclampsia, hypertension, Body Mass Index (BMI), education level, and type of work.

Introduction

Pregnancy is a physiological process that should proceed normally, but complications sometimes occur in some pregnancies. One such complication is preeclampsia, which remains the leading cause of morbidity and mortality in mothers and fetuses. The prevalence of preeclampsia in Indonesia in 2020 reached 9.4% (Ministry of Health, 2021) with an annual incidence of around 128,273 cases or 5.3% of all pregnant women (POGI, 2018). The latest data shows that the maternal mortality rate in 2023 reached 4,129 cases, an increase from 2022 which amounted to 4,005 cases (Ministry of Health, 2024). Preeclampsia is a pregnancy complication characterized by high blood pressure (hypertension) and often accompanied by protein in the urine (proteinuria) after 20 weeks of gestation. This condition can affect various organs, including the kidneys, liver, brain, and placenta. Preeclampsia is part of the spectrum of hypertension in pregnancy, which also includes gestational hypertension and eclampsia. If preeclampsia is not treated quickly and appropriately, it will develop into eclampsia. (Ministry of Health, 2024)

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In Indonesia, preeclampsia remains one of the leading causes of maternal mortality. According to data from the 2024 Indonesian Health Profile, maternal deaths caused by hypertension during pregnancy, childbirth, and the postpartum period are the second leading cause after non-obstetric complications, accounting for 23.8% of maternal deaths. Preeclampsia is classified as a complication of hypertension during pregnancy, childbirth, and the postpartum period. This highlights the need for greater attention to the risk factors that influence it. Prevention and early detection of preeclampsia heavily depend on a good understanding of the characteristics of pregnant women at risk.

Various studies show that there are a number of characteristics of pregnant women that are associated with preeclampsia, including maternal age, parity, pregnancy interval, gestational age, history of abortion, history of previous preeclampsia, hypertension, body mass index (BMI), as well as education level and type of occupation. Maternal age below 20 or above 35 years of age is known to increase the risk of preeclampsia. Nulliparous women also have a higher risk compared to multiparous women (Daryanti, (2020), Sutrimah, Mifbakhuddin & Wahyuni (2015), Asmana, Syahredi & Hilbertina (2016), Mandasari (2023), Brilian, Diah & Heny E (2024))

Understanding the characteristics of pregnant women associated with preeclampsia is very important so that it can be used in prevention, early detection, and appropriate intervention during pregnancy. Correct identification of risk characteristics makes it easier for health workers to take a more targeted approach in monitoring pregnancy and planning referrals if necessary. Based on the above description, the author is interested in conducting a literature review of journals related to characteristics that influence the occurrence of preeclampsia in pregnant women.

Methods

This study used the Literature Review method. The articles used were the results of searches on Proquest/PubMed and Google Scholar over the last 10 years, using both national and international reputable databases. The search used the keyword "preeclampsia". Based on these searches, a review was conducted by analyzing 12 articles related to the characteristics of pregnant women with preeclampsia.

Results and Discussion

Pregnancy The following is a list of articles related to the characteristics that influence the incidence of preeclampsia in pregnant women, which were found and described in the table below:

Table 1. Article Research			
No	Researchers	Research methods	Results
1.	Characteristics of pregnant women with preeclampsia at PKU Muhammadiyah Hospital, Gamping, Yogyakarta (Daryanti, 2020)	The method used was quantitative The more specific method was descriptive analytical research with a retrospective approach	The results showed that most pregnant women with preeclampsia were in the high-risk age group (<20 years and >35 years), totaling 21 individuals (60%), had low parity (<=2) (24 women, 68.6%) had a risky interval between pregnancies (<2 years) in 19 cases (54.3%). History of preeclampsia: 27 pregnant women (77.1%) had no prior history of preeclampsia.
2.	Factors associated with the occurrence of preeclampsia in pregnant women at Roemani Muhammadiyah Hospital, Semarang (Sutrimah, Mifbakhuddin & Wahyuni 2015)	The study used a case-control design with a retrospective approach, and data collection was conducted by reviewing medical records. Data analysis was performed using univariate and bivariate analysis with the chi-square test.	The study results showed no significant association between the age risk factor and the occurrence of preeclampsia (p=0.768) There was no significant association between the risk factor of parity and the occurrence of preeclampsia (p=0.313) (OR=0.600) There was a significant association between the risk factor of previous preeclampsia and the

			occurrence of preeclampsia (p=0.01) There was no significant association between the risk factor of multiple pregnancy and the occurrence of preeclampsia (p=1.00).
3.	Risk factors for preeclampsia in pregnant women at Achmad Mochtar Hospital, Bukittinggi (Asmana, Syahredi & Hilbertina, 2016)	This research method was quantitative, using a cross-sectional study and presenting the results as percentages. The study applied a purposive sampling approach. Univariate analysis was used to describe the distribution of each variable, and bivariate analysis was used to test the correlation between variables using the Chi-square test.	There is a significant relationship between maternal age and the incidence of preeclampsia with a p-value score of 0.000 (< 0.05). There is a significant relationship between parity and the incidence of preeclampsia with a p-value = 0.036 (< 0.05). There is a significant relationship between history of preeclampsia and the occurrence of preeclampsia with a p-value = 0.001 (< 0.005). There is a significant relationship between a history of chronic disease and the occurrence of preeclampsia with a p-value = 0.000 (< 0.05). There is a significant relationship between a history of preeclampsia and the occurrence of preeclampsia with a p-value = 0.000 (< 0.05). There is a significant relationship between pregnancy spacing and the occurrence of preeclampsia with a p-value of 0.028 (< 0.05).
4.	The relationship between maternal age and pregnancy interval with the occurrence of preeclampsia in pregnant women (Mandasari, 2023)	The study design was a cross-sectional study. The sample in this study used random sampling.	There is a significant relationship between maternal age and the occurrence of preeclampsia with a <i>p-value</i> of 0.000, meaning there is a significant association between pregnancy interval and the occurrence of preeclampsia with a <i>p-value</i> of 0.000
5.	The relationship between age, parity, and pregnancy interval with the occurrence of preeclampsia in pregnant women at the Sugio Health Center (Brilian, Diah & Heny E, 2024)	This study employed a quantitative design with a correlational analytical approach, using total sampling of 248 pregnant women recorded in medical records in 2023.	Statistical tests showed p = 0.00 ($\leq$ 0.05) for the relationship between age, parity, and pregnancy interval with the occurrence of preeclampsia. Odds ratio: age = 0.298; parity = 0.759; pregnancy interval = 0.425. The results of the study indicate that there is a relationship between age, parity, and pregnancy interval with the occurrence of preeclampsia in pregnant women.

6.	The relationship between gestational age, history of abortion, and parity with the occurrence of severe preeclampsia at Abdoel Wahab Sjahranie General Hospital (Yeni, Ismansyah & Nursyahid, 2022)	This study used a backward-looking case-control design.	The results of the study show a significant relationship between gestational age, history of abortion, and parity with the incidence of severe preeclampsia. Gestational age had a <i>p-value</i> of 0.008 ($< \alpha$: 0.05), history of abortion has a <i>p-value</i> of 0.041 ($< \alpha$: 0.05), and parity has a <i>p-value</i> of 0.038 ($< \alpha$: 0.05).
7.	The relationship between educational level and the occurrence of preeclampsia in pregnant women (Rahmawati & Prasetyaningati, D, 2024)	The research method used was quantitative. The research design employed a descriptive analytical method with a <i>cross-sectional</i> approach. The sampling technique used total sampling.	Based on the research findings, the data analysis for the variable of educational level and the occurrence of preeclampsia in pregnant women showed a p-value of $0.001 < 0.05$, indicating a relationship between educational level and the occurrence of preeclampsia in pregnant women at the Lenteng Community Health Center in Sumenep Regency.
8.	The incidence of preeclampsia reviewed from the type of work at Dr. R. Soedjono Selong General Hospital (Dina Alfiana Ikhwani; 2021)	This study used a cross-sectional design. Sampling was conducted using non-probability sampling (purposive sampling).	The results of the study indicate a significant relationship between job type and the incidence of preeclampsia at Dr. R. Soedjono Selong General Hospital. The p-value = 0.000. This means that differences in job type are strongly correlated with the incidence of preeclampsia
9.	The relationship between body mass index and the occurrence of preeclampsia in pregnant women at Trikora Salakan General Hospital (Handayani & Nurjanah, 2021)	This study is quantitative in nature, with the study population being all pregnant women who underwent check-ups at Trikora General Hospital in Salakan. The sample size in this study was 41 people. The independent variable in this study was Body Mass Index, and the dependent variable was Preeclampsia. Data analysis was performed using the univariate method with percentages and the bivariate method using the Spearman's rank correlation test.	The results of statistical calculations using the Spearman's rank test showed a p-value of $0.000 < 0.05$, which means that there is a significant relationship between body mass index (BMI) and the incidence of preeclampsia in pregnant women at Trikora Salakan Regional General Hospital. The analysis continued by assessing the correlation coefficient between body mass index and the incidence of preeclampsia, which yielded a C value of 0.614. Thus, it can be concluded that the strength of the correlation coefficient between the variables is strong. The correlation coefficient value in the above results is positive, so it can be concluded that the relationship between the two variables is unidirectional.

10.	Body Mass Index (BMI) of Pregnant Women with Preeclampsia (Nurun, Ferila & Citra A, 2025)	An analytical observational study with a <i>cross-sectional</i> approach. The sample size was 84 pregnant women with preeclampsia.	The results of the <i>chi-square</i> test yielded a <i>p-value</i> of 0.003, indicating a statistically significant relationship between BMI and the occurrence of preeclampsia. This study indicates a significant association between excessive Body Mass Index (BMI) and the occurrence of preeclampsia in pregnant women.
11.	Analysis of Body Mass Index (BMI) and the Occurrence of Preeclampsia in Pregnant Women (Aini, Zuhriyatun & Hapsari 2023)	An analytical observational study using a <i>case-control</i> approach. The sample size was 105, divided into 30 pregnant women with preeclampsia (<i>cases</i>) and 75 pregnant women without preeclampsia (<i>controls</i>).	The results of the <i>chi-square</i> test yielded a <i>p-value</i> of 0.041, indicating a statistically significant relationship between BMI and the occurrence of preeclampsia. This study shows a significant relationship between excessive Body Mass Index (BMI) and the occurrence of preeclampsia in pregnant women.
12.	The relationship between nutritional status and hypertension on the occurrence of preeclampsia at the Sudiang Raya Community Health Center in Makassar (Aqilah & Darmiati, 2025)	The method used in this study was an observational analytical study, specifically a descriptive study. The research instrument used a questionnaire with the population being pregnant women. Total sampling with a population size of 40 pregnant women.	Based on the statistical test results, the <i>p-value</i> was 0.112 ($p > 0.05$), indicating no relationship between nutritional status and the occurrence of preeclampsia. The statistical test results showed a <i>p-value</i> of 0.024 ($p < 0.05$), indicating a relationship between hypertension and the occurrence of preeclampsia. Based on univariate analysis, it was found that of the 40 pregnant women, 52.5% had hypertension.

Relationship Between Maternal Age and Preeclampsia

This literature review analyzed and found that 3 out of 5 journals that examined the relationship between preeclampsia and maternal age showed significant results. Research by Menik Sri Daryanti (2020) showed that risky ages (<20 years and >35 years) had an effect on the incidence of preeclampsia. Research by Eka Juniarty and Pera Mandasari (2023) showed results with a *p-value* = 0.000 (< 0.05) and *p-value* = 0.000, proving that there is a definite relationship between maternal age and the incidence of preeclampsia. This is also in line with research conducted by Brilian H. R. Diah E. M., and Heny E. (2024), which showed a *p-value* = 0.00 for the variable of maternal age.

Age is an important part of reproductive status. Age is related to the increase or decrease in bodily functions, which affects a person's health status. The best age for pregnancy is between 20 and 35 years old (Laura et al., 2021). At an age of <20 years, the uterus has not yet reached the normal size for a healthy pregnancy, so the possibility of pregnancy complications is greater. At ages >35, degenerative processes occur, causing structural and functional changes in peripheral blood vessels, making women more susceptible to preeclampsia (Arwan & Sriyanti, 2020).

The Relationship Between Parity and the Occurrence of Preeclampsia

There are two journals that examine the relationship between parity and the incidence of preeclampsia in pregnant women. Research conducted by Yeni M. R. S., Ismansyah, and Nursyahid S (2022) found an influence of parity with a *p-value* = 0.036 (<0.05), and in research by Brilian H. R.,Diah E. M., and Heny E. (2024) had a *p-value* of 0.000, proving that there is a definite relationship between parity and the incidence of preeclampsia. Parity itself is the

number of children that a mother has given birth to (Tarigan & Yulia, 2018). Parity is one of the risk factors associated with the onset of preeclampsia. When compared to multiparas, the incidence of is higher, especially for young nulliparous women. The effect of parity is significant because nearly 20% of nulliparous women experience hypertension before, during childbirth, or during the postpartum period compared to multiparous women, which appears to occur due to exposure to chorionic villi for the first time.

Parity is one of the risk factors associated with the onset of preeclampsia (Transyah, 2018). The more children a mother gives birth to, the greater the risk of developing preeclampsia because the mother experiences excessive uterine stretching, causing excessive ischemia that can lead to preeclampsia. Meanwhile, in the first pregnancy, it is the first experience for the mother's organs to adjust to pregnancy, making her more at risk of developing preeclampsia (Agustina et al., 2022).

The Relationship Between Interpregnancy Interval and the Occurrence of Preeclampsia

There is one journal that examines the relationship between pregnancy spacing and preeclampsia in pregnant women. Research conducted by Brilian H. R., Diah E. M., and Heny E. (2024) obtained a p-value of 0.000 (<0.05) with an OR ratio of 0.425. Pregnancy spacing is one of the risk factors for preeclampsia and high-risk pregnancy. The risk of maternal mortality increases if the interval between two pregnancies is <2 years or >5 years, and the safe interval is 2-5 years. With an interval of <2 years, the uterus or maternal reproductive organs have not fully recovered. Conversely, with an interval of >5 years, the risk of preeclampsia increases due to degenerative processes or weakened uterine and pelvic muscle function, which significantly impact the delivery process in subsequent pregnancies (Maharani., Noor., Musafah, 2012).

Related to the theory of placental vascularization abnormalities, in mothers with a pregnancy interval of >5 years, the spiral artery muscle layer remains stiff and hard. The spiral artery lumen does not allow for distension and vasodilation, resulting in placental hypoxia and ischemia, which underlie the occurrence of preeclampsia (Prawirohardjo, 2011).

The Relationship Between Gestational Age and the Occurrence of Preeclampsia

In a study conducted by Yeni M. R. S., Ismansyah, and Nursyahid S (2022), it was stated that there is a relationship between gestational age and the occurrence of preeclampsia. The measurement results showed a p-value of 0.008 ($< \alpha: 0.05$), which means that there is a relationship between gestational age and preeclampsia.

Preeclampsia is caused by several risk factors, namely age, parity, hydatidiform mole, diabetes mellitus, obesity, fetal hydrops, and multiple pregnancies (Wiknjosastro, 2007). Preeclampsia risk factors are more common in primigravida, nullipara, mothers under 25 or over 35 years of age, race and ethnicity, heredity (genetics), low education, low socioeconomic status, obesity, multiple pregnancies, hydramnios, fetal hydrops, hydatidiform mole, and maternal medical history such as hypertension, kidney disease, liver disease, and diabetes mellitus. The incidence increases with advancing gestational age (Cunningham, 2009; Wiknjosastro, 2002; Chapman, 2006).

Maternal age under 20 or over 35 is closely associated with various complications during pregnancy, childbirth, the postpartum period, and the health of the baby both in utero and after birth. Complications are conditions in pregnant women, women in labor, and postpartum women that can threaten the life of the mother and/or baby. The ideal age of 20–35 years, based on research findings, can reduce the risk of death due to preeclampsia. Therefore, efforts to manage pregnancy prevention through family planning programs are needed for women under 20 and over 35 years of age.

The Relationship Between Abortion History and Preeclampsia

In a study conducted by Yeni M. R. S., Ismansyah, and Nursyahid S (2022), it was stated that there is a relationship between abortion history and the occurrence of preeclampsia in pregnant women. The measurement results showed 0.041 ($< \alpha: 0.05$), which means that there is a relationship between abortion history and preeclampsia in pregnancy.

Based on Prawirohardjo's theory (2014), which states that in normal pregnancies, the conceptus will not be rejected due to the presence of human leukocyte antigen protein G (HLA-G), which protects the trophoblast from natural killer (NK) cell lysis in the uterus. The occurrence of abortion can be associated with the presence of fetal/neonatal alloimmune thrombocytes, which are the mother's response to fetal platelet antigens by targeting integrin 3 produced in platelets, endothelial cells, and placental trophoblasts. Trophoblast IIb β 3 and integrin V β 3 are early contributors to implantation and subsequent placental development, including changes in the uterine spiral arteries, which, if inadequate, can lead to preeclampsia, IUGR, and miscarriage (Yougharé et al., 2017).

According to Fox et al. (2019), vaginal bleeding for 5 days can increase the risk of preeclampsia. The risk of preeclampsia in the current pregnancy after experiencing an abortion

can be detected by Doppler and placental vascularization through ultrasound. Mothers with poor placental vascularization experience bradycardia, and changes in the umbilical artery indicate fetal development (Yougbaré et al., 2017). The results of this study are supported by research by Sepidarkish et al. (2017), which found a relationship between a history of abortion and subsequent pregnancies. The results of this study are also supported by research by Sulistyowati (2017), which states that a history of abortion can lead to preeclampsia.

Relationship Between Previous Preeclampsia History and Preeclampsia Occurrence

In the literature review, two articles were found that examined the relationship between a history of preeclampsia and the occurrence of preeclampsia. In article No. 2 (in Table 1), a study by Nevin et al. (2023), a significant relationship was found between a history of preeclampsia and the occurrence of preeclampsia, with a p-value of 0.01. Article No. 3 (in Table 1), a study by Sutrimah. S et al. (2015), also found a relationship with a p-value of 0.001, proving that there is a definite relationship between a history of preeclampsia and the occurrence of preeclampsia.

A history of preeclampsia in a previous pregnancy is one of the significant risk factors for the recurrence of preeclampsia in subsequent pregnancies. This situation can be influenced by the inability the cardiovascular system to fully recover after experiencing preeclampsia. In addition, a history of preeclampsia can cause excessive anxiety, which leads to increased adrenaline, thereby indirectly contributing to increased blood pressure and the risk of preeclampsia (Rahmawati et al., 2022). The results of this study are in line with one theory which states that pregnant women with a history of preeclampsia have a tendency to pass it on, with preeclampsia being a disease that is inherited by children or sisters. A history of preeclampsia in a previous pregnancy is one of the contributing factors to preeclampsia in pregnancy (Fatkhayah et al., 2018).

The Relationship Between Hypertension and Preeclampsia

In this literature review, there is one research journal that discusses the relationship between hypertension and the incidence of preeclampsia in pregnant women. Research conducted by Aqilah Azzarkasih Asri, Darmiati (2025) obtained a p-value of 0.024. If a pregnant woman has hypertension, it is likely that she will experience preeclampsia during pregnancy because her blood pressure may increase during pregnancy, causing preeclampsia (Silaban & Rahmawati, 202).

A history of hypertension refers to mothers who have experienced hypertension before pregnancy or before 20 weeks of pregnancy. Mothers with a history of hypertension are at greater risk of developing preeclampsia (Sukmawati et al., 2018). Hypertension suffered since before pregnancy has already caused disorders/damage to important organs in the body, and with the addition of pregnancy, the body's work will increase, which can cause more severe disorders/damage with the onset of edema and proteinuria (Sabgustina & Anjani, 2018).

The Relationship Between BMI (Body Mass Index) and the Occurrence of Preeclampsia

The number of studies stating the relationship between BMI and preeclampsia in pregnant women is 3 journals. The journal written by Nurun A. K., Ferila A., and Citra A. S. (2025) states a p-value = 0.003, which indicates a relationship. This is in line with studies conducted by Aini, F. N., Zuhriyatun, F., and Hapsari, W.; (2023) and Handayani, S., and Nurjanah, S. (2021), which state that there is a relationship between BMI and the incidence of preeclampsia.

Two studies have examined the relationship between Body Mass Index (BMI) in pregnant women and the incidence of preeclampsia. Research conducted by Aini (2023) shows a significant relationship between BMI and preeclampsia, with a p-value of 0.003 based on the chi-square test. Similar results were also found in a study conducted by Nurun (2025), with a p-value of 0.041. The findings from these two journals reinforce the evidence that there is a significant relationship between the BMI of pregnant women and the risk of preeclampsia.

Preeclampsia itself is a pregnancy complication that generally appears after 20 weeks of pregnancy, characterized by high blood pressure, protein in the urine, and swelling of the body. This condition is dangerous for both the mother and the fetus, so prevention needs to be done early on. One preventive measure is to monitor the mother's nutritional status, particularly by measuring BMI and controlling weight gain during pregnancy. BMI is used to assess whether the mother's weight is normal, underweight, or overweight. A high BMI or obesity can increase the risk of preeclampsia because it is associated with metabolic disorders, oxidative stress, and inflammation that can damage blood vessel function. In addition to BMI, other factors such as a history of hypertension, multiple pregnancies, diabetes, and extreme maternal age also contribute to this risk. Therefore, regular BMI monitoring during pregnancy is an important step in reducing the risk of preeclampsia and maintaining the health of the mother and fetus until delivery (Aini, 2023; Nurun, 2025).

The Relationship Between Education Level and Preeclampsia Incidence

There is research that states that there is a relationship between education level and the incidence of preeclampsia. The study was conducted by Rahmawati, A., and Prasetyaningati, D (2024) with the results of the variable of education level and the incidence of preeclampsia in pregnant women with a p-value of $0.001 < 0.05$. Education plays an important role in a person's ability to understand nutritional information. The higher a person's level of education, the easier it is for them to adopt a healthy lifestyle independently, creatively, and sustainably. The educational level of pregnant women is also related to their knowledge of how to plan and prepare healthy and balanced meals. The education of pregnant women has a significant impact on fetal growth in the womb, where the higher the education of the pregnant woman, the better the fetal growth.

Higher education provides broader access to information, both through other people and the mass media, while low education can hinder a person's development and acceptance of new values (Hasibuan & Mawarni, 2018). Women with low education have a 5.12 times higher risk of preeclampsia than those with higher education (Manurung, 2021). Chronic hypertension in pregnant women also increases the risk of preeclampsia, which can lead to increased blood pressure, organ damage, and even premature birth or infant death (Croke, 2019).

The Relationship Between Job Type and Preeclampsia Incidence

This literature review also discusses the relationship between job type and the incidence of preeclampsia, as stated in a study by Dina Alfiana Ikhwan (2021), which found a significant relationship between job type and the incidence of preeclampsia at Dr. R. Soedjono Selong Regional General Hospital. The p-value = 0.000. This means that differences in job type are strongly correlated with the incidence of preeclampsia.

Risk factors for preeclampsia include occupation, interval between marriage and pregnancy, weight gain during pregnancy, gestational age, maternal age, maternal education, parity, hereditary diseases, stress, physical activity, history of preeclampsia and eclampsia in previous pregnancies, pregnancy with diabetes mellitus, hydatidiform mole, kidney disease, and multiple pregnancies (Cunningham, 2010; Prawirohardjo, 2010; Yusrawati, 2014; Wulandari, 2012; Julianti.N, 2014; Elsanti. et al, 2016).

Conclusion and Recommendations

The results of the literature review conducted by analyzing the 12 journals indicate that there are characteristics of pregnant women at risk of preeclampsia that are highly relevant to the results of the literature review of the 12 journals presented above. The 12 journals provide results on risk factors for preeclampsia in pregnant women, including maternal age, parity, pregnancy interval, gestational age, history of abortion, history of previous preeclampsia, hypertension, body mass index (BMI), education level, and type of occupation.

Based on the literature review conducted to determine the characteristics of pregnant women with regard to the occurrence of preeclampsia, the following is a breakdown of the number of journals that have a relationship with preeclampsia. There are 3 journals that discuss the relationship between the age of the pregnant woman, 2 journals that discuss the relationship between parity, 1 journal that discusses the relationship between pregnancy spacing, 1 journal that discusses the relationship between gestational age, 1 journal that discusses the relationship between history of abortion, 1 journal that discusses the relationship between previous history of preeclampsia, 2 journals discussing the relationship with hypertension, 3 journals discussing the relationship with Body Mass Index (BMI), 1 journal discussing the relationship with educational level, and 1 journal discussing the relationship with occupation.

Healthcare workers, including midwives, nurses, and doctors, are encouraged to perform early detection of preeclampsia in all pregnant women based on the results of the 12 journals that have been analyzed, so as to reduce the risk of pregnant women with preeclampsia, so that pregnancy and childbirth can proceed normally without complications.

For future researchers, it is hoped that they can conduct more in-depth research on the causes of preeclampsia to reduce the risk of complications during pregnancy. Researchers are encouraged to publish their findings so that they can benefit all healthcare professionals.

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