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Systematic Review

THE INFLUENCE OF HEALTH INFORMATION ON KNOWLEDGE ABAOUT PREEKLAMPSIA

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A B S T R A C T

Background: Pre-eclampsia is a very serious medical condition that can affect around 3-5% of pregnancies. More than 35,000 maternal deaths each year worldwide are caused by preeclampsia.

Method: The authors identify studies that explain the effect of health information about knowledge about preeclampsia from several databases namely PubMed, ProQuest, EBSCO. Searches are limited to studies published in English and present data for the 2010-2020 period. The identified study was reviewed using PRISMA Flowchart. Studies with related quantitative designs about the effect of health information and risk factors for preeclampsia preeclampsia are selected for review.

Results: as many as eight articles reviewed were found with two sub-themes, namely the factors causing preeclampsia, namely age, parity, obesity and a history of hypertension and health information about preeclampsia.

Conclusion: All impacts related to the occurrence of the risk of preeclampsia can cause an increase in maternal and infant morbidity. Therefore, due to the many factors that can cause preeclampsia, it is recommended that all women, especially in developing countries, routinely check for pregnancy or integrated ANC in existing health facilities and health workers always provide information related to the risks and impacts that occur if the mother experiences preeclampsia.

INTRODUCTION

Preeclampsia is a major cause of maternal and fetal morbidity and mortality (1). Pre-eclampsia is a very serious medical condition that can affect around 3-5% of pregnancies. more than 35,000 maternal deaths each year worldwide are caused by preeclampsia (2). Preeclampsia is defined as hypertension (systolic blood pressure ≥140 mmHg and diastolic ≥90 mmHg) and proteinuria (≥300 mg / 24 hours or using a spot protein / creatinine ratio ≥30 mg / mmol) that occurs after 20 weeks of gestational age (3). Word Health Organization (WHO) estimates that the incidence of preeclampsia occurs seven times higher in developing countries (2.8% of live births) than in developed countries (0.4%). Preeclampsia can increase the risk of maternal and fetal complications such as antepartum and postpartum hemorrhage, kidney function disorders, liver failure, and placental abruption (4).

Preeclampsia is also associated with a high risk of premature birth, low birth weight babies (LBW), placental abruption, and perinatal death, and of course also is associated with significant maternal morbidity (5). Complications of hypertension related to pregnancy are the main contributions of morbidity and mortality for mothers and infants throughout the world. Gestational hypertension or preeclampsia occurs in 6-8% of pregnant women, the majority of which usually occur after 36 weeks of gestation (6).

Preeclampsia is defined as the onset of hypertension at a minimum blood pressure of 140/90 mmHg which is measured on two different occasions, at least four hours after the previous measurement and is accompanied by proteinuria that occurs at more than 20 weeks' gestation. Preeclampsia is categorized as

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mild if the blood pressure is lower than 160/110 mmHg and preeclampsia is categorized as severe if the blood pressure exceeds 160/110 mmHg (7) (8).

Preeclampsia is a complex disease that affects all multisystems in pregnancy and seriously affects the mother and fetus. Low vitamin D status is a risk factor associated with the development of preeclampsia. It was found in the study that low serum vitamin D (25-hydroxy vitamin) levels in pregnancy were associated with a higher risk of preeclampsia and therefore it was recommended to take vitamin D supplements to prevent preeclampsia from occurring.Low-dose aspirin can also reduce the risk of preeclampsia and premature birth (9) (10).

Also consuming vegetables and fruits is one way to prevent the occurrence of preeclampsia. Prevention of preeclampsia can be done by routine or conducting an integrated ANC at existing health facilities. through strengthening integrated antenatal care. Detection of the possible risk of preeclampsia can be done at a health facility in primary health care. The Indonesian government has made efforts to reduce morbidity and mortality due to preeclampsia in the form of strengthening integrated Antenatal Care (ANC) care. Some risk factors for preeclampsia that are considered as predisposing factors for preeclampsia include a history of preexisting hypertension, chronic kidney disease, insulin-dependent diabetics, and women with previous onset preeclampsia. Preeclampsia is more common in primigravida women, age over 40 years, a history of previous preeclampsia, pre-pregnancy obesity, and women who are pregnant with donor eggs, embryonic donations, or donor insemination, including diabetes, pre-existing hypertension, family history of preeclampsia and women suffering from medical conditions such as antiphospholipid syndrome(11) (12) (13)

METHOD

The study used in this study is a systematic literature review, which is a systematic review to interpret the evidence-based results available, used to map the concepts that underlie the research area, sources of evidence, and types of evidence available. The following are the steps carried out in a systematic literature review:

Identification of problems

Based on the background, the identification of problems that will be used as material for article review is the problem of what factors cause preeclampsia in pregnant women and what health information affects the risk of preeclampsia. In this Systematic Literature Review the writer wants to describe the factors that can cause preeclampsia and has the aim to find out what factors can cause preeclampsia in pregnant women.

Data Framework for Inclusion and Exclusion Criteria

Following is the Framework as a reference for inclusion and exclusion criteria in this Systematic Literature Review:

Tabel 1.*Framework Research Question*

Element	Inclusion	Exclusion
Population	Pregnant Pregnancy	Species
Intervention	Factor preeclampsia	
Comparison	NonFactor preeclampcia	
Outcomes	Preeclampsia	

Identification of Relevant Studies

Article search strategy, researchers only focus on peer review of articles using databases. These databases are Pubmed, Proquest and Ebsco. In the Pubmed database, Proquest and Ebsco also manage filters on the page such as Full Text filtering, Data Publish in 10 years ago, Human, and English. The purpose of the Systematic literature review is to conclude and examine the literature relating to the factors causing of preeclampsia.

Prism Flow Diagram

In the article search, 1546 articles were found, then the article was duplicated and found many articles were filtered or excluded because the title did not match the framework, the article was accessed in full text and filtered again according to the framework and the corresponding results would be made "critical" appraisal Following Prisma Flow Diagram.

Quality Rating

Critical Appraisal Skills Program (CASP) is used for critical appraisal to assess the quality of the article. The selected studies are studies with grades A and B.

Mapping / Scoping

The results of the review found several themes that fit the focus of the review:

THEME	SUB THEME
Factors that cause preeclampsia.	Age Parity Obesity History of preeclampcia
Health information about preeclampsia	Resources Healthy Behavior

RESULT and DISCUSSION

The articles taken in this systematic literature review are good quality journals

Factors Causing Preeclampsia

Age

In a study conducted by Xiao, it was found that maternal age over 35 years can increase the occurrence of preeclampsia in these mothers compared to maternal age below 35 years.(14)

Parity

Research conducted by Xiao found that women with nulliparous increased their risk of preeclampsia more significantly compared to multiparous mothers (14)

Obesity

Being overweight or obese is the most important risk factor that can cause preeclampsia and severe preeclampsia with a percentage of risk that can occur around 64.9% in pregnant women (6)

History of Preeclampsia

Pre-existing medical conditions can also be an increased risk factor for the occurrence of hypertensive disorders in pregnancy. including chronic hypertension, diabetes, kidney disease and vascular syndrome. Increased blood pressure that occurs in pregnant women has a very dangerous impact on the mother and fetus. Therefore, special treatment is needed for mothers who have a history of preeclampsia or previous hypetension (15)

Health information about risk factors for preeclampsia

Health Information

Providing information about preeclampsia and eclampsia can increase the knowledge of pregnant women about the risk factors for pre-eclampsia and eclampsia and has been done in many countries, one of which is in the United States.(16)

Healthy behavior

Given the lack of research that supports the assumption that motivating someone to provide health information about the presence of risk factors for pregnant women who have pregnancy complications. Based on the assumptions obtained from research conducted by Bokslag that many health workers communicate risk factors in the hope that this can motivate patients at risk of preeclampsia to improve healthy life behaviors related to their health.(17)

Based on the article found that the factors causing preeclampsia include age, parity, obesity and a history of preeclampsia. Age can be one of the causes of preeclampsia. this is because the mother's age during pregnancy is one of the factors that determines the level of risk in pregnancy and childbirth this is in line with research conducted by Karta Asmana where it was found that there is a significant relationship between maternal age with the incidence of preeclampsia (18).

In the first pregnancy or first parity associated with the lack of experience of mothers in pregnancy care so that there can be a risk of preeclampsia while mothers with high parity have decreased reproductive function so as to increase the risk of preeclampsia. This is in line with research conducted by Devi in which it was found that there is a significant relationship between maternal patity and the presence of preeclampsia (19).

Obese sufferers have an increase in Asymmetric dimethylarginine (ADMA) which results in preeclampsia. Obesity increases the risk of preeclampsia about 3-fold and in developed countries is the biggest risk arising for pregnancy disorders. Based on research conducted by Klemmeti found that overweight or obese pregnant women can cause preeclampsia (20)

Pregnant women with a history of hypertension are 6 times more likely to develop preeclampsia compared to pregnant women who have no history of hypertension. In some pregnant women with a history of chronic hypertension, it can worsen the condition of hypertension in subsequent pregnancies. hypertension that is aggravated by pregnancy can be accompanied by proteinuria or pathological edema which is then called superimposed preeclampsia. Pregnant women with a history of preeclampsia in a previous pregnancy are 20 times more likely to develop preeclampsia. Pregnant women with a history of hereditary preeclampsia in mothers and their families are 23 times more likely to develop preeclampsia compared to pregnant women who have no family history of preeclampsia. Based on research conducted by Saraswati, it was found that there was a significant relationship between the history of previous preeclampsia and the incidence of preeclampsia (21).

Health information about risk factors for preeclampsia is mostly provided by health services and this also relates to a person's education level. this is in line with research conducted by Wilkinson, that well educated women (69% have at least a bachelor's degree) and classify themselves as middle-up income (60% earn more than $ 50,000 / year) found that women with income and education are less can accept and understand less information about preeclampsia (22).

CONCLUSION

In this finding it was found that many risk factors that can cause preeclampsia include age, parity, obesity and a history of preeclampsia. In this article found information obtained by mothers about preeclampsia was very important to reduce the risk

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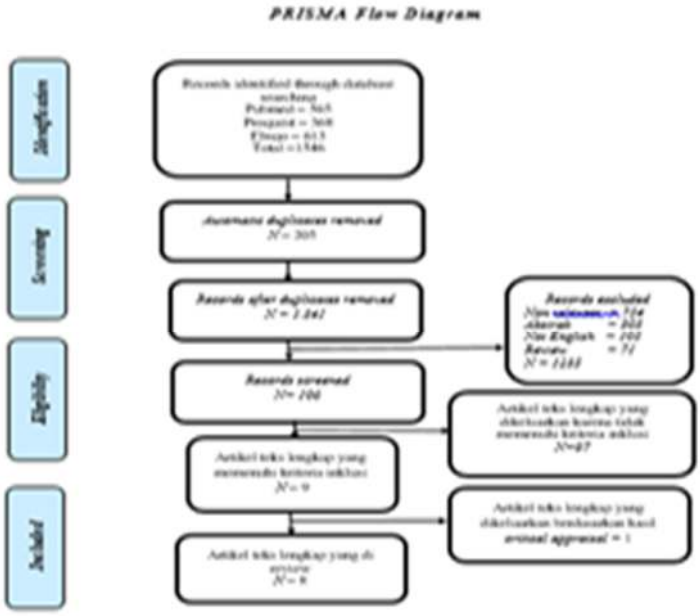
of preeclampsia. All impacts related to the occurrence of the risk of preeclampsia can cause increased maternal and infant morbidity. Therefore because of the many factors that can cause preeclampsia, it is recommended for all women, especially in developing countries to have a routine pregnancy check or integrated ANC in existing health facilities.

REFERENCE

1. Meltzer HM, Brantsæter AL, Nilsen RM, Magnus P, Alexander J, Haugen M. Effect of dietary factors in pregnancy on risk of pregnancy complications: results from the Norwegian Mother and Child Cohort Study. Am J Clin Nutr. 2011 Dec 1;94(suppl_6):1970S-1974S.
2. Wen SW, White RR, Rybak N, Gaudet LM, Robson S, Hague W, et al. Effect of high dose folic acid supplementation in pregnancy on pre-eclampsia (FACT): double blind, phase III, randomised controlled, international, multicentre trial. BMJ. 2018 Sep 12;362:k3478.
3. Ford JB, Schemann K, Patterson JA, Morris J, Herbert RD, Roberts CL. Triggers for Preeclampsia Onset: a Case-Crossover Study. Paediatr Perinat Epidemiol. 2016 Nov;30(6):555–62.
4. Verma MK, Kapoor P, Yadav R, Manohar RK. Risk Factor Assessment for Preeclampsia: A Case Control Study. Int J Med Public Health. 2017 Sep 15;7(3):172–7.
5. Cerdeira AS, O'Sullivan J, Ohuma EO, Harrington D, Szafranski P, Black R, et al. Randomized Interventional Study on Prediction of Preeclampsia/Eclampsia in Women With Suspected Preeclampsia: INSPIRE. Hypertension. 2019 Oct;74(4):983–90.
6. Bijlenga D, Koopmans CM, Birnie E, Mol B-WJ, van der Post JA, Bloemenkamp KW, et al. Health-Related Quality of Life after Induction of Labor versus Expectant Monitoring in Gestational Hypertension or Preeclampsia at Term. Hypertens Pregnancy. 2011 Aug;30(3):260–74.
7. Rolnik DL, Wright D, Poon LCY, Syngelaki A, O'Gorman N, de Paco Matallana C, et al. ASPRE trial: performance of screening for preterm pre-eclampsia: ASPRE trial screening performance. Ultrasound Obstet Gynecol. 2017 Oct;50(4):492–5.
8. Parsa S, Khajouei R, Baneshi MR, Aali BS. Improving the knowledge of pregnant women using a pre-eclampsia app: A controlled before and after study. Int J Med Inf. 2019 May;125:86–90.
9. Mirzakhani H, Litonjua AA, McElrath TF, O'Connor G, Lee-Parritz A, Iverson R, et al. Early pregnancy vitamin D status and risk of preeclampsia. J Clin Invest. 2016 Nov 14;126(12):4702–15.
10. Wright D, Nicolaides KH. Aspirin delays the development of preeclampsia. Am J Obstet Gynecol. 2019 Jun;220(6):580.e1-580.e6.
11. Mi B, Wen X, Li S, Liu D, Lei F, Liu R, et al. Vegetable dietary pattern associated with low risk of preeclampsia possibly through reducing proteinuria. Pregnancy Hypertens. 2019 Apr;16:131–8.
12. English FA, Kenny LC, McCarthy FP. Risk factors and effective management of preeclampsia. Integr Blood Press Control. 2015;8:7–12.
13. Spratling PM, Pryor ER, Moneyham LD, Hodges AL, White-Williams CL, Martin JN. Effect of an Educational Intervention on Cardiovascular Disease Risk Perception among Women with Preeclampsia. J Obstet Gynecol Neonatal Nurs. 2014 Mar;43(2):179–89.
14. Xiao J, Shen F, Xue Q, Chen G, Zeng K, Stone P, et al. Is ethnicity a risk factor for developing preeclampsia? An analysis of the prevalence of preeclampsia in China. J Hum Hypertens. 2014 Nov;28(11):694–8.
15. Paré E, Parry S, McElrath TF, Pucci D, Newton A, Lim K-H. Clinical risk factors for preeclampsia in the 21st century. Obstet Gynecol. 2014 Oct;124(4):763–70.
16. Savage AR, Hoho L. Knowledge of pre-eclampsia in women living in Makole Ward, Dodoma, Tanzania. Afr Health Sci. 2016 Jul 1;16(2):412.
17. Bokslag A, Kroeze W, de Groot CJM, Teunissen PW. Cardiovascular risk after preeclampsia: The effect of communicating risk factors on intended healthy behavior. Hypertens Pregnancy. 2018 Apr 3;37(2):98–103.
18. Karta Asmana S, Syahredi S, Hilbertina N. Hubungan Usia dan Paritas dengan Kejadian Preeklampsia Berat di Rumah Sakit Achmad Mochtar Bukittinggi Tahun 2012 - 2013. J Kesehat Andalas [Internet]. 2016 Sep 1 [cited 2020 May 18];5(3). Available from: http://jurnal.fk.unand.ac.id/index.php/jka/article/view/591
19. Kurniasari D, Arifandini F. HUBUNGAN USIA, PARITAS DAN DIABETES MELLITUS PADA KEHAMILAN DENGAN KEJADIAN PREEKLAMSIA PADA IBU HAMIL DI WILAYAH KERJA PUSKESMAS RUMBIA KABUPATEN LAMPUNG TENGAH TAHUN 2014. 2014;9.
20. Klemetti M, Hiltunen LM, Heino S, Heinonen S, Kajantie E, Laivuori H. An Obesity-Related *FTO* Variant and the Risk of Preeclampsia in a Finnish Study Population. J Pregnancy. 2011;2011:1–7.
21. Saraswati N, Mardiana M. FAKTOR RISIKO YANG BERHUBUNGAN DENGAN KEJADIAN PREEKLAMPSIA PADA IBU HAMIL (STUDI KASUS DI RSUD KABUPATEN BREBES TAHUN 2014). Unnes J Public Health. 2016 Apr 15;5(2):90.
22. Karppanen T, Kaartokallio T, Klemetti MM, Heinonen S, Kajantie E, Kere J, et al. An RGS2 3′UTR polymorphism is associated with preeclampsia in overweight women. BMC Genet [Internet]. 2016 Dec [cited 2019 May 2];17(1). Available from: http://bmcgenet.biomedcentral.com/articles/10.1186/s12863-016-0428-8

Chart 1. PRISMA Flowchart



Data Extraction Analysis

NO	JOURNAL TITLE / WRITER / YEAR / LEVEL / COUNTRY / JOURNAL	AIM	RESEARCH DESIGN	SAMPEL	RESULT
1	Is ethnicity a risk factor for developing preeclampsia ? an analysis of prevalence of preeclampsia in China	The purpose of this study is to identify the factors that can cause the incidence of preeclampsia in China	Cohort Study	A total of 67,746 pregnant women were included in this study, from 2002 to 2011. The data examined included maternal age, maternal body mass index (BMI). Age at marriage, parity, gestational age and blood pressure at diagnosis, proteinuria and birth weight.	From this study it was found that during the study period there were 1301 (1.92%) nulliparous women experiencing preeclampsia. The prevalence of mild and severe preeclampsia is 1.42% and 0.49%, respectively. The average BMI is 21.61 kg.
2	Clinical Risk Factors for Preeclampsia in the 21st Century	The purpose of this study was to determine several clinical risk factors for preeclampsia	Cohort Study	A total of 2637 pregnant women were included in this study. Samples were taken from three major city centers, namely Boston, Bringham and Philadelphia, which were taken from October 2006 to August 2008.	Being overweight or obese is the most important risk, which can cause preeclampsia and severe preeclampsia with attributable risk percentages of 64.9% and 64.4%, respectively.
3	Higher prepregnancy body mass index is a risk factor for developing preeclampsia in MayaMestizo women: a cohort study	The purpose of this study was to analyze a prospective relationship between BMI pregnancy and the development of preeclampsia in Maya-Mestizo women.	Cohort Study	Six hundred forty-two pregnant women attending routine prenatal care visits at the Materno-Infantil Hospital of Secretaria de Salud, 2009-2011, were invited to participate in the study and women were chosen because they arrived at the hospital (no-probabilistic successive cases)	From this study it was found that the risk of preeclampsia can occur four times in women with obesity compared to women of normal weight, with a RR value of 4.23; 95% CI: 2.07 - 8.61; and the value of P = 0.001

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4	Knowledge of pre-eclampsia in women living in Makole Ward, Dodoma, Tanzania.	The purpose of this study was to determine the level of knowledge of pregnant women about preeclampsia.	Cross Sectional	The sample in this study amounted to 200 adult women who were randomly identified in the community. They were asked 36 questions about preeclampsia that needed yes / no answers. Data were analyzed quantitatively.	From this study it was found that the overall level of knowledge of pregnant women is low with an average of 41% of correct answers.
5	Risk Factor Assessment for Pre-eclampsia: A Case Control Study	The purpose of this study was to assess and compare the socio-demographic profiles of women with and without preeclampsia and to determine the risk factors associated with preeclampsia	Case Control	The study sample was conducted among 180 cases of preeclampsia and 180 control subjects in Mahila	The results of this study found that preeclampsia was significantly associated with mothers living in rural areas with a value of p = 0.033, living with a family with a value of p = 0.025, mothers with low education obtained a value of p = 0.007, age of menarce (11-12years) obtained a relationship which is significant with the results of p <0.001 and primiparous mothers with p values <0.001, family history of preeclampsia with p <0.001
6	Cardiovascular risk after preeclampsia: The effect of communicating risk factors on intended healthy behavior	The purpose of this study is to determine whether there is an influence of lifestyle factors on the incidence of preeclampsia	Cohort Study	Samples in this study amounted to 40 in the control group and 40 in the intervention group. After being given a risk assessment, it was divided into two groups, namely group one in women who did not have cardiovascular risk factors and in the second group in the assessment of mothers who had one or more risk factors.	From the results of this study there was no communication between risk factors for lifestyle improvement in women with preeclampsia.
7	Improving the knowledge of pregnant women using a pre-eclampsia app: Acontrolled before and after study	The purpose of this study is to determine the effect of mobile-based health education applications that can increase pregnant women's knowledge about preeclampsia	RCT	The sample in this study were 108 pregnant women with an average age of 28 years.	The results of this study found that mobile-based health education applications can increase pregnant women's knowledge about preeclampsia.
8	Preeclampsia knowledge among women in Utah	The purpose of this study was to determine how much the level of knowledge about preeclampsia in mothers in the Utah area	Cross Sectional	A total of 340 women were sampled in this study. More than half (56.7%) of women reported that their health care providers gave health information about the signs and symptoms of preeclampsia to them.	The results of this study are that maternal knowledge about preeclampsia in the Utah area is proven to be good.