



The Effect of Counseling on the Mother's Level of Knowledge and Readiness in Preventing Hypertension Complications in Pregnancy: Scoping Review

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Abstract. Hypertension in pregnancy often occurs in pregnant women, is an important risk factor for cardiovascular disease, coronary heart disease, peripheral vascular disease, stroke and kidney disease. To avoid these complications, efforts are made to control blood pressure within normal limits, both pharmacologically and non-pharmacologically. This study is to discuss the effect of counseling on the mother's level of knowledge and readiness in preventing complications of hypertension in pregnancy. Method: This is a scoping review using the PRISMA-ScR Checklist framework. Literature was searched using 4 databases, namely Google Scholar, Ebsco, Pro Quest, Science Direct. The keywords used are the influence of counseling, pregnant women with hypertension, level of knowledge, readiness, prevention of hypertension complications. Critical appraisal by The Joanna Briggs Institute (JBI) was used to assess the quality of the article. Results: There were 500 articles obtained for the first time. Then 9 articles were selected that met the requirements for the next review process according to the inclusion criteria. The selected articles come from 9 different countries. 9 eligible articles used quantitative cross-sectional, qualitative, quasi-experimental and systematic review research designs. Finally, four main themes were found, namely hypertension in pregnancy, readiness to prevent complications of hypertension in pregnancy, counseling and maternal knowledge about hypertension. Conclusion: Counseling methods are considered important in increasing the knowledge and readiness of pregnant women to prevent complications due to hypertension

Keywords: counseling, pregnant women hypertension, knowledge, readiness, prevention of hypertension

1 Introduction

Pregnancy with high blood pressure is a high-risk pregnancy and requires extra health care to avoid complications for the mother and fetus [1]. The World Health Organization states that more than 94% of maternal deaths occur in low-income communities

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T. Triwiyanto et al. (eds.), *Proceedings of the 6th International Conference of Health Polytechnic Surabaya (ICoHPS 2023)*, Advances in Health Sciences Research 72,

https://doi.org/10.2991/978-94-6463-324-5_64

and middle-income countries. The main causes of maternal death are complications of high blood pressure, bleeding and infection[2]. The prevalence of hypertension during pregnancy in Latin America and the Caribbean is 26%, and in Africa and Asia hypertensive disorders cause 9% of deaths in pregnant women[3]. Complications that can occur due to increased blood pressure in the mother during pregnancy include eclampsia, severe preeclampsia, placental abruption, kidney disorders, hepatic subcapsular bleeding, coagulation disorders, and blood HELLP syndrome, increased liver function, low enzyme and platelet count) and retinal detachment . Hypertension during pregnancy also causes complications in the fetus such as intrauterine growth restriction, premature birth, neonatal asphyxia, intrauterine death, increased perinatal mortality and morbidity[4]. One of the factors causing high blood pressure during pregnancy is low selenium levels during pregnancy, obesity, high blood pressure during pregnancy, the number of children over 4 years old, and the mother's age over 35 years [5]. Another thing is that limited knowledge about danger signs in pregnancy and childbirth is a clear indicator in the practice of preparing for childbirth and preparing to face complications in pregnant women. Apart from that, Australian research shows that knowledge and practices related to preparing for childbirth and preparing to face complications are still incomplete[6]. Prenatal care education, counseling can also increase participation in health care programs and reduce the risk of hospitalization and associated costs for patients with chronic diseases such as hypertension during pregnancy [7]. Counseling programs can increase client awareness, satisfaction and readiness in dealing with pregnancy complications[8]. Therefore educational programs about pregnancy-induced hypertension are successful and effective in increasing knowledge and compliance[9]. The framework used in this research uses PEO which is explained in Table 1.

Table 1. Framework

P (Population)	E (Exposure)	O (Outcomes/Theme)
Hypertensive pregnant women	The influence of counseling	Level of knowledge and readiness of pregnant women in preventing hypertension complications

Based on the framework above, the scoping review question was obtained, namely "Is there an influence of counseling on the mother's level of knowledge and readiness in preventing complications?".

2 Method

Select articles, in this case the reviewer uses the Covidence program, which is a web-based software that simplifies systematic reviews. First log in to your covidence ac-

count, then we import files or references, after you have finished sending the files, covidence checks for duplicates and quarantines duplicate references. The number of duplicates detected and removed as well as the inclusion and exclusion criteria will be displayed automatically in PRISMA. This covidence program is to support the production of systematic reviews that are more efficient and easier to use. Evidence can be used from titles, abstracts to articles that suit the research objectives. This search item explains the literature search strategy. Keywords that have been determined, by g "OR", "AND" which are appropriate to the topic, namely ((((((influence) AND (counseling)) OR (counseling)) AND (pregnant women with hypertension)) AND (level of knowledge)) AND (readiness of mothers)) AND (prevention of complications of hypertension). Data charting show in Table 2:

Table 2. Data Charting

Title/Authors/ Year Country Objective	Type of research	Data Collection	Participant/ Sampel Size	Result
Knowledge and Practice on Birth Preparedness, Complication Readiness among Pregnant Women Visiting Debreberhan Town Governmental Health Institutions, North-East Ethiopia [10] Ethiopia /Developing Countries To assess the mother's level of knowledge and readiness to face childbirth and complications during pregnancy	<i>Studi Cross-sectional</i>	The sampling method used random sampling.	Hypertensive pregnant women, the total sample was 340 pregnant women.	Based on research results, the status of maternal preparedness in dealing with complications is considered low, knowledge about danger signs during pregnancy is still lacking. Maternal education is a strong predictor of birth preparation and complications. Illiterate mothers are five times less likely to prepare for birth and complications than women who can read.
To Explore the Application Effect and Value of Evidence-Based Nursing in Patients with Pregnancy-Induced Hypertension Syndrome [11] China/ Developing Countries to explore evidence-based nursing methods in preventing serious complications in patients with	<i>Quasi-experimental design</i>	Population selection was carried out randomly into control and intervention groups	the number of respondents was 80 pregnant women with hypertension	Based on research results, the application of evidence-based nursing interventions and evidence-based nursing interventions for pregnant women with hypertension has a significant effect and can be effective. improve the blood pressure control effect of patients during pregnancy.
Pregnant women's experiences with the management of	<i>Qualitative study</i>	Data collection was carried	The informants were 27	Based on the results of the analysis, three themes were found,

Title/Authors/ Year Country Objective	Type of research	Data Collection	Participant/ Sampel Size	Result
<p>hypertensive disorders of pregnancy: a qualitative study Error! Bookmark not defined. [12]</p> <p>Australia/ Developing Countries</p> <p>To explore the experiences of pregnant women with hypertensive disorders in pregnancy</p>		<p>out by in-depth and face-to-face interviews,</p>	<p>pregnant women who were diagnosed with hypertension. The interview lasted approximately 16- 54 minutes.</p>	<p>namely, attitudes towards monitoring hypertension in pregnancy, attitudes and perceptions towards the development and management of complications, and perceptions of pregnant women with chronic hypertension. Many women do not feel that they are well informed about management decisions and. have a desire for more information and to be involved in decision making.</p>
<p>The Impact of Self-Care Counseling on Quality of Life in Pregnant Women with Gestational Hypertension Error! Bookmark not defined. [1]</p> <p>Iran/ Developing Countries</p> <p>to investigate the effect of self-care counseling on the quality of life of pregnant women with hypertension</p>	<p><i>Quasi-Experimental Study</i></p>	<p>This research is a pretest and posttest control group clinical trial with a population</p>	<p>90 pregnant women with hypertension</p>	<p>Berdasarkan hasil analisis tidak ada perbedaan yang signifikan antara kelompok kontrol dan intervensi, ($47/33 \pm 5/65$ vs $49/77 \pm 5/55$). Serta ada pengaruh konseling perawatan diri terhadap peningkatan kualitas hidup pada wanita hamil dengan gangguan hipertensi, disarankan untuk menyesuaikan dan menerapkan intervensi konseling tersebut untuk meningkatkan kualitas hidup pada populasi rentan ini selama kehamilan</p>
<p>Knowledge and Treatment Adherence towards Pregnancy Induced Hypertension among Pregnant Women in Ismailia City: An Intervention Study [9]</p> <p>Egypt/Developed Countries</p> <p>to assess and increase the level of awareness and compliance regarding pregnancy-induced hypertension in pregnant women</p>	<p><i>Quasi-Experimental Study</i></p>	<p>This research was a clinical trial with two groups, pretest and posttest with a population</p>	<p>The sample was 80 hypertensive pregnant women who underwent treatment for at least one month</p>	<p>The results of the study showed the effectiveness of the educational intervention program in promoting knowledge and adherence to hypertension treatment in pregnancy with 35%, 30% and 35% high, medium and low adherence to PIH medication, respectively. The level of PIH health-related behavior compliance before health education is; 18.8% high, 36.2% medium and 45%</p>

Title/Authors/ Year Country Objective	Type of research	Data Collection	Participant/ Sampel Size	Result
<p>Knowledge of hypertensive disorders in pregnancy of Moroccan women in Morocco and in the Netherlands: a qualitative interview study [7]</p> <p>Error! Bookmark not defined.</p> <p>Morocco / Developing Countries</p> <p>The aim of this study was to investigate the knowledge status of pregnant women about HDP in terms of symptoms, complications, treatment and management</p>	<i>Qualitative Study</i>	<p>Data collection was carried out by in-depth and face-to-face interviews, using a voice recorder and interview guide</p>	<p>The number of informants was 19 pregnant women</p>	<p>low compliance, increasing significantly after education; 57.5% high, 38.7% medium and 3.5% low compliance.</p> <p>Based on the research results, it was found that half of pregnant women had never heard of hypertension in pregnancy and had no knowledge about the symptoms or danger signs related to HDP. All women acknowledged the importance of knowledge about HDP because of the possibility of dangerous complications.</p>
<p>Knowledge of danger signs during pregnancy and subsequent healthcare seeking actions among women in Urban Tanzania: a cross-sectional study [13]</p> <p>Tanzania/Developing Countries</p> <p>To determine mothers' knowledge about obstetric danger signs during pregnancy and the efforts made by pregnant women</p>	<i>This research uses a cross-sectional quantitative method.</i>	<p>Data was collected through questionnaires. Descriptive and inferential statistics were used to analyze the data.</p>	<p>The number of respondents in this study involved 384 pregnant women</p>	<p>Based on the findings, pregnant women took action to seek appropriate health care after recognizing danger signs during pregnancy. However, most have low knowledge about the danger signs of pregnancy. The most widely known danger signs of pregnancy are hypertension (81%), swelling of the fingers, face and feet (46%); and severe headaches (44%).</p>
<p>WOMEN's Knowledge Of Obstetric Danger Signs In Ethiopia (WOMEN's KODE):A Systematic Review And Meta-Analysis [14]</p> <p>Ethiopia/Developing Countries</p> <p>To synthesize the existing literature on women's knowledge of obstetric</p>	<i>Systematic review and meta-analysis</i>	<p>Data were collected via Embase, Web of Science, Scopus, Google Scholar databases, and Maternity and Infant</p>	<p>The number of articles screened was 12 articles</p>	<p>Of the 215 articles initially screened based on abstract and title, 12 studies met inclusion criteria. Women's knowledge of obstetric danger signs in Ethiopia is very low, which can hinder access to obstetric care when</p>

Title/Authors/ Year Country Objective	Type of research	Data Collection	Participant/ Sampel Size	Result
danger signs.		Care.		
Lifestyle Counselling and Blood Pressure Control among Hypertensive in a Primary Care Clinic; A Quasi-Experimental Study [15]	<i>Quasi-Experimental Study</i>	Relevant data were collected using an interviewer - administere d semi-structured questionnaire. The 5A brief intervention to address health risk behavior tool was used as a counseling guide for the intervention group only	322 adult patients (161 in the intervention group and 161 in the control group) with hypertension who had been on treatment for at least 3 months.	women experience obstetric complications. Counseling services during antenatal care and dissemination of community-based health information about obstetric danger signs need to be improved. The difference in BP control between the intervention and control groups was statistically significant ($p < 0.001$) as more than two-thirds of the intervention group 135(83.9%) had good BP control, compared with 68(42.2%) of the control group . . Lifestyle counseling leads to good BP control. Clinicians would do well to counsel hypertensive patients on nutrition and lifestyle behavior with a view to improving control their blood pressure. compared with 68 (42.2%) of the control group.

3 Result

In the process of searching for articles for scoping reviews, we used three different databases. As a result, we found 500 articles relevant to our research questions. Of these, 302 articles were from Goegle Scholar, 17 from Taylor, 41 from Science Direct, and 140 from EbscoHost. Then, we imported all the articles into Mendeley. After identifying and removing 104 duplicate articles, we were left with 476 articles. Next, we filtered by full-text studies assessed for eligibility. We accessed the remaining 32 articles to examine the full manuscripts and screen them according to inclusion criteria. In the end, only 9 articles met all the criteria we had set. We chose to use the PRISMA flowchart because it can improve the quality of publication reporting and is in accordance with recommendations. Critical Appraisal results from 9 articles that have been selected and assessed for article quality using critical appraisal from The Joanna Briggs Institute (JBI). Critical Appraisal Score Results show in Table 3.

Table 3. Critical Appraisal Score Results

No.	Author, years	Score Results	Critical Appraisal
A1	(Asefa and Adisu, 2022)		24/24
A2	(Han et al., 2022)		26/27
A3	(Helou et al., 2021)		29/30
A4	(Ahmadinejad et al., 2022)		27/27
A5	(El-Toukhy et al., 2023)		26/27
A6	(Ouasmani et al., 2018)		30/30
A7	(Mwilike et al., 2018)		24/24
A8	(Geleto et al., 2018).		33/33
A9	(Olukokun et al., 2019)		27/27

As a result of the review, there were 9 articles that had been selected and were of good quality. Then they were classified based on the characteristics of the articles, namely the first, characteristics based on characteristics based on country and research methods.

3.1 Article Characteristics

Country. Fig. 1 explains that 22 percent come from developed countries and 78 percent come from developing countries. Of the 9 articles, research was conducted in developed countries, namely 1 Australia, 1 Egypt and developing countries, 2 Ethiopia, 1 China, 1 Iran, 1 Morocco, 1 Tanzania, 1 Nigeria.

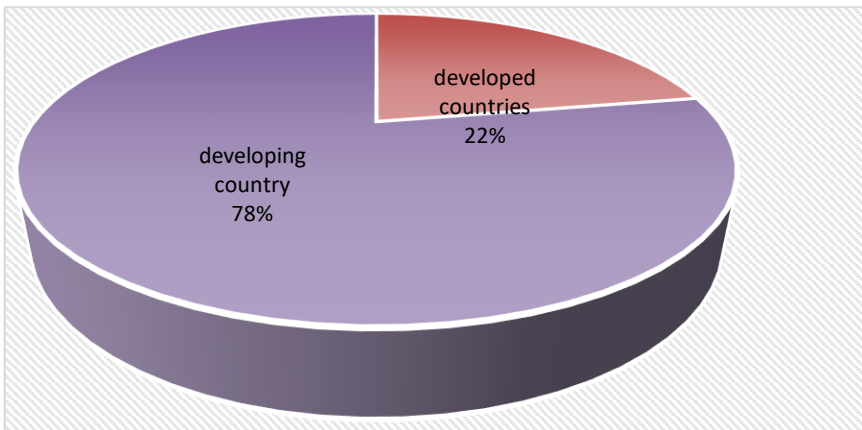


Fig. 1. Characteristics by Country

Method. Fig. 2 explain articles that have been selected and according to the quality, the results obtained are that 9 articles used 2 quantitative cross-sectional methods as much 22%, 2 qualitative as much 22%, 4 quasi-experimental as much 45% and 1 systematic review as much 11%.

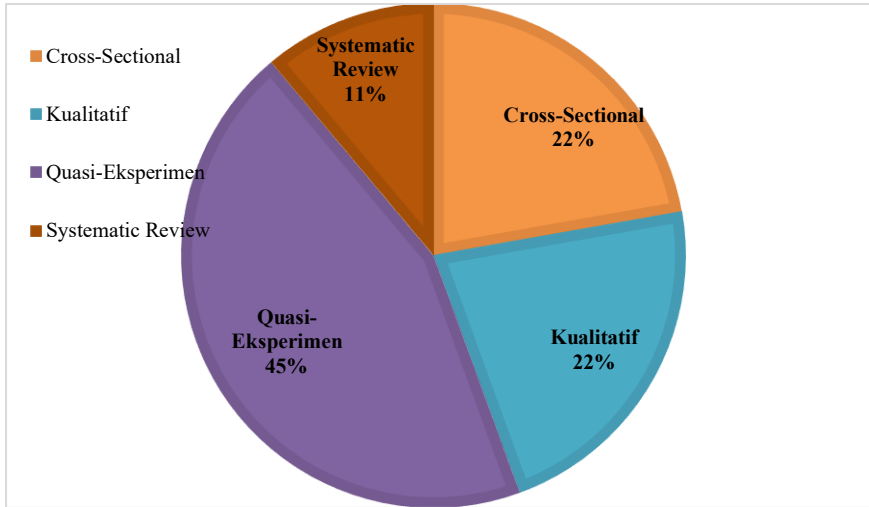


Fig. 2. Characteristics Based on Method

Thematic Mapping. In this mapping step the author groups the interesting study findings reviewed in the article show in Table 4.

Table 4. Theme Mapping

No	Theme	Sub Theme	Article
1	Hypertension in Pregnancy	Definition, Classification of hypertension in pregnancy, Pathophysiology of hypertension in pregnancy, factors associated with the presence of hypertension	1,2,4,5,6,7,8,9
2	Readiness in Preventing Hypertension Complications in Pregnancy Definition	Readiness to face complications, readiness indicators	1,4,9
3	Counseling	Definition, Effect of Counseling on the level of knowledge and readiness of pregnant women with hypertension, care education counseling, quality of life counseling, blood pressure monitoring	1,4,6,9

4	Maternal knowledge about hypertension in pregnancy	Definition of knowledge, factors influencing knowledge	3,5,6,7,8
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4 Discussion

Based on the previous studies, there are articles that show the classification of hypertension, pathophysiology and factors related to the incidence of hypertension. Preeclampsia in chronic hypertension (preeclampsia superimposed upon chronic hypertension) is chronic hypertension accompanied by signs of preeclampsia or chronic hypertension accompanied by proteinuria is a classification of hypertension. The incidence of chronic hypertension in pregnancy accompanied by pre-eclampsia is 25%. Meanwhile, without chronic hypertension, the incidence of pre-eclampsia is only 5% [16]. Hypertension accompanied by preeclampsia usually appears between weeks 24-26 of pregnancy, resulting in premature birth and babies that are smaller than normal [17]. The pathophysiology underlying this transition to, or superposition of, preeclampsia is not well understood. However, it is likely related to the mechanism of impaired placental perfusion that causes systemic vascular endothelial dysfunction. This arises due to less effective cytotrophoblast invasion of the uterine spiral arteries. Based on articles (1, 4, 6 & 9) the mother's level of knowledge is influenced by educational status and employment status. Education can influence a person's behavior in relation to lifestyle, especially motivational attitudes. The higher the level of education, the easier it is to understand information [18]. Hypertension complications in pregnant women can be prevented with education and counseling by informing them about the disease provided by health service providers, community education about childbirth preparation and its complications, and women's empowerment through expanding educational opportunities are recommended to improve childbirth preparedness [19]

5 Conclusion

As a result of 9 articles, researchers found gaps in that research on the influence of counseling programs on the level of knowledge of pregnant women with hypertension and the mother's readiness to face hypertension complications was mostly conducted in developing countries. The articles used are quality indexed by Scopus. The results of the researcher's review found 4 theme findings, namely (1) hypertension in pregnancy (classification of hypertension, treatment of hypertension and pathophysiology of hypertension), (2) complications of hypertension in pregnancy (readiness to face complications), (3) counseling (quality of life, health care education and blood pressure monitoring), (4) maternal knowledge about hypertension in pregnancy. There are 4 classifications of hypertension in pregnancy, namely gestational hypertension, chronic hypertension, preeclampsia-eclampsia, and chronic hypertension with preeclampsia. There are several drugs commonly used in the treatment of hyperten-

sion such as labetalol methyl dopa, nifedipine, clonidine, diuretics, and hydralazine. It was found that the pathophysiology of hypertension in pregnancy is caused by impaired placental perfusion. Complications of hypertension in pregnancy can lead to systemic organ failure, which has a major impact on the perinatal survival of mother and child. Therefore, pregnant women need to prepare mentally and physically to prevent complications of hypertension in pregnancy. Therefore, it is important to counsel about the risks of pregnancy during ANC visits and increase knowledge about danger signs during pregnancy.

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