Roles of nurses in preventing postpartum cardiovascular disease complication of Pre-eclampsia.

A literature Review.

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Abstract

Preeclampsia is one of the major classes of Pregnancy-related Hypertension that affect 2-8% of pregnancies worldwide, contributing significantly to maternal and perinatal morbidity according to WHO because of problem with the placenta. Risk of cardiovascular diseases such as coronary artery disease is elevated especially in pregnant women with history of PE, eclampsia, and even stroke compared to a normotensive pregnancy. The aim was to explore literature on nurses' roles in preventing postpartum cardiovascular disease following PE, reduce the risks, and provide information on best management and monitoring practices.

Information was collected using three databases: CINAHL, PUBMED, and Google Scholar. 9 articles generated six themes identified for nurses in the management of CVD in pregnant women. Those themes are screening, counseling, maternal factor, maternal breastfeeding, motivation, and organizing communal initiatives. In conclusion, it was found that nurses play an essential role in preventing cardiovascular complications from preeclampsia and revealed gaps in postpartum care when planning and monitoring are insufficient. Interpersonal challenges—such as culturally based discrimination—can hinder care but may be reduced with stronger social support. In addition, stressed the need to educate mothers on breastfeeding, postpartum screening, exercise, and other health-promoting behaviours, using motivational strategies to support adherence. It also emphasized that timely pharmacological interventions could reduce risk, but safe and effective use requires proper training and continuous monitoring.

Keywords/tags (subjects)

Nurses' management, nursing care, promotion, prevention, management, postpartum mothers, expectant mothers, preeclampsia, cardiovascular disease, hypertensive disorder of pregnancy.

Miscellaneous (Confidential information)

No

Contents

1 Introduction

Hypertensive disorders of pregnancy (HDP), in which pre-eclampsia is one of the class categories, affect 5–10% of all pregnancies globally (Luger & Kight, 2022). According to a study by Say et al. (2014), Most maternal morbidity and mortality worldwide is caused by HDP.
In response to these growing concerns, the WHO (2025) developed guidelines to improve health during pregnancy. The guidelines intend to help prevent, treat pre-eclampsia, and closely monitor by reviewing evidence of treatment and how the care improves with time. The goal centers around provision of vital supplements during pregnancy, providing some kind of encourage and motivational tools, provision of requisite training for health-care providers circling detection and management, and finally strengthen the health system to ensure timely and effective care for pregnant women, thereby addressing inequities in maternal and perinatal health in the world and achieve SDG 7 goal that intends to afford good health and well-being.

According to the National Health Scheme (2024), the exact cause of pre-eclampsia is not fully known, but it is thought to occur due to problems with the placenta. First-time and multiple pregnancies, an increase in Body Mass Index resulting in obesity, some pre-existing conditions such as hypertension, diabetes, kidney disease, and a family history of pre-eclampsia (WHO, 2025). Unfortunately, despite the availability of antenatal care, a significant number of pregnant women are unaware of the signs and symptoms of preeclampsia, and the lack of awareness often results in late intervention, which increases the risk of maternal and fetal complications with a very low chance of recovery. Since nurses are found throughout the world, their job is to influence patients' attitudes toward pre-eclampsia while also providing them with proper education about the dangers. According to Gupte & Wagh (2014), nurses have a crucial role in preventing problems, helping with early detection, and managing conditions appropriately. Regarding the nurses' performance in nursing care for pre-eclampsia, the study also revealed that after the program, most nurses provided satisfactory nursing care for women with pre-eclampsia. The rationale of this literature review is to determine the role of nurses in promoting awareness about preeclampsia and to sustain the flagship call of the World Health Organization to achieve the 2030 goal of the maternal and perinatal health strategy for conditions like PE.

2 Pre-eclampsia

It is estimated that pre-eclampsia affects 2-8% of pregnancies in the world, and this accounts for around 46000 maternal deaths and around 500,000 fetal or newborn deaths. Asia and Africa alone contributed to 10% of the figure yearly, while 25% in Latin America, and records have shown that Magnesium sulfate reduces the risk of eclampsia, but its use is still limited in many low-resource settings. According to research, Pre-eclampsia and eclampsia contribute significantly to maternal and perinatal morbidity and mortality (WHO, 2025). Pregnancy-related hypertensive diseases, including PE, are classified as a systemic condition marked by the emergence of hypertension and proteinuria after 20 weeks of gestation. Placental perfusion is the hallmark of the condition, which can impact several organs at once (Gupte & Wagh, 2014b). According to Kassab et al. (2023), PE was listed by the APA and ASA as a risk factor for CVD along with other risk factors like smoking, obesity, dyslipidemia, and hypertension. As a result, it was advised that women with a history of PE receive treatment in addition to the other CVD risk factors listed above. However, due to PE's propensity to raise blood pressure sensitivity, endothelial dysfunction, insulin insensitivity, and lipid profile that contribute to CVD development, the research noted that these women later in their early life could develop myocardial infarction, stroke, hypertension and even type -2 diabetes, henceforth denotes the importance of screening for cardiovascular risk factors and educating young women until effective therapies are found.

The importance of the literature review is to draw attention to the growing increase of pregnancy complications in pregnancy and to drive home the point, globally, PE contributes to about 5-10% of pregnancy complications. However, in Africa and Asia alone, it has accounted for 9% of maternal death, and with the rising cases of reports among foreign mothers in Finland and Asia, the statistics have just underlined the importance of educating mothers and the public about the complications of PE (Gupte & Wagh, 2014b).

2.1 Causes

According to the National Health Scheme (2024), the exact cause of pre-eclampsia is not fully known, but it is thought to occur due to problems with the placenta. First-time and multiple pregnancies, an increase in Body Mass Index resulting in obesity, some pre-existing conditions such as hypertension, diabetes, kidney disease, and family history of pre-eclampsia (WHO, 2025). Evidence

has shown that PE during pregnancy happens in two stages, with a faulty placenta causing an inflammatory reaction in the mother. Many of these interactions happen for unknown causes. Cells called cytotrophoblasts (CTBs) develop on the blastocyst's outer layer to supply nutrition to the developing embryo. These cells go from the chorionic villi into the uterine walls after proper placental implantation, where they profoundly invade the spiral arteries. The spiral arteries undergo significant remodelling as a result, giving them the physiological characteristics needed to perfuse the placenta properly. PE is characterised by irregular and often shallow CTB invasion of the interstitial uterine compartment, which results in an inadequate remodelling of the spiral arteries. Maternal arteries become narrow because of this insufficient spiral arteriolar remodelling, making them vulnerable to fibrin deposits and arthrosis. There are also noticeably fewer endovascular CTBs than during a typical pregnancy- some arteries have not changed, while others have parts of their endothelial lining with comparatively intact muscular coats. Placental ischaemia may develop from impaired placental blood flow compared with normal pregnancies. Doppler studies demonstrated that pregnant women with PE have a significant disruption of diastolic flow in the umbilical cord (Fant et al., 2023).

Risk Factors for PE

Several preexisting and pregnancy-related risk factors have been linked to PE. The risk factors are categorised into maternal characteristics, pregnancy factors, and preexisting medical conditions.

Maternal characteristics: Illicit drug use (especially cocaine/amphetamines, low maternal birth weight**,** African American ethnicity**,** Family history of PE (in mother or sister), and Age: <25 or >35 years.

Pre-existing medical conditions: Chronic hypertension before pregnancy, autoimmune disease: antiphospholipid antibody syndrome, rheumatoid arthritis, lupus, and scleroderma; history of migraine headache, and multiple sclerosis. Overweight or obesity: BMI≥30kg/m^2, kidney disease before pregnancy, polycystic ovarian syndrome, and diabetes: type 1, type 2, and gestational.

Pregnancy factors: First pregnancy or first pregnancy with current partner, PE with previous pregnancy, Multiple gestation, fetal triploidy, assisted reproductive technology: in vitro fertilization, egg donation, or donor insemination, Increased pregnancy triglycerides.

Others: SARS-CoV-2 infection (Conley, 2024).

2.2 Signs and symptoms of pre-eclampsia

Early signs and symptoms of PE can occur during the second half of pregnancy or, as has been the case, in the postpartum period. The warning signs include severe headache, right quadrant epigastric pain, visual changes such as loss of visual field or seeing spots, difficulty in breathing, headaches, nausea, and, most times, swelling can be seen around the face or hands. These are indicative of PE, and the nurse's role is to educate postpartum mothers about these subtle signs and to seek urgent blood pressure measurement as soon as possible (Anderson & Schmella, 2017).

2.2.1 Major Symptoms of Preeclampsia

Hypertension: Here, blood pressure could rise, reaching a hypertensive range (≥140/90mmHg), and could develop rapidly before week 34 of gestation or postpartum.

Epigastric, upper abdominal, or restrosternal pain: Often, this symptom results in nausea and vomiting, and is a symptom of severe end-stage disease when present.

Neurologic:

Headache: Often present as throbbing or pounding.

Visual symptoms: Caused by impairment of cerebrovascular autoregulation and cerebral edema.

Mental status*:* Confusion and altered behavior patterns could arise and often manifest as agitation.

Stroke: This is the most severe complication of PE, and often preceded by severe headache, fluctuation in blood pressure readings.

Generalized hyperreflexia: This is usually present in most cases in the form of sustained ankle clonus.

Seizure: Occurs because of a combination of hypertension and endothelial activation, causing posterior reversible encephalopathy Syndrome (PRES).

Pulmonary edema: symptoms present as shortness of breath, cough, wheezing, anxiety, chest pain, palpitation, or unusually heavy perspiration.

Oliguria: Urine output is less than 500ml within 24 hours.

Generalized edema: Characterized by rapid weight gain, for example, 5lb in a week, which is about 2.3kg per week.

Abruptio placentae: Caused by ischemia-reperfusion injury of the uteroplacental vessels in the female body (August & Sibai, 2022).

2.2.2 Diagnostic criteria for Pre-eclampsia

Blood pressure*:* Systolic greater than or equal to 140mmHg or diastolic greater than or equal to 90mmHg on two occasions separated by 4 hours after 20 weeks of gestation.
Proteinuria*:* Amount greater than or equal to 300mg/24-hour urine collection *or* protein/creatine ratio greater than or equal to 0.3. OR
In the absence of proteinuria, new-onset hypertension with the new onset of any of the following:
Thrombocytopenia*:* Platelet counts of less than 100,000/microliter
Renal sufficiency: Serum creatinine concentration greater than 1.1mg/dL
Impaired liver function*:* Elevated blood concentration of liver transaminases to twice the normal concentration (Anderson & Schmella, 2017).

2.3 Prevalence of PE and CVD risk in Finland

In the Finnish context, according to Venetkoski et al. (2022), cardiovascular diseases (CVD) remain women's leading cause of death nationwide, despite awareness and novel treatment possibilities. It is greater in women because most research was conducted within the men's group. Ischaemic heart disease was one of the leading CVDs in Finland, although the trend has significantly decreased. PE, in Finland, affects, on average, 3.8% of pregnancies in Europe; 4.6% to 13.9% were attributed to Finland, while 34% of all female deaths were caused by CVD in 2019.

2.3.1 Prevalence of PE and CVD risk among Migrant women in Finland

Research clearly illustrates a lack of data focus on the development of CVD in women of different races, ethnicities, and socioeconomic status; and hence proposed that future research should focus on women within these groups because they are the most vulnerable (Smith et al. 2019).

To identify factors that are directly responsible for the elevated risk of cardiovascular disease caused by PE, of which 3-5% of pregnancies are affected in developed countries, for example, Finland, including increased risk of chronic hypertension, ischemic heart disease, and cerebrovascular

diseases, all documented in previous studies to be linked with women with a history of PE. Genome-wide association studies (GWAS) helped to ascertain certain alleles for high blood pressure, kidney function, and body mass index, which have been associated with PE, and with the addition of polygenic risk scores (PRSs)- a weighted sum of risk alleles helped to describe an individual's overall genetic risk to a trait or diseases. The hypothesis postulated that women with a history of Hypertensive disorder of pregnancy (HDP), including women with PE and PE with severe symptoms, with high PRS for PE, high systolic blood pressure, coronary artery disease, or stroke, will most likely have an increased risk for CVD compared with women with a normotensive pregnancy and similar genetic risk. After an experiment with participants of Finnish ancestry called FInnGen, it revealed that for normotensive pregnancies, there was a minor elevation in the CVD risk when measured with PRSs compared to the other group, where the elevated risk seemed to last for at least until 80 years of age, further highlighting the importance of screening in women affected by PE or any HDP (Kivioja et al., 2025).

Furthermore, in a research study, among the Finnish population in recent studies to understand the prevalence of hypertensive disorders of pregnancy among women, 8% were of migrant origin compared to 4.6% in the Finnish origin reference group. In conclusion, this study highlighted that women of migrant origin had a higher risk of PE than Finnish women, magnifying the importance of these studies, as they will help draw special attention (Bastola et al., 2021).

2.4 Postpartum complications of pre-eclampsia

PE needs intensive care during the antepartum, intrapartum, and as well as in postpartum phases because failure to monitor can lead to multiorgan system failure. Research conducted in the Gynecology and Obstetrics clinic in Kosovo showed that most complications could lead to liver damage, detachment of placenta, known as abruption, pulmonary edema, Disseminated Intravascular Coagulation (DIC) for mild cases, and in severe cases, could cause renal impairment.

Postpartum complications of PE can be classified as follows:

Central nervous system: Eclampsia (seizure), cerebral hemorrhage (stroke), cerebral oedema, cortical blindness, retinal blindness.

Renal system: Renal cortical necrosis, renal tubular necrosis.

***Respiratory system*:** Pulmonary edema, laryngeal oedema

***Liver*:** Jaundice, HELLP syndrome (hemolysis, elevated liver enzymes, and lowered platelets), hepatic rupture.

Coagulation system: Disseminated intravascular coagulation, microangiopathic hemolysis.

others: Placental infarction and placental abruption (Minire et al., 2013).

2.4.1 Cardiovascular disease

Cardiovascular disease (CVD) is defined as a class of diseases involving the heart and blood vessels throughout the body, and it is the leading cause of death among women. The rate of CVD is increasing in women aged 35-44 years, where they exhibit a higher rate of heart disease, hypertension, diabetes, and obesity. The underlying contributors to CVD events- cardiovascular deaths, non-fatal myocardial infarction, ischemic stroke, and even acute coronary syndrome hospitalizations are often present for years before manifestation of clinical symptoms, which is sadly detrimental. Research has shown that women are usually misdiagnosed, and their symptoms are more pronounced than in men. To potentially prevent CVD, early diagnosis, lifestyle modification, and therapeutic interventions are the most important strategies to adopt (Smith et al., 2019).
Among all the cardiovascular complications of PE, about 6% result from Cardiopulmonary complications, 12% result from HELLP syndrome, and heart failure and secondary maternal mortality/morbidity were associated with PE. Moreover, data curated between 1999 -2003 demonstrated that women with PE later in life developed a higher risk of major adverse cardiovascular events (MACEs) such as myocardial infarction and stroke, and the risk remained significant for more than 3 years postpartum. These statistics may highlight the significance of cardiovascular monitoring and management in both complicated and uncomplicated PE in the postpartum period (Melchiorre et al., 2014).

The American Heart Association (AHA) and the European Society of Cardiology (ESC) recognized PE as a risk factor of cardiovascular disease later in life. As a result of this novel finding, the AHA proposed that yearly follow-up of blood glucose, lipid profile, and blood pressure will be a part of its risk assessment plan. Currently, the only definite method of management is through therapeutic methods like blood pressure control, counselling, and management of complications. Although it was previously believed that prevention of cardiovascular disease from PE could be cured after delivery, the long-term morbidity affecting various components of the cardiovascular system was the

reason the intervention was declared invalid, and hence AHA and ESC have advised lifelong cardiovascular surveillance (Chourdakis et al., 2021).

According to Smith et al. (2019), research reported that it is a well-established fact that women who have had adverse obstetric outcomes, for example, PE, gestational diabetes, and gestational hypertension, are at increased risk of developing CVD, for which PE is the most studied of these pregnancy outcomes in the postpartum period. A database with prospective cohort studies comparing women with one or more of these obstetric outcomes with a control group of healthy pregnant women has demonstrated differences in cardiovascular risk factors- increased blood pressure, lipids, BMI, insulin resistance, residual microalbuminuria, and meeting criteria for metabolic syndrome at various time points in the postpartum period. Metabolic syndrome is a group of cardiovascular risk factors that raise the chances of developing heart disease and type II diabetes. Women are diagnosed with metabolic syndrome if they meet at least three of the following criteria: high blood pressure, abdominal obesity, high triglycerides, low HDL cholesterol, or high fasting blood sugar, according to the International Diabetes Federation or American Heart Association. Among women who had PE during pregnancy, 18.2% had metabolic syndrome within the first year after giving birth, and 21.9% had it at three years. In contrast, the rate in women without PE stayed around 6.7% from year one to year three. Most women who had metabolic syndrome at year one still had it at year three, and those without it at year one usually remained free of the condition. Women with a history of PE also showed higher blood pressure, cholesterol, triglycerides, BMI, insulin resistance, and microalbuminuria one year after delivery compared to women with uncomplicated pregnancies. Because waiting does not seem to identify more women with risk factors, screening should be done within the first year after childbirth.

2.5 Barriers to postpartum cardiovascular disease prevention

In response to these growing concerns, WHO (2025) developed guidelines to improve health during pregnancy. The guidelines intend to help prevent, treat pre-eclampsia, and closely monitor by reviewing evidence of treatment and how the care improves with time. These limiting barriers could include a lack of staff, heavy workload, inadequate training, poor medication handling, or even a poorly structured health system. Addressing inequalities in maternal and perinatal health in the world could help actualize the SDG 7 goal, which aims to achieve good health and well-being.

As we strive to manage and monitor the health status of postpartum mothers, it is important to discuss what are the barriers to reaching the target and the shortfall of long-term risk prevention. Although CVD screening and preventive care in the early postpartum is recommended for women with prior hypertensive disorders of pregnancy, certain barriers limit the delivery of services. Quansah et al. (2025) conducted comprehensive research to determine these barriers, where out of 18,565 studies screened, 29 studies were adopted in the research. He classified the barrier into 3 main categories- Individual level barrier, interpersonal barrier, and organisational barrier. Lack of knowledge and awareness about CVD risks, health and emotional barriers, personal financial constraints, and confusion about the need for screening tests were identified as the four main individual-level barriers to accessing postpartum CVD prevention services. It was mentioned that competing priorities-childcare duties, and caregiving, lack of time. Also, lack of support from family, friends, lack of partner involvement in clinic attendance, mistrust of healthcare providers, cause of feeling of shame or stigma associated with screening, as well as social isolation among women from low low-earning bracket were a few of the interpersonal barriers mentioned. In addition, communication gaps, absence or limited education to patients, timing of postpartum follow-up due to a mismatch to patient readiness, disconnect between the care team, as well as delays and cancellations were organizational barriers mentioned. Lack of private insurance, gaps in its coverage, cost of postpartum screening were the frequently mentioned system-related factors preventing women from having access to postpartum services (Quansah et al., 2025).

2.5.1 Importance of nurses' intervention for cardiovascular disease prevention

Ding et al. (2016) opined that although most nurses know cardiovascular disease risk factors, in the same study, fewer than half knew the target goals for cardiovascular disease risk factors. This implies that there is a gap between knowledge and the practice of these cardiovascular prevention strategies; therefore, nurses must have knowledge about the practice involved in the prevention of these high-risk pregnancy complications.

Ding et al (2016) noted that a nurse's competence can be beneficial in influencing the public most especially pregnant women to be proactive in terms of screening and monitoring of PE, with the knowledge and expertise nurses and use of information as power, they can cultivate the habit of taking bold steps and being inquisitive towards health matters to prevent complications associated with PE. Unfortunately, despite the availability of antenatal care, a significant number of

pregnant women are unaware of the signs and symptoms of PE, and the lack of awareness often results in late intervention, which increases the risk of maternal and fetal complications with a very low chance of recovery. It has been found that Preeclampsia is not well known among pregnant women in developing countries (Okhae & Arulogun, 2017; Savage & Hoho, 2016). The role of the nurses is to educate and guide about the complications, and as we have nurses all around the globe, the task is to influence and adequately educate to simultaneously change the attitude of patients towards pre-eclampsia.

To highlight the role nurses' play in the health sector, Gupte & Wagh (2014) noted that nurses have an important role in the prevention of complications, assistance in early detection, and appropriate management of the disorders. Regarding the nurses' performance in nursing care for PE, the study also revealed that after the program, most nurses provided satisfactory nursing care for women with PE. To prevent cardiovascular dysfunctions following preeclampsia, early intervention plans should be deployed after PE diagnosis to alter long-term cardiovascular and cerebrovascular disease proliferation for mothers in the future (Thilaganathan & Kalafat, 2019).

3 Aims & Purpose

This research aims to gather information from available evidence-based literature about the role of nurses in promoting PE awareness. The purpose is to raise awareness about postpartum cardiovascular disease following PE, reduce the risks, and provide information on best management and monitoring practices.

Research question: What is the role of nurses in preventing postpartum cardiovascular disease following PE?

4 Research methodology

4.1 Literature review

The purpose of this evaluation of the literature is to ascertain the role of nurses in raising awareness of PE and to support the World Health Organization's flagship call to accomplish the 2030

goal of the maternal and perinatal health plan for conditions such as PE. A literature review is a crucial instrument that integrates vast amounts of information to direct, characterize, and bolster understanding (Barry et al., 2022). To offer a thorough approach to managing cardiovascular illnesses and promoting health, this study uses a narrative literature review. Research findings with evidence that call for more research are examined in a literature review (Snyder, 2019).
Certain guidelines were followed in this study, including defining important terms and topics, knowing our target audience, taking notes, selecting the appropriate review type, using feedback while standing on finding a logical structure, and staying current (Pautasso, 2013). While writing the current literature review, a clear research topic was developed and, to put it mildly, employed resources from online databases like CINAHL and PubMed to make sure that only the most recent scientific papers were used.
Without straying from the thesis issue, which aimed to gather evidence-based research from earlier studies on nurses' involvement in promoting health by managing cardiovascular diseases following PE, a logical review was prepared and examined in this research study. We also took validity and reliability into consideration. Lastly, we mentioned that there are still certain areas in which the research has limitations. As a result, more research should be done to improve the quality of information in future studies.

4.2 Literature search

Literature searches are vital for nurses in healthcare because the evidence-based practice they provide is crucial in bridging research and workshops that help to effect patient outcomes positively, to provide clear guidelines for clinical work, draft effective health policy, and give room to growth for professionals through using the current and reliable sources from vast resources and adopting studies that help to provide a holistic care (Butler, 2025). The relevant articles and journals were collated by painstakingly adopting the right literature search and the selection process

The literature search for this study was conducted solely based on the research question raised and the processes that identified the search terms, and the established inclusion and exclusion criteria for this research. In addition, to eliminate research bias, the study focused on answering the research question by following the search protocol and criteria for article inclusion and exclusion.

Furthermore, all duplicate entries were eliminated in the initial stage, and then relevant articles were selected based on their titles and abstracts. The database search was initiated after the researcher had scrutinized and evaluated each selected article and applied adequate inclusion criteria, which serve to reduce the occurrence of bias and errors that could affect the search process. To concur with this selection process, Cook and West (2012) opined that proper analysis should be done across multiple databases, taking into consideration the right way to select using available electronic tools.

Search parameters

To guarantee the accuracy of the techniques used and the findings derived from them, the researchers set the standard search strategy and parameters for this investigation. Table 1 below describes the PICOS criteria used in this study, the main search terms used by the researcher in Table 2, the set inclusion criteria in Table 3, and the Prisma Flow Chart in Figure 2.

PICOS

Three (3) important databases, including Google Scholar, PMC (PubMed Central), and CINAHL (Cumulative Index of Nursing and Allied Health Literature), provided the journal articles used in this study. PMC (PubMed Central) was the primary source for most of the publications.
It made full-text versions of the articles available, in contrast to those that were either unavailable or costly to access in their entirety via the CINAHL and Google Scholar databases. Each database was used by the researcher using criteria that were labelled and detailed in Table 1.
According to the PICOS (Population, Intervention, Comparison, Outcomes, and Study) criteria table, the study's research question is, " What is the role of nurses in managing postpartum cardiovascular disease following PE and have made a positive influence on nurses' attitudes, work methods, and management?” has been deconstructed to meet the specific elements of the PICOS. All nurses, nursing practitioners, and nursing staff, regardless of age, gender, nationality, or level of work experience, are included in the population under review. The specific nursing actions or management plans meant to prevent the proliferation of cardiovascular disease following preeclampsia in migrant mothers in Finnish healthcare settings are included in the intervention for this study. The alternative to the selected interventions has not been stated for this investigation. The major decrease in cardiovascular dysfunction cases among migrant mothers is the main emphasis of the

outcome.

Finally, the criteria used to choose the articles for this study included those that were published from 2015 to 2025. Additionally, all JAMK students must have free full-text access to these papers are regarded as original research in the English language, have an accessible abstract, and have undergone peer review.

Table 1. Inclusion Criteria

Inclusion Criteria
Original articles published in English language
Full-text and peer-reviewed articles
Articles that answer the research question
Articles published between the year 2015 to 2025
Articles accessed free for students at Jyväskylä University of Applied Sciences (JAMK)
Articles on preeclampsia and postpartum cardiovascular diseases reported in hospitals

Table 2. PICOS Criterion

P	Population: Pregnant women, expectant mothers, postpartum mothers
I	Intervention: Nursing measure or healthcare intervention intended to prevent or manage cardiovascular disease among postpartum mothers.
Co	Context: Healthcare settings/community settings
S	Studies: Articles published from 2015-2025, published in English, peer-reviewed, abstract available, free text for JAMK students.

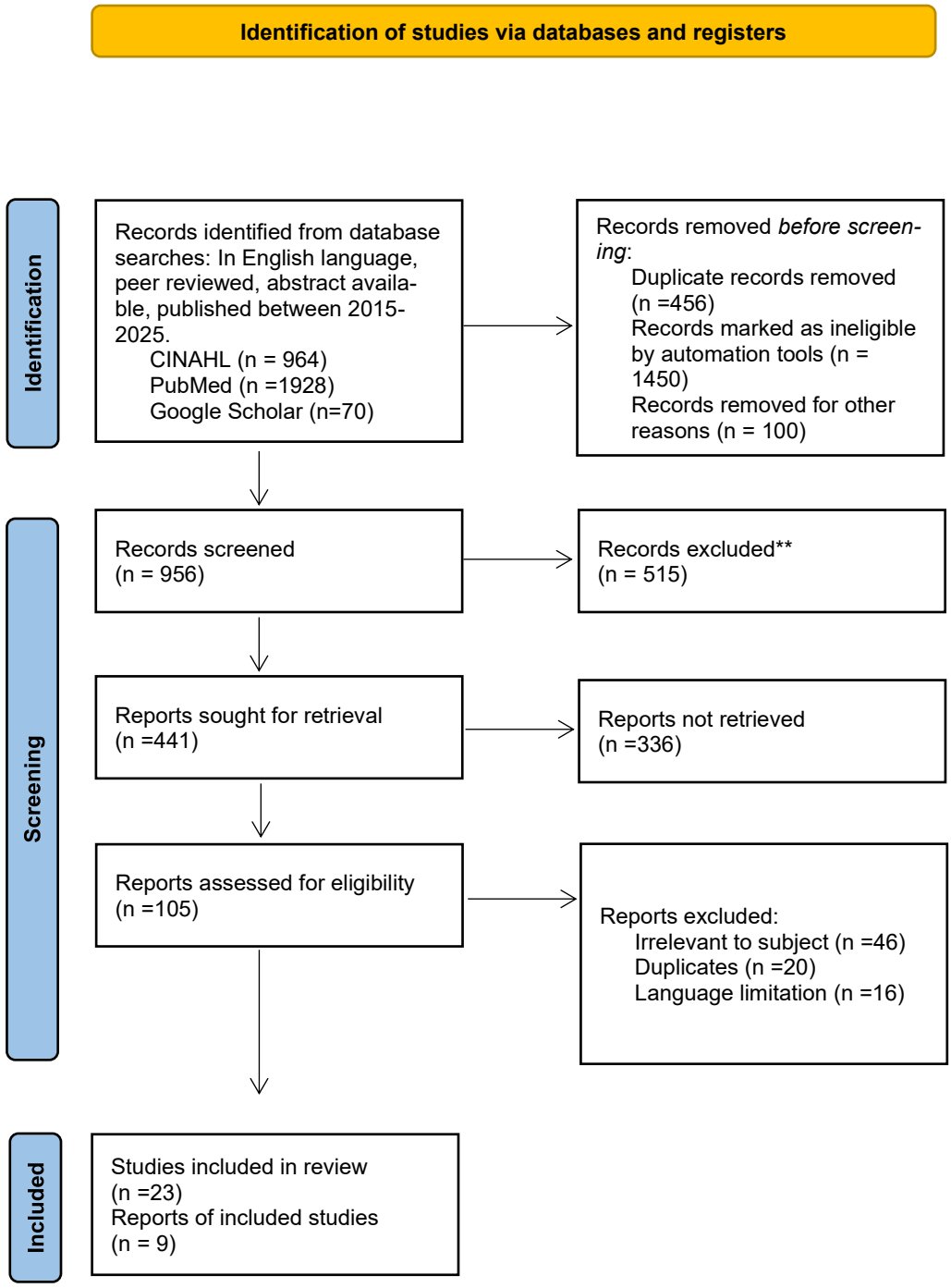
Table 3. Key search words

Search terms/Keywords
nurses' management OR nurses' role OR Nursing practice OR Nursing diagnosis OR Nursing care OR promotion or prevention or management OR Nurs*
Pregnant women OR post-partum mothers, OR Expectant mothers
pre-eclampsia OR cardiovascular disease OR hypertensive disorder OR pregnancy-induced hypertension OR hypertension
English, peer reviewed

In the literature review, three databases were used: CINAHL, PMC (PubMed), and Google Scholar to obtain relevant information for the thesis question. The selection of articles was strictly based on relevance to the keywords listed in Table 2. A total of 2962 articles were collected, but after careful cross-examination, duplicate removal, and selection of those with correct titles and abstracts, 105 articles were marked up for comprehensive analysis. 2857 articles were discarded after they appeared to be irrelevant or did not match the keywords, or had a different study from the one in focus.

The remaining 105 articles underwent two assessment steps to further limit the number: the selection phase of articles for eligibility by reviewing articles that have full text available. This produced 23 articles as well. Finally, but just as importantly, 9 publications were chosen for analysis based on the inclusion criteria since they satisfied every requirement, as shown in Table 2.

Figure 2. Article Selection Process (PRISMA Chart) (Page et al., 2021)



Data Analysis

One method for obtaining evidence from various sources is content analysis, which may be applied to both deductive and inductive research (Elo and Kyngäs, 2008). The validity of the data utilized at each level of the analysis is supported by content analysis (Lindgren et al., 2020). The data was further compressed for a thorough study, and the sum was characterized by locating, classifying, and arranging textual materials into extremely well-organized and brief descriptions of the main findings (Glasberg et al., 2015). Thematic analysis, a form of data analysis, is a research method that is used to identify patterns or themes in a dataset, leading to better insight and understanding (Elliott, 2018). To avoid letting own idea and view cloud judgment, it is vital during the process. (Patton, 2015).

This initial phase of qualitative research is the most important, according to Naeem and Ozuem (2021). Selecting the appropriate phrase or term to replace a keyword in qualitative research is a crucial step that requires careful consideration. Researchers frequently use a variety of techniques to choose the most appropriate phrases or terminology to effectively represent the viewpoints and interpretations of the participants. Keywords are crucial for producing codes in qualitative research that appropriately capture the underlying meaning of the data. As recommended by Naeem and Ozuem (2022a), researchers may record participants' most frequently used terms during data collection. Keywords are terms or phrases that highlight key concepts or ideas in the data, and they are necessary for an analysis to be rigorous, methodical, and based on the facts. The creation of codes that are accurate to the data is ensured by using keywords to denote the concepts and ideas included in the data (Naeem et al., 2023).

The thematic analysis technique's guiding principles, which include data coding, topic identification, theme refinement, and reporting of results, apply to different qualitative techniques, including examination of conversation (Flick, 2022). One technique for analyzing qualitative data is thematic analysis. It entails finding and reporting patterns in a data set, which are then analyzed for their underlying meaning, and these patterns can be discovered by comprehending the significance of participant terms (Liebenberg et al., 2020; Xu & Zammit, 2020).

During the data collection phase, the researcher meticulously scanned through all available data, using specific terms relevant to the study. This process is conducted in this manner to ensure all relevant papers are included, while looking to address the research questions as evidenced in Appendix 3 for the table of articles reviewed.

Table 4. The three-step Analysis Process

Category	Subcategories	Themes identified from the articles
Pharmacological intervention	Use of Antihypertensive therapy	Maternal factor
	Use of antihypertensive therapy	Counseling
	Use of magnesium sulfate	Screening
Monitoring practice	Postpartum screening	Screening
Patient education	Breast feeding	Maternal breastfeeding
	Adherence to healthy lifestyle behaviour	Counseling
	Exercise and a healthy dietary pattern	Maternal factor
	Motivation	Motivating through educating
Interpersonal factor	Social support	Organizing communal initiatives to improve HBPs

*The raw data include some verbatim texts directly lifted from the selected journal articles

5 Results and Findings

After the analysis, four themes were identified. These include pharmacological interventions, monitoring practice, patient education, and interpersonal factors. The table below shows a tabular representation of the four main themes, comprising categories and their respective subcategories.

Table 4: Categories and their respective subcategories

Pharmacological intervention	• Use of Antihypertensive therapy • Use of magnesium sulfate
Monitoring practice	• Postpartum screening • Breastfeeding
Patient education	• Adherence to healthy lifestyle behavior • Exercise and a healthy dietary pattern • Motivation
Interpersonal factor	• Social support

5.1 Pharmacological Intervention

Use of Antihypertensive Therapy

Melchiorre et al. (2014b) & Sharma et al. (2024) reported that the daily prevention of cardiovascular disease in uncomplicated preeclampsia, the treatment goal and first choice of medication vary depending on the international guidelines used in the treatment plan, and because of the known safety and historical reasons of the drug use, as recommended to prevent the transition from mild to moderate hypertension to severe hypertension. For example, lowering the systolic pressure to 140 from 150mmHg and the diastolic pressure to 90 from 100mmHg, some proposed medications used in different countries were labetalol, methyldopa, nifedipine or isradipine, and others termed beta-adrenoceptor blockers. Furthermore, in the cardiovascular management of complicated preeclampsia, treatment is by the collaborative effort of the multidisciplinary team, for example, obstetricians, neonatologists, nephrologists, cardiologists, haematologists, including nurses to deliver the foetus and to stabilize the mother's vital signs and overall wellbeing to prevent the development of pulmonary edema, which accounts for 3% of cases for women in the postpartum stage (Melchiorre et al., 2014b).

Use of magnesium sulfate

According to Fehr & Frelier (2024), preeclampsia most times, is usually resolved after childbirth, leading to recovery of maternal endothelial function to the initial stage, but most times, the return does not coincide with the return to normal value of blood pressure, and this problem is usually

managed in the postpartum period. For the same reason, mothers are left with no choice but to be closely monitored in the hospital for a few days before discharge. Research has shown that low-dose aspirin is used to prevent the recurrence of preeclampsia after a diagnosis. And in a situation where the mother is cleared to go home, magnesium sulphate could be given within 24 hours for the swift reduction in blood pressure to determine if the patient requires outpatient medication after discharge. The study stated that a combination of magnesium, lisinopril, and metoprolol helped lower blood pressure and mildly improved breathing. After 3 days of use, the medications brought the vitals to optimal values (Fehr & Frelier, 2024).

5.2 Monitoring practice

Postpartum screening

Many cohorts organised have mentioned the importance of screening mothers identified with one or more pregnancy complications immediately after postpartum, because cardiovascular risk factors are already present within the first year. So, delaying intervention could lead to the progression of cardiovascular disease, as well as the fact that weight retention and postpartum weight gain are factors that can also increase the risk of future complications, and hence, follow-up delay could, in an actual sense, lead to loss of follow-up in the coming months after delivery (Smith et al., 2019b).

Many professional organisations have stipulated guidelines for screening mothers with cardiovascular risk and suggested frequent testing and lifestyle modifications. Some mentioned tests include blood pressure test, body mass index, and waist circumference – to promote a healthy lifestyle, discussion of nutrition that involves reduction of sodium food intake, and engaging in physical activity to maintain appropriate body weight (Smith et al., 2019b).

Breastfeeding

Nurses' role in educating women about the importance of breastfeeding can be found in a cohort organised in a maternal health centre for delivery between November 2011 and December 2017, where it was recorded that women who breastfed for more than 6 months have few physical and CVD risk markers. There was also a significant reduction in triglyceride, fasting serum glucose, ratio of cholesterol because these women were educated about the advantages of breastfeeding, suggesting that it is associated with improvement of short-term cardiometabolic health outcomes (Yu

et al., 2019). In contrast, the study suggested that inclusion of other supportive breastfeeding interventions is important, especially when tested in the perinatal period and in some specialized clinic that specializes in postpartum CVD risk reduction, such as the Maternal Health Clinic (MHC) (Yu et al., 2019).

5.3 Patient education

Adherence to Healthy Lifestyle Behaviours

Hussien et al. (2024) in their study reiterated the importance of eight educational sessions organized to explain CVD signs and symptoms, risk factors, and causes, including health behavioral lifestyle, which educated participants about the significance of adherence through mastery experience, vicarious experience, verbal persuasion, and using physiological feedback. Furthermore, the educational program explained the relationship between preeclampsia and the CVD risks in the future. The data recorded that the participant's knowledge improved significantly after the round of training, and hence amplified the necessity for nurses and health professionals to arrange educational programs that will help expand women's sense of self-efficacy and attitude towards adopting best practices that could reduce the possibility of developing cardiovascular diseases like heart failure in the future.

Exercise and a Healthy dietary pattern

According to Parikh et al. (2021), a healthy dietary pattern is an approach characterized by high fruit intake, vegetables, legumes, nuts, and fish, and low intake of red and processed meat. When these foods containing nutrients are eaten from 12 months before conception, the resulting fetal growth, development, and fetal weight have a positive outcome. Many women with an uncomplicated pregnancy who observed the Dietary Approaches to Stop Hypertension (DASH) were associated with low blood pressure and a lower occurrence of preterm delivery than others with other dietary plans. Although the use of DASH was neither criticised nor accepted. In relation to the subject, Adverse pregnancy outcomes (APOs) such as hypertensive disorder of pregnancy could increase the chance of developing CVD risk factors and subsequently other forms of CVD, for example, heart failure, fatal and non-fatal coronary heart disease. To alleviate the effect, it is recommended that women of reproductive age eat food supplements rich in folate and iron. With respect to exercise, the nurse's intervention will require a combination of a weight reduction plan

and physical activities, and diet to produce effective results geared towards the prevention of CVD. According to the American College of Obstetricians and Gynaecologists (ACOG), women with uncomplicated pregnancies can participate in moderate-intensity physical activity that lasts for at least 20 to 30 minutes/day during pregnancy and the postpartum period (Parikh et al., 2021).

Motivation

In recent times, preeclampsia and gestational diabetes diagnosed during pregnancy have been linked to the future development of CVD. Sandsæter et al. (2019) noted that knowledge of these ailments has helped in disease prevention, but research has shown that very few are aware of the link between them, and the information would have helped mothers better understand and deploy health promotion strategies to minimize the CVD risk factors. To explain the importance, women with live births between 2015 and 2017 with a recorded diagnosis of Pe in the hospital were eligible for the study. The study showed that women with pregnancy complications had difficulty adopting a healthy lifestyle routine because the healthcare professionals often trivialized their questions, and in most cases had no knowledge of their diagnosis, nor did they know how to organize their treatment goals, nor a routine for their health. And for these reasons, the mothers felt discouraged and pessimistic. The women with PE would have preferred a personalized treatment plan that could prepare them to adjust to a healthy lifestyle after delivery. Others preferred that their partner get involved in the journey because they felt it would motivate them in the long term to make changes for the sake of their offspring. To emphasize the value of motivation as a nursing tool, it can enhance patients' health literacy abilities by facilitating their access to, comprehension of, evaluation of, and utilization of health information relevant to their conditions (Sandsæter et al., 2019).

5.4 Interpersonal factor

Social support

Activities that enhance self-awareness and well-being and help people maintain and create healthy lives are known as health-promoting behaviors (HPBs). He also noted that activities called HPBs include eating a healthy diet, maintaining adequate body weight, exercising frequently, getting adequate sleep, quitting smoking, and reducing alcohol intake (Yusof et al., 2024). Age, education, work status, family income, health behaviours, and perceived social support are

some of the key variables influencing HPBs. The psychosocial factors that most affect single mothers in Malaysia are discrimination and excommunication. According to a study, sedentary lifestyles among single moms increase the risk of long-term problems, including cardiovascular disease (CVD). Women's lacklustre attitude to socializing with people was largely caused by poor training facilities, a lack of support from diverse peer groups or friends, and an inadequate safe atmosphere. Given that the nation has a strong feeling of spiritual, interpersonal, and communal belonging, all of which cannot coexist without the other, the results highlight the significance of including cultural and social variables in health-promoting activities (Yusof et al., 2024).

6 Discussion

Several preventive methods for the management of cardiovascular disease consequences of preeclampsia were determined during the analysis of different papers and studies, to design a useful and more successful plan for mothers in the postpartum period. First, the pharmacological use of antihypertensive drugs is mentioned as the first choice of action because of safety reasons, as this will help mothers manage when the nurse is looking to drastically lower the blood pressure (Sharma et al. 2024). Cardiovascular management frequently necessitates the combined assistance of the multidisciplinary team in healthcare settings because all hands must be on deck to provide comprehensive checks and monitoring of mother and fetus, stabilize blood pressure values, and maintain overall well-being. According to Traub et al. (2024) & Thilaganathan (2018), BP treatment aims to prevent the risk of impairment of fetal growth due to placental hypoperfusion and to lower the risk of maternal mortality and end-organ damage. Secondly, Frelier (2024) reported that the use of magnesium sulfate is often suggested to be given within 24 hours when PE is unresolved after pregnancy, contrary to most cases where PE is unresolved after pregnancy. In a time when the mother would require outpatient treatment after discharge, a plan should be put in place (Bradley & McGrath, 2024) advised that nurses must be on high alert, focus on the patient to ensure proper administration, to be proactive in the management of their potential toxicity. Furthermore, studies according to Yu et al. (2019) revealed that breastfeeding plays a component role in the prevention of CVDs among mothers after delivery, and the research has often shown that delay in breastfeeding could be the start of development of the disease, hence the reason to start as soon as possible. The nurse role involves, but is not limited to, providing vital information about the advantages of breastfeeding, counselling the mother during the first contact with the baby in the event of a caesarean birth, reiterating to the new mother the importance of feeding

the child with only breastmilk, and showing with a demonstration the appropriate way to feed the child breast milk (Prokop et al., 2021). Wong et al. (2021) underscored the importance of education and supportive intervention organised by nurses in improving the breastfeeding efficacy of mothers, and there was an improved attitude to infant feeding by mothers who participated in integrated education programs for mothers by Tseng et al (2020), whose data was used in the research.

In the same vein, other research has increased the awareness of the need to conduct screening in the postpartum phase. This screening is done to ascertain weight retention and postpartum weight of mothers because some studies have established the fact that a close relationship exists between weight and the possibility of CVD development after childbirth (Smith et al., 2019b). Adedinsewo et al. (2022) underscored that nurses can help screen women with pregnancy-related cardiovascular risk by collating patient files and history, conducting physical examinations, taking vital signs readings, and using appropriate tools for general assessment of postpartum mothers. In addition, Celi et al. (2019) opined that blood pressure monitoring at home with frequent nurse review recorded on sheets worked because the group of women who participated in the survey showed eagerness to monitor their blood pressure with little or no supervision at home when the distribution of monitors increased from 56.8% to 93% over the course of 5 years. In summary, among the mothers readmitted 42 days after delivery, 53% were diagnosed with hypertensive disorders, 47% did not show signs of hypertensive disorder during pregnancy, and these findings could further amplify the importance of screening in the postpartum period (Deshpande et al., 2025). Apart from the above-mentioned, nurses must organise education to simultaneously add to the effort done in screening and monitoring phases, such as teaching about the importance of adopting and adhering to healthy lifestyle behaviours that will further drive the efficacy of the intervention deployed by nurses in the prevention of CVD following PE. The education could come in several forms, such as verbal persuasion or through a feedback medium, especially for mothers who are found lacking in implementing a lifestyle change (Hussien et al., 2024). In relation to this, according to Tushe (2025), nurses play important roles in providing educational tools, activities, and practical support for patients, which assist in lowering the occurrence of these diseases and improving quality of life through giving accurate information that ensures patients adhere to the course of treatment while continuously adopting long-term healthy behaviors. Additionally, according to Parikh et al. (2021), exercise and engaging in a healthy dietary pattern, for example, women who used or adopted DASH were recorded to have a very low occurrence of pre-term delivery and as well as low blood pressure readings in comparison to their counterparts, although

use of DASH has not received any critical review, its use have neither been denied and studies have shown to be associated with improved outcome, because its ingredients contain supplements rich in folate and iron that could help in prevention of CVD. Ernstmeyer & Christman (2025) noted that when it comes to teaching patients about healthy eating and nutrition, nurses are crucial. Cardiovascular disease can be avoided, and health can be maintained with a nutritious diet. underscored that nurses play a role in educating and supporting young women about the challenges of stressful situations and the need to start primary prevention of CVD through dietary lifestyle change (Coppi et al., 2024).

Moreover, mothers after childbirth have inferred that motivation could be at an all-time low in this phase and hence struggle to maintain their health-related goals. Most of the reported causes range from a lack of support from a spouse, a lack of knowledge on how to handle an ailment, or even how to organise their treatment goals. These gaps could put pressure on them during the postpartum phase, which could lead them to feel a sense of hopelessness, and therefore, they reported the need to participate in the health-promoting journey with the assistance and encouragement of both their spouse and nurses, who, most of the time, lack the expertise and technical know-how Sandsæter et al., 2019). In other words, nurses can use a healthy literacy approach to solve health issues and enhance patient care (Wilandika et al., 2023). And finally, (Yusof et al., 2024) reported that in a community with strong cultural values, for example, in Asia, single mothers often suffer from social exclusion, discrimination, and even significant barriers to communal services. These factors from studies have been known to play a role in creating societal gaps in amenities and the ability to adopt health-promoting behaviours, for example, eating healthy meals, quitting smoking, and exercising. Engaging in these activities reduces and prevents chronic conditions like diabetes, obesity, cardiovascular disease (CVD), and cerebrovascular disease. (Kholoud, 2020). The nurses could educate mothers and, community about the risk of living a sedentary lifestyle, the benefits of eating right and exercising, and the dangers that ostracism poses to single mothers, and how engaging and organising social events that create a sense of involvement among them (Yusof et al., 2024).

This review illustrates the beneficial effects of health promotion programs for nurses. Future research should broaden the geographical scope of these programs across varied populations to enhance the applicability of the findings, and other preventive plans not mentioned in this study can be explored.

Health promotion should be designed for all populations, with respect for different backgrounds,

and should assess the long-term impact of these programs and their sustainability. In conclusion, future studies should address cultural and language barriers to ensure inclusivity in healthcare program delivery.

7 Ethical Considerations, validity, and reliability

The appraisal tool developed by Hawker et al. (2002) was employed to evaluate the reliability and quality of the articles included in this literature review (Appendix 3). The tool evaluates the following aspects of an article: abstract and title, introduction and aims, method and data, sampling, data analysis, ethics and bias, results, transferability or generalizability, and implications and usefulness on a scale of 1 to 4 (1 being the lowest grade and 4 the highest) for a total score of 36. For this study, the minimum score for an article to be included is 28, and due to selection criteria and other variables, a limited number of articles were used in this study (nine articles). Meanwhile, other articles that have offered interesting information were included later in the discussion chapter to cement the results.

All articles or studies used acknowledged the ethical consideration of their research and referenced approval obtained from multiple ethical committees. All information displayed in this review was adequately cited and referenced with their corresponding sources while giving full credit to the authors using the American Psychological Association (APA, 7th edition).

The author asserts that the reliability and validity of the research are demonstrated thoroughly by following the procedures for documentation, which allows room for replication and verification. This research was limited to the use of articles in the English language available to JAMK students for free or with free public access. The research was done to include articles from different regions in the world (Several European countries, America, and Asia). For this reason, the author believes the review might be limited but thinks that if the perspectives of other regions are included or replicated, it might be beneficial.

8 Conclusion

This study emphasized the critical role of nurses in preventing cardiovascular complications associated with preeclampsia, while identifying gaps in postpartum care when adequate planning and monitoring are lacking. Some challenges stem from interpersonal factors, including culturally

based discrimination, which could be mitigated through improved social support. The findings also underscore the importance of educating mothers about breastfeeding and postpartum screening, exercise, health-promoting behaviours, healthy lifestyle patterns, and using motivational approaches to promote adherence. For nurses, timely pharmacological intervention can offer rapid protection against emerging risks; however, effective and safe implementation requires appropriate training and ongoing monitoring to prevent toxicity.

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Appendices

Appendix 1. CINAHL SEARCH

(MH "Pre-Eclampsia" OR MH "Cardiovascular Diseases" OR MH "Hypertension" OR MH "Pregnancy-Induced Hypertension" OR preeclampsia or eclampsia or pregnancy induced or hypertensive disorder OR cardiovascular disease) AND (nurse or nurses or nursing OR MH "Nursing Role" OR MH "Nursing Management" OR MH "Nursing Practice" OR MH "Nursing Diagnosis" OR MH "Nursing Care" OR management or treatment or intervention or therapy OR promotion) AND (postpartum mothers or postpartum women or new mothers or new mums OR MH "Mothers" OR MH "Expectant Mothers")

PUBMED

"Pre-Eclampsia"[Mesh] OR "Cardiovascular Diseases"[Mesh] OR "Hypertension"[Mesh] OR cardiovascular diseases OR preeclampsia

"Nursing"[Mesh] AND" nursing" [Subheading] OR management OR intervention

"Mothers"[Mesh] OR expectant mothers OR postpartum mothers

Google scholar

Nurse management of cardiovascular disease complications of pre-eclampsia for mothers

Appendix 2. Critical Appraisal

Author	**Abstract and title**	**Introduction and aims**	**methods and data**	**Sampling**	**Data analysis**	**Ethics and bias**	**Results**	**Transferability or generalizability**	**Implications and usefulness**	**Total**
Melchiorre, K., Sharma, R., & Thilaga-nathan, B.	1	4	3	4	4	1	3	4	4	**28**
Sharma, D. D., Chan-dresh, N. R., Javed, A., Girgis, P., Zeeshan, M., Fatima, S. S., Arab, T. T., Gopidasan,	3	4	3	1	4	1	4	4	4	**28**

S., Daddala, V. C., Vaghasiya, K. V., Soo-fia, A., & Mylava-rapu, M.										
Fehr, S. L., & Frelier, S.	3	4	4	3	4	1	4	4	4	**31**
Smith, G. N., Louis, J. M., & Saade, G. R.	3	4	4	3	4	1	4	4	4	**31**

Yu, J., Pudwell, J., Dayan, N., & Smith, G. N.	4	4	4	4	4	4	4	4	4	**36**
Hussien, N. A., El-Fatah, H. a. M. A., Zhang, Z., Abdel-Aziz, H. R., Saleh, A. M., Dhakal, K., Mei, Y., & Khatap, A. M. F	4	4	4	4	4	4	4	4	3	**35**
Parikh, N. I., Gonzalez, J. M., Anderson, C. A.,	4	4	3	1	4	1	4	4	4	**29**

Judd, S. E., Rexrode, K. M., Hlatky, M. A., Gunderson, E. P., Stuart, J. J., & Vaidya, D.										
Sandsæter, H. L., Horn, J., Rich-Edwards, J. W., & Haugdahl, H. S.	4	4	4	3	4	4	4	4	4	**35**
Yusof, S. a. M., Ismail, T. a. T.,	4	4	4	4	4	4	4	4	4	**36**

Musa, K. I., & Kama-ruzzaman, H.										

Authors, (Year), Country	**Title of the study**	**Aims and Purpose**	**Research Methods or Instrument**	**Validity/reliability**	**Main results**	**Critical appraisal (Hawker et. al 2002)**
Melchiorre, K. et al. (2014), UK.	Cardiovascular Implications of Preeclampsia An Overview	To focus on the recent evidence of cardiovascular and cardiopulmonary complications associated with PE and its implications in management	Qualitative review	The American Heart Association recommends that a comprehensive history of pregnancy difficulties, including information on their severity, gestational age at onset, concurrent	The hypothesis that a preexisting tendency to increased cardiovascular risk, particularly hypertension, increases a woman's susceptibility to developing preeclampsia is supported by the	**28**

				foetal growth restriction, and the necessity of an iatrogenic preterm delivery due to the severity of the condition, should be obtained by doctors who encounter women for the first time.	fact that some maternal demographic and medical characteristics, including age, obesity, and hypertension, increase the likelihood of developing preeclampsia, with its clinical management of preeclampsia.	
Sharma et al. (2024), USA.	The Management of Preeclampsia: A Comprehensive Review of Current Practices and Future Directions	To outline the pathophysiology, current diagnosis and management guidelines, challenges in the current guidelines of pre-eclampsia, and future directions.	Qualitative review of available journals on the management of PE	All authors agreed to the final version to be published and agreed to be accountable for all aspects of the work.	The management of PE requires a committed research effort from a multidisciplinary team, highlighting the importance of pre-conceptual counseling in high-risk women, psychoeducational counseling of expectant mothers, and proper healthcare staff training	**28**
Fehr, S. L., & Frelier, S.	Clinical Analysis of Postpartum	Aims to raise awareness of the	A qualitative case study was carried out on a 35-year-	The authors reviewed and agreed to be accountable	The case study highlighted the symptoms	**31**

(2024), USA.	Preeclampsia After an Uncomplicated Pregnancy	variety and intensity of symptoms associated with postpartum preeclampsia and demonstrates a methodical approach to timely treatment.	old woman with preeclampsia.	to all subjects of the work	and presented a potential, uncommon postpartum onset of preeclampsia and its management.	
Smith, G. N., et al. (2019), Canada.	Pregnancy and the Postpartum Period as an Opportunity for Cardiovascular Risk Identification and Management	To determine the link between pregnancy complications and future CVD to afford the earliest opportunity for CVD risk assessment for health preservation and disease prevention.	A qualitative review of journals on women with pregnancy complicated by PE in the postpartum phase and women aged 50 years or older.	Each author had confirmed compliance with the journal's requirement for authorship with the support of the Canadian Institutes of Health Research Planning.	The review was to demonstrate the importance of screening women after delivery to identify underlying cardiovascular risk factors that make them susceptible to CVD.	**31**
Yu, J., et al. (2020), Canada.	Postpartum Breastfeeding and Cardiovascular Risk Assessment in	To investigate the short-term effects of breastfeeding on markers of CVD risk among women approximately 6	A cross-sectional analysis including 622 women seen at 6 months postpartum between 2011 and December 2017.	The study was approved by the Queen's University and Affiliated Teaching Hospitals Research Ethics Board, reviewed	The study found that increased breastfeeding rounds significantly lowered the probability of developing metabolic syndrome. In addition,	**36**

	Women Following Pregnancy Complications	months after childbirth, complicated by hypertension disorder, gestational diabetes, intrauterine growth restriction, abruption, or preterm birth.		for ethical standards, and participants provided informed written consent.	body mass index, fasting glucose also decreased, suggesting that breastfeeding is associated with low CV risks among the women who participated.	
Hussien, N. A. et al. (2024), China, Egypt & Saudi Arabia.	Effect of Comprehensive Educational Program on Preeclamptic Women's Risk Perception of Cardiovascular Disease, Self-Efficacy, and Adherence to Healthy Lifestyle Behaviors	To assess the impact of a thorough teaching program on preeclamptic women's self-efficacy, adherence to healthy lifestyle practices, risk perception of cardiovascular disease, and knowledge.	Quasi-experimental research. Pre- and post-testing. educational intervention.	The study was conducted in accordance with the Declaration of Helsinki's ethical standards. The Zhengzhou University in China (IRB 2021-134) and Suez Canal University in Egypt (No. 144/2022) ethical committees have authorized all human subjects in the research. Written informed consent was given by volunteers to take part in the study. Each participant	The comprehensive training program improved preeclamptic women's knowledge and risk perception of CV self-efficacy, and adherence to healthy behaviors, and lifestyle behaviours following preeclampsia.	**35**

				was free to stop taking part in the study at any time.		
Parikh, N. I., et al. (2021), UK.	Adverse Pregnancy Outcomes and Cardiovascular Disease Risk: Unique Opportunities for Cardiovascular Disease Prevention in Women.	To find out if a link exists between recognizing APOs and CVD risk factors and subsequently CVD.	A clinical review from the American Heart Association.	This clinical review was approved by the American Heart Association Science Advisory and Coordinating Committee on December 10, 2020, and the American Heart Association Executive Committee on January 28, 2021. The American Heart Association took every precaution to prevent any real or potential conflicts of interest arising from outside relationships or from the personal, professional, or commercial interests of	This statement summarizes the evidence that a woman's risk of developing cardiovascular disease (CVD) risk factors and subsequent CVD (including fatal and nonfatal coronary heart disease, stroke, peripheral vascular disease, and heart failure) is increased by adverse pregnancy outcomes (APOs) such as hypertensive disorders of pregnancy, preterm delivery, gestational diabetes, small-for-gestational-age delivery, placental abruption, and pregnancy loss.	**29**

				any member of the writing panel.		
Sandsæter, H. L., et al. (2019), Norway.	Preeclampsia, gestational diabetes, and later risk of cardiovascular disease	This study sought to investigate women's experiences with PE and/or GDM, as well as their motivation and need for knowledge and assistance to implement lifestyle changes.	A semi-structured interview guide was used for the focus group.	To help them make an informed decision about their involvement, participants were provided with written and oral information about the study. Before the interviews began, each of them completed a consent form. The Nord-Trøndelag Hospital Trust's Data Access Committee and the Central Norway Regional Committee for Medical and Health Research Ethics (REK No. 2017/1219) both authorized the study. Participants were told throughout the interviews	This study offers insight into pregnancy problems for women with GDM and/or PE in a Nordic healthcare paradigm. It displays their desired level of assistance as well as the key motivators for lifestyle change. Six themes were discovered. During pregnancy, patients may experience trivialization of the diagnosis, a need to process the shock before making lifestyle changes (e.g., severe PE), a desire for information about future disease risk and partner involvement, practical solutions for a busy life with a child, and reinforcement from	**35**

				that their pregnancy complications raised their chance of developing T2DM and CVD in the future. Two informants with severe PE agreed to follow-up visits with an obstetrician (JH) if necessary.	healthcare professionals.	
Yusof, S. A. M., et al. (2024), Malaysia.	Factors Influencing Health-Promoting Behavior Among Single Mothers in Northeastern Malaysia	This study aimed to determine the health-promoting Behaviours (HPB) scores and factors influencing HPB among single mothers in Kelantan (Northeastern, Malaysia).	A cross-sectional design with a proportional stratified sampling of 242 single mothers from Kelantan. Data entry was collected using Excel.	The Human Research Ethics Committee of Universiti Sains Malaysia (USM/ JEPeM/KK/ 23010110) approved this study, which was registered with the National Medical Research Register (NMRR-23-00487-DCY).	The results emphasize the significance of education, social support, and health beliefs in influencing HPB in single moms. Community health initiatives targeting this population should devise methods to bolster people's health convictions and foster a nurturing atmosphere.	**36**
