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Women's experiences of preeclampsia in pregnancy

A descriptive literature review

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Abstract

Background : Pre-eclampsia, was the early stage of eclampsia, could appear any time from the twentieth week of pregnancy to the first week after birth. It mattered because it remained a major cause of maternal and perinatal morbidity and mortality in the world. Whatever in physical or psychological, the experiences of pregnant women who had pre-eclampsia should be paid attention to.

Aim: The aim was to describe the experience of preeclampsia in pregnancy and the characteristics of the data collection methods in the included scientific articles.

Method: The review was conducted of 10 relevant articles to address the research question. All scientific articles were qualitative studies, which were searched from Medline and Cinahl.

Result: Following analysis, four themes were identified; 1. Psychological experience; 2. Physical aspect; 3.Experience about information; 4.Experience about support; The data collection methods of the selected articles were carefully described in appendix.

Conclusion: Negative emotions impacted these women's daily life and their families. Also, they had bad experience in the hospitals and met many problems and challenges in the life. The support of families and health-care providers appeared significance to deal with these problems and the self-management of patients was needed to focus as well.

Keywords: Experience, Preeclampsia, Pre-eclampsia, Pregnancy, Women

摘要

背景：子痫前期是妊娠期特有疾病,主要表现为妊娠 20 周后出现的高血压、蛋白尿和其他并发症相结合的疾病,是导致孕妇及围生儿患病及死亡的主要病因之一。从生理和心理的角度去关注子痫前期孕期妇女的经历是很有必要的。

目的：描述子痫前期孕期妇女的体验以及所收录的科学文献中数据收集方法的特点。

方法：对 10 篇相关文献进行分析，以解决研究问题。所用文献均为定性研究，从 MedLine 和 Cinahl 中检索。

结果：经过分析，确定了四个主题：1.心理；2.生理；3.信息；4.支持。所选文章的数据收集方法在附录中作了详细说明。

结论：消极情绪对妇女的日常生活和家庭有一定的影响。同时，他们在住院期间有不佳的体验，在生活中也遇到了许多问题和挑战。家庭和医疗服务提供者的支持对于解决这些问题具有重要意义，病人的自我管理也是需要关注的。

关键词：体验；子痫前期；孕期；妇女

Content

Appendix:

1. Introduction

1.1 Preeclampsia

Preeclampsia, also known as toxemia of pregnancy or pregnancy-induced hypertension, according to the British Medical Journal, it is a leading cause of premature delivery, maternal death, and perinatal child death (World Health Organization [WHO], 2016). This condition can appear any time from the twentieth week of pregnancy to the first week after birth. The blood pressure of pre-eclampsia patients is 140/90 or higher in general; but, even if the blood pressure of 140/90 is not reached, increased systolic pressure by 30 or diastolic pressure by 15, with proteinuria of 0.3g or more in a 24-hour urine sample is required adequately for the diagnosis of pre-eclampsia (International Council of Nurse [ICN], 2012; Young, Levine, & Karumanchi, 2010).

Headaches, abdominal pain, and visual disturbances may accompany this disease, which may caused by systemic inflammation, oxidative stress, and endothelial dysfunction. In fact, the exact cause of pre-eclampsia is not clear (Hermes, Van Kesteren & De Groot, 2012; International Council of Nurse [ICN], 2012). The pathophysiology of preeclampsia may be related to maternal and fetal factors, and specific pathogenesis is uncertain (Young *et al.*, 2010). However, certain risk factors are put forward to cause preeclampsia for women during the pregnancy, including age (≧40 years old), obesity, pregnancy interval (≧10 years), history of gestational hypertension, pre-existing vascular or renal disease, genes and so on (Powe , Levine, & Karumanchi, 2011; Roberts, & Cooper, 2001).

Preeclampsia may also lead to "Hemolysis Elevated Liverenzymes Low Platelets" (HELLP) syndrome, which is characterized by hemolytic anemia, elevated liver enzymes, and a low platelet count. HELLP syndrome always occurs in the last trimester, with the symptoms of nausea, vomiting, and abdominal pain. It causes different kinds of multiple organ failure (Haram, Svendsen, & Abildgaard, 2009).

1.2 Epidemiology

Preeclampsia is one of major obstetric problems affects 2%-8% of pregnancies and approximately 4.6% of all births, which leads to high maternal and perinatal mortality and morbidity in the worldwide (Steegers, Von Dadelszen, Duvekot, & Pijnenborg, 2010; Stevens *et al.,* 2013; Haram *et al.,* 2009). Either alone or superimposed on preexisting hypertension, it causes approximately 50,000 maternal deaths every year

(Williams & Craft, 2012). It is a specific disease of pregnancy, which may leads to intrauterine growth restriction, preterm birth and fetal death and has crucial impacts on both mother and child well-being, characterized by hypertension, proteinuria and sometimes progressing into a multisystem disorder (Steegers *et al.*, 2010; Lawrence, David, Montvilo, & Robin, 2017). Without effective and timely treatment, it will cause eclampsia and even threaten the life of pregnant women (Barden, 2006).

1.3 Nurses' role

Nurses have four basic responsibilities --- heath promotion, illness prevention, health restoration and the alleviation of suffering (Alligod & Tomey, 2014). Through exploring how women experience preeclampsia during pregnancy, medical workers can perceive more about the patients' feelings, perceptions and so on, which can promote nurses to care patients in a better way, especially in psychological nursing aspect (Tranquilli, Landi, Giannubil, & Sibai, 2012). It is also a necessary task for nurses to assess patient's psychological situation, find problems in time and give some support for avoiding unnecessary trouble. Also, nurses play an essential role in humanistic concern, which provides the patients with warm and relieve the tension of pregnant women (Tranquilli *et al.*, 2012).

1.4 Nursing Theory

Human being and health are included into the four meta-paradigms of nursing, together with nursing and environment (Alligod & Tomey, 2014). Kari Marie Martinsen, a nurse and philosopher, put forward the "Philosophy of caring", she thought that caring is the most natural and the most fundamental aspect of person's existence, and caring is practice and is also moral, caring requires nurses understand the situation about patients' condition correctly (Alligod & Tomey, 2014). Martinsen also thought that health is not only reflecting the condition of the organism, it's also an expression of the current level of competence in medicine (Alligod & Tomey, 2014). Besides, Martinsen came up with person-oriented professionalism, this concept means that nurses should use their professional knowledge and skills to provide care, relieve suffering, preventing illness for patients (Alligod & Tomey, 2014). Patient-centred care require nurses pay more attention on patients' encounters and respect patients' vulnerability and dignity, nurses should try their best to realize what patients' need and provide suitable care for patients (Alligod & Tomey, 2014). This theory about "Philosophy of caring" is suitable for caring women who have pre-

eclampsia. These women need care, need warmth and need to be respected (Alligod & Tomey, 2014; Tranquill *et al.*, 2012).

1.5 Problem Statement

Through looking up in the databases, the authors find the majority of articles focus more on nosogenesis and treatments of preeclampsia. Several previous reviews mentioned about the experiences of the pregnant women, but they are one-sided. The risk factors for women with pre-eclampsia have been explored in present researches. In this review, authors will make a synthesis of experience of those pregnant women with preeclampsia from original studies to understand patients' feelings and needs. The study might help nurses offer effective help to such patients, and nurses can also benefit from the finding to develop and expand their clinical expertise.

1.6 Aim and specific questions

The aim of the literature review was to describe how women experience preeclampsia during pregnancy, and to explore the data collection methods used in the scientific articles, with the help of the following questions:

Question 1: How and what do women describe about their experience of preeclampsia in pregnancy?

Question 2: What are the characteristics of the data collection methods in the included scientific articles?

2. Methods

2.1 Design

A descriptive literature review was conducted (Polit & Beck, 2012).

2.2 Databases

Articles had been searched for in the bibliographical databases MedLine and Cinahl, which are two of great databases for searching article in nursing research (Polit & Beck, 2012).

2.3 Search terms, search strategies and selection criteria

The search terms were "Pre-eclampsia", "preeclampsia", "Pregnancy toxemia" and "experience". These terms were firstly used separately and then combine with each other. The terms related to the aim were identified by using the databases' index of

search terms: MeSH (Medline) and Headings (Cinahl). The Boolean operator “AND” and “OR” were used to delimit a search (Polit & Beck, 2012).

Limitations were used in the searches so as to gain the articles that were more related to the aim. In Medline the following limits were used: “University of Gävle”, “10 years”, “full text” and “English”. In Cinahl the following limits were used: “Linked full text” “10 years” and “English”. In Manual search the following limits were used:“10 years” ,“ English” and “full text”. Articles were found by manual research in some relative reviews, which were regarded to authors’ aim questions. The final results of the manual search depended on the relevance for inclusion criteria, aim and specific questions.

Polit & Beck (2012) suggested that researchers could use inclusion criteria and exclusion criteria so as to select the articles that were more related to the aim.

Inclusion criteria: Empirical studies. Articles from women’s experience, articles using qualitative approaches, and the aim was related to the women’s experience with preeclampsia, because qualitative studies could reflect the person’s experience (Polit & Beck 2012).

Exclusion criteria: The articles were not related to this literature review’s aim and articles did not follow the principle that contained Introduction, Methods, Results and Discussion (IMRAD) (Polit & Beck, 2012). Articles that were only concerned with physicians’ perspective and nurses’ perspective, and articles were not available from the databases supplied by Gävle University and other review studies.

2.4 Outcome of database searches

The initial search generated 224 hits. The first selection read the titles and abstracts of the articles. The second selection was that the articles were related to the present study’s aim, inclusion criteria and exclusion criteria, some articles were excluded according to the exclusion criteria. Through manual search (read the reference of literature reviews), 3 articles were retained. The outcome of the database searches and the databases with limits, search terms, number of hits and chosen sources was showed in the Table 1, and Table 1 revealed more specific search strategy and preliminary search results. What’s more, Figure 1 showed the exclusion process of articles, which was based on the relevance of the present study’s aim and research questions. And the data collection method of the article was also important exclusion criteria.

Table 1: Outcome of database searches.

Database	Limits	Search terms	No of hits	Chosen sources(excluding doubles)
Medline through PubMed 2017-05-12	University of Gävle, 10 years, full text,English	(Pre-Eclampsia[MeSH]OR Pre-Elampsia*[tiab] OR preeclampsia[tiab] OR pregnancy toxemias[tiab]) AND experience[tiab]	162	6
Cinahl 2017-05-12	Linked full text,10 years, English	(Pre-Eclampsia[headings] OR preeclampsia[all text]) AND experience[all text]	62	1
Manual search (read the reference list in literature reviews) 2017-05-12	10 years, full text, English	Relevance for inclusion criteria,aim and specific questions	6	3
			230	Total:10

[tiab] = title and abstract

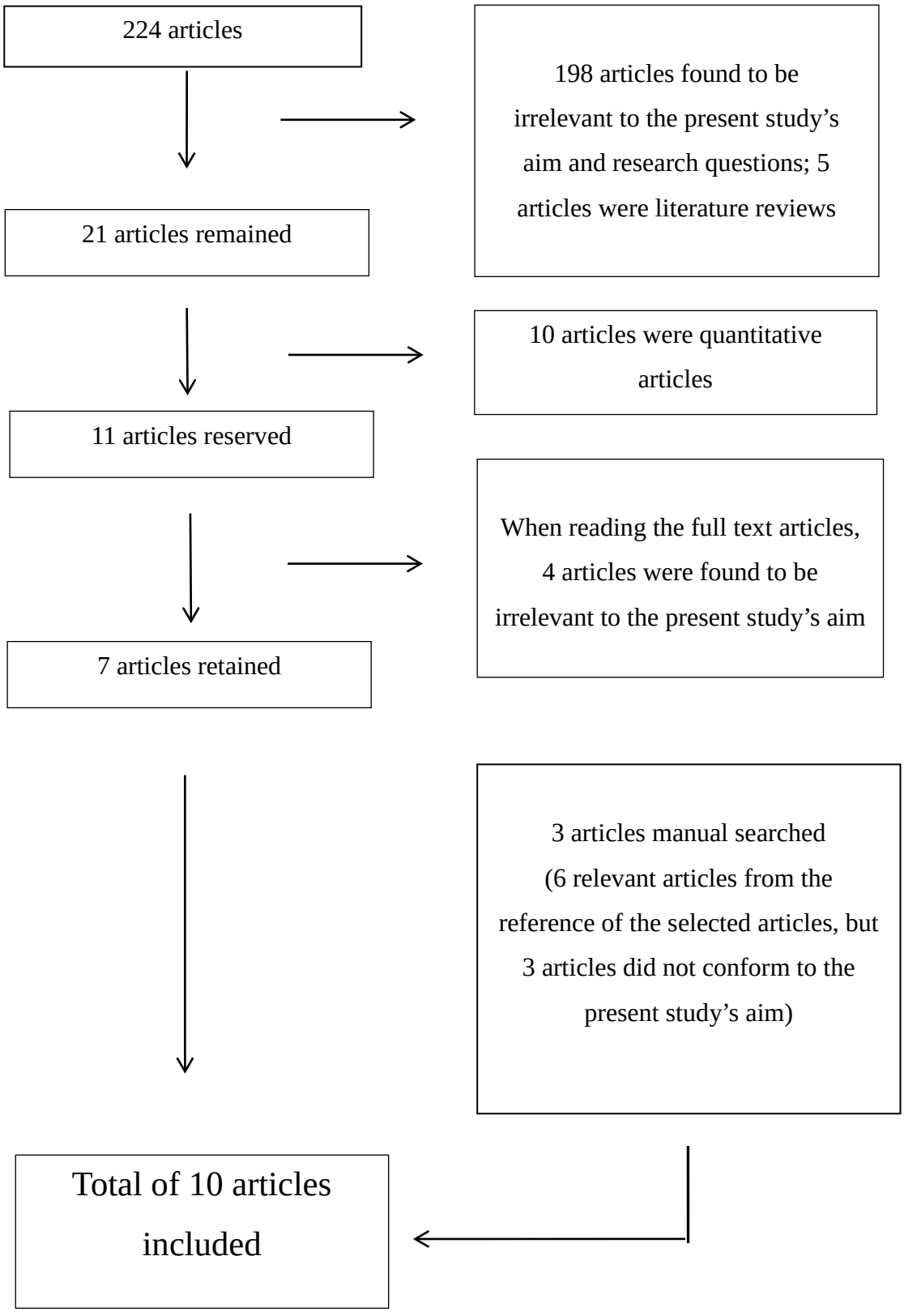

Figure 1: Exclusion process of articles.

2.5 Data analysis

The results sections of the selected articles were related to the question 1 and question 2. All articles were read separately and then discussed and summarized. In order to delineate the included articles, two tables were used. Appendix 1 (table 2) summarized author(s), title, design (possible approach), participants, data collection method(s) and data analysis method(s) of the articles included. Appendix 2 (table 3) presented the selected articles' author(s), aim and results. Appendix 3 (table 4) was classified and generalized from the results of which articles that the authors selected. The results answered the current study's specific questions and focused on methodological concerns. Using themes and patterns (tables) were great ways to analysis the material in the qualitative study (Polit & Beck, 2012). Several themes emerged after comparing similarities and differences within the contents of original articles.

2.6 Ethical consideration

The risk of ethical dilemma in this literature review was low, because current literature review was based on published materials that had already been checked and approved ethically. The original articles were processed faithfully and objectively, without adding authors' own opinions to the content. The outcomes restrictively followed the wish of the authors who wrote the articles. Iterative discussions were conducted during the whole analysis of the articles, which helped the authors to present results objectively. Cheating and plagiarism were not allowed during whole process of present study, and when the contents were cited in the review, sufficient referencing skills were used to list the reference. The description of "ethical consideration" was suggested by Polit & Beck (Polit & Beck, 2012).

3. Results

The results were based on the summary of 10 articles using qualitative approaches. All of the articles described women's experience of preeclampsia. Themes and subthemes are presented in Figure 2. Authors also showed the selected articles' data collection methods to address the methodological question, showing in table 2. The selected articles' aims and results were showed in the table 3. And in the table 4, as for the results of the chosen articles, the process of category, analysis and summary was presented.

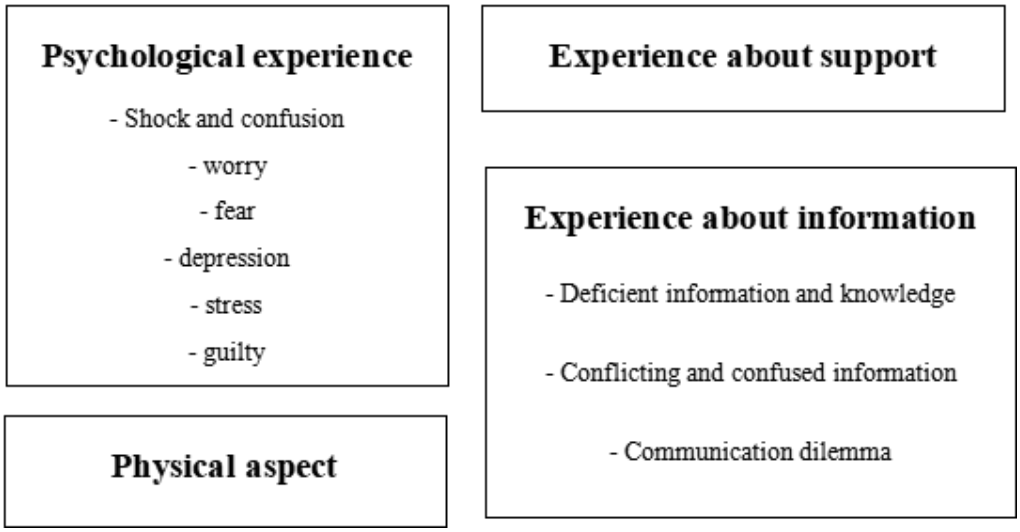

Figure 2: The themes and subthemes of the result.

3.1 Psychological experience

3.1.1 Shock and confusion

Women expressed they experienced a “hazy” phase when informed to be diagnosed as preeclampsia, they described feeling unprepared, unpredictable and needed time to understand and digest the significance and the seriousness of the diagnosis(Brown *et al.*, 2013; Roberts, Davis & Homer, 2017). Despite they felt uncomfortable and desired to be relieved, they were not ready to become mothers (Værland, Vevatne, & Brinchmann, 2017). They reacted by feeling surprised and confused, because it was difficult to know why it caused the blood pressure problem and how to comprehend the information received on their condition. Besides, they attempted to find explanations for their condition such as hereditary, physical or emotional factors (Fleury, Parpinelly, & Makuch., 2010; Lima de Souza *et al*., 2007; Roberts *et al.*, 2017; Værland *et al*., 2017). Instead, some women who had family histories of hypertension felt calm (Akeju *et al.*, 2016; Roberts *et al.*, 2017).

3.1.2 Worry

A part of the women were concerned about their condition that would impact the health of their baby or they would die (de Azevedo，de Araújo, & Clara Costa, 2011; Fleury *et al.*, 2010; Harris, Franck, Green, & Michie, 2014; Wotherspoon, Young,

McCance, & Holmes, 2017). The study by Harris *et al.* (2014) mentioned that every-time women took test like ultrasound and waited for the test results, they were worried. However, when they saw their babies, they still were excited. Women felt worried about the future pregnancies due to the potential relapse of preeclampsia (Brown *et al.*, 2013; de Azevedo *et al.*, 2011; Roberts *et al.*, 2017). Besides, women without family histories of preeclampsia reported feeling more worried and vulnerable to the future risk for this disease (Brown *et al.*, 2013). Yet some pregnant stated that they didn't worry about it because their mothers and grandmothers had experienced the preeclampsia (Roberts *et al.*, 2017). Women described that they relied on their spouses and family, and were worried about the stress that was put on their families as well. Some of these women used those words ("hard" or "extremely stressful") to describe the impact on their husbands (Kehler, Ashford, Cho, & Dekker, 2016).

3.1.3 Fear

The study showed that women felt fearful on account of early hospitalization and premature delivery (Lima de Souza *et al.*, 2007). A lot of women described that they were afraid of this disease, because they thought that not only themselves but also their babies were at risk and even die (Fleury *et al.*, 2010; Værland *et al.*, 2017). Several women were scared because they imagined that the babies were born with some diseases like malformation (Kehler *et al.*, 2016; Roberts *et al.*, 2017). Furthermore, some women were concerned with the risk of preeclampsia for their fetus, rather than their own health (de Azevedo *et al.*, 2011; Harris *et al.*, 2014; Kehler *et al.*, 2016; Roberts *et al.*, 2017). While some women were afraid of their unborn children killing them slowly (Kehler *et al.*, 2016). Women stated that they were near death when they stayed in the hospital because they didn't know what would happen. Some women were afraid of having similar complications in the next pregnancy, so they wouldn't like any more children (Fleury *et al.*, 2010; Harris *et al.*, 2014).

3.1.4 Depression

According to some women's perception, they had some depressive thoughts that relevant to marital conflicts (like husband bad behavior) or financial worries (Akeju *et al.*, 2016). All of the participants in the study stated that they had negative emotions and thoughts when suffering preeclamsia. Sadness, frustration or low-spiritedness was their usual emotions (Akeju *et al.*, 2016; Fleury *et al.*, 2010; Lima de Souza *et al.*,

2007; Værland *et al*., 2017). Women showed that they felt lack of control for their health condition, insecurity and apprehension (Akeju *et al.,* 2016; Fleury *et al.,* 2010; Lima de Souza *et al*., 2007). A few parts of women even chose suicide after experiencing a complicated pregnancy and delivery (Kehler *et al.,* 2016). The other study mentioned that women force themselves to control their bad emotions, just cry and get them out (Værland *et al*., 2017).

3.1.5 Stress

Women described they were under too much stress so that it was difficult to sleep for them (Akeju *et al.,* 2016). Some women showed that they could do be relaxing in order to reduce the stress levels (Brown *et al.,* 2013). Stress was doubted to be related to a number of factors during pregnancy like taking medications. One expressed that she was of two minds, although she knew all, she did not know what to do (Wotherspoon *et al.,* 2017). As the doctor said, the only treatment is delivery, but during the period she didn't what she was going to do (Wotherspoon *et al.,* 2017). Besides, women used those terms to describe their experiences, like "nervous wreck" and "major meltdown" (Kehler *et al.,* 2016).

3.1.6 Guilty

Some women said if they found this disease early, the situation would be better (Brown *et al.,* 2013). Women felt guilt and thought they were failure, owing to their unhealthy bodies, which would harm the baby (Fleury *et al.,* 2010; Kehler *et al*., 2016). Most women also expressed guilty, and questioned themselves what happened and why it occurred. A few women were disappointed with the loss of control over their bodies and the situations during pre-eclampsia (Roberts *et al.,* 2017). What's more, a lot of women felt guilty because of their unhealthy lifestyle, which affects their health condition. Women emphasized that they should take their personal responsibilities for health through changing their bad habits (Brown *et al.,* 2013; de Azevedo *et al.,* 2011).

3.2 Physical aspect

Concerning self-awareness of signs and symptoms of pre-eclampsia, the response from pregnant women with pre-eclampsia was mixed. Some women were able to list a number of symptoms, while others recalled a single symptom hazily (Wotherspoon *et al.,* 2017; Akeju et al., 2016). High blood pressure was most commonly deemed as a

sign, with only a few other symptoms such as headache, nausea and dizziness. One said blood pressure, protein in her urine and swelling, particularly in hands, legs and face sometimes (Wotherspoon *et al.,* 2017; Akeju et al., 2016).

Most women felt fatigued, and they use words like “tired” and “exhaustion” to describe their feelings. Women lost a lot of energy to do things. One woman narrated her experience of swelling and it made their life inconvenient and uncomfortable. Some of women felt sick and head-achy (Kehler et al., 2016; Værland et al., 2017). And some narrated that during hospitalization, they experienced such symptoms like pain from excessive oedema, severe stomach pain or headache (Værland et al., 2017).

3.3 Experience about information

3.3.1 Deficient information and knowledge

Women said they didn’t realize the knowledge about preeclampsia and didn’t know how to control it (Brown *et al.,* 2013; Harris *et al.,* 2014). Some women described that they were hard to be persuaded, because they had a feeling of receiving general a lack of information about their diagnosis, and information providers didn’t follow the principles evidence-based medicine (Kehler *et al*., 2016). Besides, all the women in the study reported that they didn’t gain enough information about pre-eclampsia during the appointments with the doctors and during hospitalization. They were eager to be explained more about this disease,such as why they get this disease and how to cure it (de Azevedo *et al.,* 2011; Fleury *et al.,* 2010). Some were told to do regular checks, but they did not know what the doctors were looking for or what the purpose of these checks (Wotherspoon *et al*., 2017). In addition, women with a family history of pre-eclampsia knew more knowledge about this disease, instead, women who didn’t have family history described that they lacked of knowledge and it was difficult to understand how to control blood pressure (Brown *et al.,* 2013).

3.3.2 Conflicting and confused information

Women reflected that they tried to seek information from different approaches as so as possible (Harris *et al.,* 2014; Wotherspoon *et al.,* 2017). Sources of this kind of information about preeclampsia also varied, and included health-care professionals, friends and the internet, but some of which were incorrect (Harris *et al.,* 2014; Wotherspoon *et al.,* 2017). One woman thought the information about preeclampsia from Internet as alarm-ism (Brown *et al.,* 2013). Furthermore, some women often received conflicting information or mixed messages, one woman stated one doctor

wanted her to go to hospital twice a week while another doctor didn't think it was necessary (Kehler *et al.*, 2016).

3.3.3 Communication dilemma

According to the majority of the women's description, doctors didn't ask for them thoughts, instead of making decisions directly, whatever the timing or the type of delivery (Fleury *et al*., 2010). One woman expressed that she desired to discuss with doctors and preferred involving in the decisions about her care and therapeutic regimen (Wotherspoon *et al.*, 2017). Disappointingly, the clinic was so busy that she didn't have sufficient time to ask more questions to discuss things further or acquire further information from her care team (Wotherspoon *et al.*, 2017). Besides, in the other study, it had also been mentioned that women had a feeling of not being respected (Fleury *et al.*, 2010). Doctors didn't inform women themselves of specific content when they made decisions or took measures (Fleury *et al.*, 2010). Women felt that they were not heard carefully by medical providers, and their questions were not answered and their concerns were not addressed. Women used phrases like " blown off ", " no consideration " , " brushed off ", and " write everything off " to express their emotions. One of the women mentioned that providers didn't care her confusion and even laughed at her (Kehler *et al.*, 2016). The study pointed that professions used technical language when communicating with women, so that those women distorted reality and misunderstood the situation (Lima de Souza *et al.*, 2007).

3.4 Experience about support

Women thought they were received a lot support from their family members and friends, especially their husband. Meanwhile, they admitted that the medical team play a significant role during their hospitalization, which made them safe and comfortable (Akeju *et al.*, 2016; Fleury *et al.*, 2010; Kehler *et al.*, 2016; Roberts *et al.*, 2017). On the contrary, the study mentioned that women needed partner's support because of their husband's bad behaviors, partner's bad behaviors would cause the marital conflicts and affect women's emotion, it was bad for women 's health condition (Akeju *et al.*, 2016). And some women came up with a need for social support, because medical providers didn't offer enough care and even ignored women's words and mood (Kehler *et al.*, 2016). In addition, a part of women showed that they relied on health professionals and ask help for changing their bad condition (Harris *et al.*, 2014). Women pointed that they needed emotional and financial support

from different ways, and they thought health workers should expand their knowledge and create awareness on preeclampsia (Brown *et al.*, 2013). Some women expressed that restrictive rules of hospital hindered them to gain more social support. A lots of women mentioned that they faced with challenges in different ways, like accept the diagnosis, coordinate the treatment, control the situation,protect their babies,and change bad lifestyles (Roberts *et al.*, 2017).

3.5 Results regarding the chosen articles' data collection methods

After reading the 10 articles in the present literature review, it was found that the data collection method was described in all of them.

In the six of the articles, it is made clear that the authors used semi-structured interviews (Brown *et al.*, 2013; de Azevedo *et al.*, 2011; Fleury *et al.*, 2010; Harris *et al.*, 2014; Roberts *et al.*, 2017; Wotherspoon *et al.*, 2017). In the study by de Azevedo *et al.* (2011), the authors used an interview schedule. and in the study by Fleury *et al.* (2010), the authors used interview guidelines. In two of the chosen articles, in-depth group interviews in the form of focus groups were employed (Akeju *et al.*, 2016; Lima de Souza *et al*., 2007). It was only in the study by Kehler *et al.* (2016) that the authors used one-on-one recorded phone interview. And the rest one doesn't mention about specific method of interviews (Værland *et al.*, 2017).

In four of the chosen articles, the researcher used an interview guide with open–ended questions for individual (Harris *et al.*, 2014; Kehler *et al.*, 2016; Roberts *et al.* 2017; Værland *et al*., 2017). Only one of the selected articles, the data collection was performed by telephone (Kehler *et al.*, 2016). While, in the nine articles, the researchers carried out the data collection by personal meeting (Akeju *et al.*, 2016; Brown *et al.*, 2013; de Azevedo *et al.*, 2011; Fleury *et al.*, 2010; Harris *et al.*, 2014; Lima de Souza et al., 2007; Roberts *et al.*, 2017; Værland *et al.*, 2017; Wotherspoon *et al.*, 2017).

4. Discussion

4.1 Main result

The result of the mothers' stories showed their individual experiences of preeclampsia in pregnancy, women expressed their negative emotions such as worry, fear, depression and guilt, and women showed their needs that meant they wanted to have more support from different aspects. Women reflected on the situation that they had deficient knowledge, inaccurate and confusing information, and they got into a

communication dilemma. In addition, women described their physical suffering on account of preeclampsia. Regarding the data collection methods of the selected article, it was obvious that all articles used relevant and scientific methods, which was conducive to a meticulous and precise result.

4.2 Result discussion

4.2.1 The Personality of care and support

Concerning about the results, each woman's emotional expressions were different and the response and acceptance of adverse events were different, which promoted the relevance and individuality of the treatment method (Akeju *et al.,* 2016; Brown *et al.,* 2013; de Azevedo *et al.,* 2011; Fleury *et al.,* 2010; Lima de Souza *et al*., 2007; Roberts *et al.,* 2017; Værland *et al*., 2017). Also, Women desired to obtain support from many aspects, like family or society (Akeju *et al*., 2016; Fleury *et al*., 2010; Kehler *et al.,* 2016). They were considered as kind roles to accompany and listen to these women and give them warmth and courage. However, these women failed to get the support they wanted (Akeju *et al*., 2016; Kehler *et al.*, 2016; Roberts *et al.*, 2017). The psychological effects of preeclampsia might be minimized if women have access to timely and appropriate support, which helps them to overcome difficulties from traumatic experiences (Fleury *et al*., 2010; Roberts *et al*., 2017).

From the aspect of the care environment, health care providers (such as the family doctor, midwives, health visitors) appeared to be important because the psychological effects of pre-eclampsia could be exacerbated if a woman encountered a hostile or judgmental attitude from them. The article by Dadelszen *et al.* (2015) showed that the process of individualized risk assessment through prenatal care was an effective tool for reducing adverse pregnancy outcomes. Thus, women who had preeclampsia were encouraged to receive personalized care and support.

With the help of Kari Marie Martinsen's "Philosophy of caring", nurses needed to understand the situation about patient' condition correctly, pay more attention to patients' encounters and then provide suitable care for patients in order to realize Patient-centered care (Alligod & Tomey, 2014). Instead of relying on subjective experience, nurses were supposed to conduct professional personal assessments, thereby providing targeted interventions. In the same way, personalized interaction needed to be focused during the process of care. It could result in more feedback and

nursing evaluations that would help nurses complete the better and more personalized care in the next stage.

4.2.2 The integrity of health care

Many nurses just tended to care for the recovery of a patient's mere illness which made patients feel the health workers' callousness and heartlessness. Some women stated that some medical workers usually ignored them (de Azevedo *et al.*, 2011; Lima de Souza *et al.*, 2007; Wotherspoon *et al.*, 2017). In fact, women who had preeclampsia were quite vulnerable and sensitive. They felt confused and worried about their status and the future (Brown *et al.*, 2013; de Azevedo *et al.*, 2011; Fleury *et al.*, 2010; Roberts *et al.*, 2017).

As for human beings, body, mind, emotion, and spirit were an integral whole, and they work together. Holism demonstrated that the whole was greater than the sum of the parts (Erickson, Tomlin, & Swain, 2002).

In the other word, nurses were supposed to focus more on holistic work. Nurses should take full account of the patients' condition in the nursing process, including physical and psychological. Clinical work should be guided by a moral sensitivity toward patients, and health care professionals should be receptive and open to the suffering of mothers (Nortvedt, 2008). In one study, women did feel that they received such support (Fleury *et al.*, 2010).

4.2.3 The significance of self-management

Some women regretted their loss of control over their life pattern like diet or sleeping, after being diagnosed (Kehler *et al.*, 2016; Roberts *et al.*, 2017). When away from the hospital, many tasks or goals that experts set became hard to be completed just relying on the women alone. This time, self-management appeared vital in particular in the treatment.

Self-management was an effective approach for long-term condition management. Its main goal was to provide people with information and skills that could enhance their ability to promote their health, such as goal-setting and problem-solving (Boger *et al.*, 2015). From the perspective of "Philosophy of caring", nurses were supposed to utilize professional knowledge and skills to provide care, relieve suffering, preventing illness for patients. Health education was considered as a significant part in caring (Alligod & Tomey, 2014).

Nursing work was expected to emphasize the self-management of patients. It could be included in health education. Therefore, having an awareness of self-management was a vital thing to improve patients' life and they could communicate with health professionals and set goals together (Boger *et al*., 2015). These women also could ask help from community health workers and volunteers to assist and even supervise them to manage their health condition.

4.2.4 The availability of information

The women's narratives reflected that their knowledge was not sufficient (Brown *et al.,* 2013; de Azevedo *et al.,* 2011; Fleury *et al.,* 2010; Harris *et al.,* 2014). The results showed communication with health professionals was challenging and that these women did not receive adequate or correct information about their conditions before birth (de Azevedo *et al.*, 2011; Fleury *et al.*, 2010; Souza *et al.*, 2007; Wotherspoon *et al.,* 2017). The women frequently felt that professionals neither gave them adequate information nor supported them, as they needed the information and support in the hospital (Kehler *et al.*, 2016). These might greatly hinder the work of medical staff and be not conducive to doctor-patient relationships as well. Obviously, the validity and acceptability of information were supposed to be focused, and it should be obtained more effortlessly.

Refer to "Symphonological Bioethical Theory", some mentioned that nurses did for their patients what they would do for themselves, using their education and experience. "A nurse takes no actions that are not interactions." Thus, patients should be helped out with any queries if they were confused (Husted & Husted, 2001).

Medical workers were expected to patiently answer these pregnant women's problems, using the easy-to-understand method rather than specialized vocabulary. In communication, empathy should be emphasized and negative emotions of these women should be understood. After being diagnosed, the professionals reasonably explained and enhanced the knowledge of these women and their families about this disease so as not to increase the risk, such as medical dispute and attack.

4.2.5 Discussion of the selected articles' data collection methods

In qualitative studies, data collection is always necessary and important concerning the experience of illnesses or other stressful life incidents (Polit & Beck, 2012). It focuses on individuals' descriptive stories, which is beneficial for understanding of

the human experience. Qualitative researchers accomplish the new and meaningful result by using a variety of methods. The primary method of collecting qualitative data is by interviewing study participant, and observation also is a part of many qualitative studies (Polit & Beck, 2012).

In six of the articles, it is made clear that the authors used semi-structured interviews (Brown *et al.,* 2013; de Azevedo *et al.,* 2011; Fleury *et al.,* 2010; Harris *et al.,* 2014; Roberts *et al.,* 2017; Wotherspoon *et al.,* 2017). Semi-structured interviews are guided by an interview guide with questions to be asked. The interviewer's encourage participants to talk about their stories freely in their own words. This method can guarantee the researchers get all the information that they need (Polit & Beck, 2012).

In four of the selected articles, individual in-depth interviews with open-ended questions were used with the participants (Harris *et al.,* 2014; Kehler *et al.,* 2016; Roberts *et al.,* 2017; Værland *et al.,* 2017). In-depth interviews were important in many research contexts, and open-ended questions can provide enough space for participants to response in their own worlds. However, compared with closed-ended questions, open-ended questions maybe lack in efficiency (Polit & Beck, 2012). In three of the processed articles, the data collection was done by the use of individual in-depth interview with different interview guides, an interview schedule, the word-association test, guidelines (Brown *et al.,* 2013; de Azevedo *et al.,* 2011; Fleury *et al.,* 2010), which increase the probability that the researchers can gain more desired information in the data collection (Polit & Beck, 2012). The use of group interviews was described in two of the articles (Akeju *et al.,* 2016; Lima de Souza *et al.,* 2007) where focus group interviews are carefully planned discussions that make use of group dynamics for getting ample information in an economical way. The important advantage of group interview is that the researchers can gain the thoughts from many people in a short time. However, some people are uneasy when they express their views in front of a group because they feel shy or embarrassed, which may causes the loss of more significant information (Polit & Beck, 2012).

Kehler *et al.* (2016) chose to use telephone interviews for their data collection, due to telephone interviews being less costly than face-to-face interviews, but participants may be uncooperative on the telephone. Besides, long or detailed interviews with some sensitive questions may not be suitable for telephone interviews, and researchers will lose visual cues in telephone interviews, which will cause more useful

information loss (Polit & Beck, 2012). In the interviews, the important thing is to protect participants' privacy, it is a wise way to avoid disturbing, increase trust and guarantee the interview quality. In general, interviews will be conducted in the participants' home because familiar circumstance makes people more relaxed. Of course, the site of interview was alternatives, such as an office, coffee shop and so on. Sometimes the setting will be decided by the participant's situation, such as when participants stay in the hospital because of their health condition (Polit & Beck, 2012). In three of the studies, interviews are conducted in the participants' home (Brown *et al.,* 2013; Harris *et al.,* 2014; Roberts *et al.,* 2017). In three of the articles, interviews are conducted in alternative ways (private room / private office) (de Azevedo *et al.,* 2011; Fleury *et al.,* 2010; Roberts *et al.,* 2017(three interviews)) But, in three articles, interviews were conducted in the hospital (Værland *et al.,* 2017; Brown *et al.,* 2013(one interview); Harris *et al.,* 2014(five interviews))

In all of the ten articles included in the present literature review, interviews were recorded and transcribed following data collection (Brown *et al.,* 2013; de Azevedo *et al.,* 2011; Fleury *et al.,* 2010; Harris *et al.,* 2014; Roberts *et al.,* 2017; Wotherspoon *et al.,* 2017, Harris *et al.,* 2014; Kehler *et al.,* 2016; Lima de Souza *et al.,* 2007; Værland *et al.,* 2017), which increases the objectivity and reliability of the data collection methods, according to Polit & Beck (2012).

4.3 Methods discussion

Researchers always conduct the literature review as the first step in the study, and a literature review can be used in a research report, Polit and Beck (2012) shows that a literature review is a great way to critique and synopsize previous research.

Articles have been performed in the bibliographical databases MedLine and Cinahl, which are two great databases for searching articles in nursing research (Polit & Beck, 2012). The authors had used MeSH (Medline) and Headings (Cinahl), authors combined the search terms using the Boolean operator "AND" and "OR", and also used free text searches in order to gain more relevant articles (Polit & Beck, 2012).

The authors of the present study used specific inclusion and exclusion criteria, Polit and Beck (2012) suggested that researchers can use this way so as to select the articles that are more related to the aim, and this way can increase the reproducibility of the present study. One of the selected inclusion criteria was that the articles must be written in English. Authors can understand English but cannot read other language

except Chinese. And English is not the authors' first language, which means that misunderstandings will happen. The articles should have been published between 2007-07 and 2017-07 in order to limit the outcome of the search, which maybe cause the authors to miss some earlier data articles. Another chosen exclusion criteria was that the articles must be freely available to the University of Gävle, which can cause a limitation that authors lack the resources to search articles.

Polit and Beck (2012) suggested that authors recorded by the way of system in order to promote the availability of the study. The authors chose a descriptive design, and the study's aim was to describe how women experience preeclampsia during pregnancy. The results accord with the aim of this present qualitative study.

Both authors read selected articles separately in the first step, this is recommended by Polit and Beck (2012), in order to insure the authors are not affected by other's misunderstanding and promote every author to find different information. During the articles searches, authors processed the articles by reading the title and abstract, this way may neglect some relevant articles.

All the selected articles in this present study have been given permission by an ethical committee. But different ethical committees require different ethical permission, and different countries also have different requirement. What's more, because the study's aim reflects the women individuals' experience, so the ethical aspect is more important.

The ten articles used in this present review are based on different countries: Nigeria, UK, Brazil, USA, Australia, and Norway, which increased the global transformation of the study. The literature review shows different culture, but the limitation is that none of study was conducted in China, because it is hard to search and maybe few people study this topic in China.

4.4 Clinical implications

This review shows the experiences of women who have pre-eclampsia during pregnancy. A variety of negative emotion is presented. Communication difficulties and medical workers' attitudes are repeatedly mentioned as factors which result in women's unsatisfactory experiences in hospitals. Also, many negative emotions may be exaggerated by poor communication with health staff and lack of social support. Therefore, individualized, high quality maternity care is necessary to minimize the adverse impact of pre-eclampsia, especially in the psychology of pregnant women.

The improvements of nurses' awareness can promote the early detection and timely treatment of the condition while in clinical settings. Empathy, integrity and individual-based care work by means of the knowledge gained from the current review can reduce the patient's negative emotions, which can promote the disease recovery rate. In the long run, women who prepare for pregnancy can prevent in advance. Also, women who are diagnosed can be taken seriously by the community in many aspects and receive adequate care and support in order to reduce the deterioration of their condition.

4.5 Suggestions for further research

After searching the material for the present literature review, a little previous research described the experiences of the women who have preeclampsia, instead many focus on nosogenesis and treatments. Further research from the woman’s perspective is advisable to improve nurses’ work with patients, individualism and integrity. The self-management of women with preeclampsia is also a point worth inquiring into for future research. Chinese researchers are suggested to mention more about the aspect of psychology when investigating preeclampsia. After all, there is little research about it.

4.6 Conclusions

Through a synthesis of ten studies about experiences of women with preeclampsia, Authors found that women viewed it as a confusing, panicky or life-threatening event. Negative emotions impacted these women’s daily life and their families. Also, they had bad experience in the hospitals and met many problems and challenges in the life. The support of families and health-care providers appeared significance to deal with these problems and the self-management of patients was needed to focus as well.

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Appendix

Table 2 Overview of the selected articles

Author(s)	Title	Design(possibly approach)	Participants	Data collection method(s)	Data analysis method(s)
Akeju D.O. et al., Year of publication :2016 Country: Nigeria	Community perceptions of preeclampsia in Ogun State, Nigeria: A qualitative study.	A descriptive study with qualitative approach.	Number: 28 focus group discussions, 7 with pregnant women,8 with new mothers,3 with male-decision-makers,6 with community leaders,3 with traditional birth attendants. Age:20-43 (New mothers); 19-40 (Pregnant women) The participants were diagnosed pre-eclampsia and eclampsia Or the participants were related with the women who suffering from this disease.	Focus on group discussions and in-depth interviews were conducted from 2011-2012 Data get from 28 focus group discussions. The interviews were recorded and transcribed, translated from local language to English.	The analytical framework and coding structure.(analysed in Nvivo 10 software)

Brown M.C. et al.,. Year of publication :2013 Country: UK	Women's Perception of Future Risk Following Pregnancies Complicated by Preeclampsia	A explorative study with qualitative approach.	Number:12 Age:older than 16 The participants were women who had experienced preeclampsia.	Semi-structured interviews with an interview schedule. Interviews were audio recorded and lasted from 25 min up to 1 h 35 min.	Constant comparative analysis
de Azevedo D.V. et al., Year of publication :2011 Country: Brazil	An analysis of the meanings of pre-eclampsia for pregnant and postpartum women and health professionals in Rio Grande do Norte, Brazil.	A descriptive study with qualitative approach.	Number: 20 (18 pregnant and 2 postpartum women) Age:the main age was 26.8(±6.5) years The participants were women with preeclampsia.	Semi-structured interviews. The interviews were recorded, manually transcribed and typed into a computer.	Thematic analysis through thematic categorized
Fleury C. et al., Year of publication :2010 Country: Brazil	Development of the mother–child relationship following pre-eclampsia.	A explorative study with qualitative approach.	Number:15 Age:the mean age was 25 years old. The participants were primiparous women and were diagnosed pre-eclampsia, no hypertensive disorders prior to pregnancy.	Semi-structured interviews with guidelines. Each interview lasted around 1 hour. The interviews were recorded and transcribed.	Thematic analysis(included theoretical framework;emerging themes and external validation)

Harris J.M. et al., Year of publication :2014 Country: UK	The psychological impact of providing women with risk information for pre-eclampsia: A qualitative study	A explorative study with qualitative approach	Number:15 Age:28-36 The participants were primigravid women that 10 had high risk results and 5 with low risk results. The women accepted a screening test for pre-eclampsia,	Semi-structured interviews with open-ended questions. The interviews were conducted the at a location and time was chosen by each participant. The interviews were recorded and transcribed.	The matrix-based thematic method (Framework Analysis, according to Ritchie & Lewis)
Kehler S. et al., Year of publication :2016 Country: USA	Experience of Preeclampsia and Bed Rest: Mental Health Implications	A description study with qualitative approach.	Number:7 Age: 18–45 years old. The participants were diagnosis currently or history of preeclampsia and had bed rest (home or hospital) at least 7 days. The participants had able to communicate in English. The participants were recruited from Facebook postings from Evidence Based Birth.	Via a one-on-one recorded phone interview with open ended questions. The interviews lasted one hour on average, with a range of 37 minutes to 1 hour and 11 minutes..	Content analysis

Lima de Souza N. Fernandes Araújo A.C. et al., Year of publication :2007 Country: Brazil	Maternal perception of premature birth and the experience of pre-eclampsia pregnancy	Qualitative approach.	Number:28 Age:18-35 The participants were diagnosed preeclampsia in pregnancy with premature birth	Focus group technique with open questions. The meeting lasted 90 minutes on average.	Interpretative phenomenological analysis.
Roberts, L.M.et al., Year of publication :2017 Country: Australia	Pregnancy with gestational hypertension or preeclampsia: A qualitative exploration of women's experiences	A descriptive study with a qualitative approach.	Number:6 Age: The age between 20-40 The participants were diagnosed with gestational hypertensive(GH) or preeclampsia(PE). Participants all attended a five year follow-up study.	Semi-structure face-to-face interviews with open-ended questions. Length of each interview approximately 45 minutes. The interviews were recorded and transcribed.	Thematic analysis. (Firstly, data were separated into section; secondly, initial coding; finally, themes were derived from the data codes.)
Værland I.E. et al., Year of publication :2017 Country: Norway	Mothers' experiences of having a premature infant due to pre-eclampsia	A descriptive study with qualitative approach.	Number: 9 Age: The mothers' ages varied from 26 to 44 years, with an average of 32.5 and a median of 32 years. The participants experienced pre-eclampsia resulting in premature birth and suffered	The primary interview guide was based on a very open initial question,and all all informants were interviewed twice. Interviews took place in hospital meeting rooms, were recorded and	A reflective phenomenological analysis. .

			from severe pre-eclampsia and delivered before Gestational Week 34, living together with a partner.and they all experienced symptoms of pre-eclampsia or HELLP between eight hours and 7 weeks prior to birth.	transcribed verbatim by the first author. The analysis was conducted according to Dahlberg et al.	
Wotherspoon, A.C.et al., Year of publication :2017 Country: UK	Exploring knowledge of pre-eclampsia and views on a potential screening test in women with type 1 diabetes	A descriptive study with a qualitative approach.	Number:11 Age: The main age was 30.2(5.4) The participants were planning a pregnancy, currently pregnant or they were up to 1 year post-partum. The participants were aged18 years or over and had a diagnosis of pre-gestational type 1 diabetes.	Semi-structured interviews. The interviews lasted approximately 30–45 minutes. The interview were transcribed verbatim.	Thematic analysis.

APPENDIX 2

Table 3. Overview of selected articles' aims and main results.

Author(s)	Aim	Results
Akeju D.O. et al., Year of publication :2016 Country: Nigeria	To identify community perceptions of pre-eclampsia and eclampsia in Ogun State, Nigeria.	The results described local terms, perceived causes, prevention strategies, outcomes and traditional treatment for eclampsia and pre-eclampsia. ● The cause of hypertension in pregnancy was thought to be due to depressive thoughts as a result of marital conflict and financial worries, while seizures in pregnancy were perceived to result from prolonged exposure to cold. ● There seemed to be no traditional treatment for hypertension. ● However for seizures the use of herbs, concoctions, incisions, and topical application of black soap were widespread.
Brown M.C. et al., Year of publication :2013 Country: UK	To elicit women's personal understanding of future cardiovascular risk, following a pregnancy complicated by preeclampsia, and to identify the postnatal needs of these women.	● The results were presented through four parts: Women's Understanding of Risk to Future Pregnancies, Women' s Awareness of Future Cardiovascular Risks and Factors Affecting Women' s Experiences of the Postnatal Clinic and Post-Pregnancy Perspectives on Health and Information Needs. ● Family history of cardiovascular disease was associated with a greater awareness of future cardiovascular risk. Women without traditional risk factors found it hard to envisage themselves as being at risk and may not see the relevance of such information.
de Azevedo D.V. et al., Year of publication :2011 Country: Brazil	To understand the meanings of pre-eclampsia for pregnant and postpartum women and health-care professionals.	● The results were divided into two parts that meanings to pregnant/postpartum women and meanings to health-care professionals. ● The results demonstrated that pregnant and postpartum women had

		no information about preeclampsia. The meaning of preeclampsia to pregnant and postpartum women were fear, risk, care and late of information.
FleuryC. et al., Year of publication :2010 Country: Brazil	To assess the development of this relationship in primiparous women diagnosed with pre-eclampsia in the third trimester of pregnancy.	In the results, five categories were analyzed: significance of the diagnosis in women' s lives; experience with childbirth; relationship of the women with their own mothers; support network; and primary maternal preoccupation.
Harris J.M. et al., Year of publication :2014 Country: UK	To investigate the potential psychological impact of providing pregnant women with formal risk information for an antenatal screening test for pre-eclampsia.	Two types of coping typologies were presented in the results. ● The first were 'danger managers' who had an internal sense of control, were focused on the risk that pre-eclampsia presented to them and exhibited information seeking, positive behaviour changes,and cognitive reappraisal coping mechanisms. ● The second were 'fear managers' who had an external sense of control, were focused on the risk that pre-eclampsia presented to the fetus, and exhibited avoidance coping mechanisms. ● 3 others themes emerged: medicalising pregnancy, embracing technology and acceptability.
Kehler S. et al., Year of publication :2016 Country: USA	● To describe Women' s experience of having preeclampsia and being placed on extended bed rest during their pregnancy despite the newest recommendations from ACOG and bed rest for treatment of preeclampsia. ● To identify key stressors that women experience while on bed rest, and identify healthcare provider management of maternal stress related to prolonged bed rest.	Six themes emerged in which women described stressors that they experienced: negative feelings and thoughts, lack of guidelines, lack of social support, not being heard, loss of normal pregnancy, and physical symptoms.

Lima de Souza N. et al., Year of publication :2007 Country: Brazil	To analyze maternal experiences of preeclampsia pregnancy with premature birth at a neonatal intensive care unit.	The related themes were presented in the results, including: information on pre-eclampsia during prenatal care and mother' s perception of NICU professional attitudes.
Roberts, L.M. et al., Year of publication :2017 Country: Australia	To gain insight into women's experience of hypertension in pregnancy and to report on what mediating factors may help improve their experience.	● 4 themes were identified: Reacting to the diagnosis, Challenges of being a mother, Processing and accepting the situation, and Moving on from the experience. ● These mediating factors were mentioned to help women to cope with the situation: Feeling safe and trusting the care providers, Having continuity of care and carer and Valuing support from family and friends.
Værland I.E. et al., Year of publication :2017 Country: Norway	To describe the phenomenon of mothers' experience of being a seriously ill with pre-eclampsia and on the same time becoming a mother of a premature infant.	Being a seriously ill mother of a premature infant requires journeying through physical and psychological suffering in the prenatal and postnatal periods. ● Conflicting feelings concerning giving birth. ● Reflecting upon the borderline of life ● Experiencing physical exhaustion.
Wotherspoon, A.C.et al., Year of publication :2017 Country: UK	To provide insight into the knowledge of pre-eclampsia and opinions on implementation of a potential screening test for the condition in women with type 1 diabetes.	Four main themes were presented: Women's reflection on information received, sources of stress, women's self-awareness of complications in pregnancy and factors affecting acceptability of screening.

APPENDIX 3

Table 4. Overview of categorizing articles' results.

Categories	Sub-categories	Meaning
A Psychological experience	A Shock and confusion (1f, 2a, 2d, 2h, 2k, 4c, 7c, 8a, 8b, 9d)	1a depressive thoughts and stress 1b depressive thoughts related to marital or financial worries 1d depressive thoughts associated with a lack of rest 1e unhealthy life style 1f hereditary 1g difficult to sleep and stress 2a confusing and unpredictable 2b the implications for future pregnancies 2c anxieties about preeclampsia 2d less aware of the risk of future disease 2e having a healthy baby outweighed 2f guilty about getting it earlier 2g taking personal responsibility to keep healthy life habits 2h confused about why preeclampsia had affected them 2i Reducing stress 2k a hazy phase
	A Worry (2b, 2c, 2e, 3a, 3c, 4e, 5a, 6m, 8e, 8f, 8g, 8h, 8j, 10c)	3a worry and scare about a risk of dying 3b being afraid of dying 3c fear of future pregnancies 3d change bad lifestyle

A Fear (3a, 3b, 4j, 5c, 6a, 6b, 6d, 7a, 8c, 9a, 9g)	3e change bad diet 4a anguish, loneliness, sadness, anxiety and guilt 4b their health condition would harm the baby 4c didn’t understand what happened 4e be afraid of similar complications in the next pregnancy 4f lack of control, insecurity and apprehension 4j worry about their babies and themselves 5a focus on the fetal consequences 5c be concerned with the developing fetus rather than their own health 6a nervous wreck, major meltdown, stressed out and scared 6b out of control 6c depression-like symptoms 6d anxiety and depressive symptoms and fearful thoughts 6e negative thoughts about failure, guilt, and loss 6m worry about the stress placed on their families
A Depression (1a, 1b, 1d, 4a, 4f, 6c, 7b, 7c, 9f)	7a a fear of death or of losing child 7b pause or weep 7c shock, sadness and despair 8a surprised, scared or guilty 8b feeling unprepared and need time to understand the diagnosis 8c scare of the potential dangers 8d express guilt and question themselves 8e worried about the health of their infant 8f worried about not surviving and not being around for their infant 8g thinking about the next pregnancy 8h considered about another pregnancy 8j Women trust experts.
A Stress (1a, 1g, 2i, 6a)	9a feel near death 9d difficult to understand what was happening 10c worried the rise of entire pregnancy
A Guilty (1e, 2f, 2g, 3d, 3e, 4a, 4b, 6e, 8d,9e)	

B Physical aspect	(1j, 6o, 9b, 9c, 10d)	1j convulsions and dizziness 6o fatigue, tired, exhaustion and lack of ambition 9b exhausted body 9c excessive edema, severe stomach pain or headache 9e guilty about what was going to happen to their preterm infants 9f cry and get it out 9g be afraid the infants might die 10d swelling and headaches
C Experience about information	C Deficient information and knowledge (2j, 4g, 6h, 10b)	2j a lack of knowledge and understanding 2m mixed opinions and information 4g not received enough information 5b unreal information on the internet
	C Conflicting and confused information (2m, 5b, 6f, 6g)	6f conflicting or mixed messages 6g miscommunications or inconsistent information 6h lack of information about diagnosis 6i doubt the information 6n communication barrier
	C Communication dilemma (6i, 6n, 7d, 7e, 10a, 6g)	7d conflicts and doubts 7e using technical language 10a have no adequate time to ask questions 10b lack of information from health-care professionals
D Experience about support	(1c, 1h, 1i, 2l, 2n, 4d, 4h, 4i, 5d, 6j, 6k, 6l, 8i, 8k, 8l)	1c husband’s bad behavior 1h emotional and financial support 1i expanding knowledge and creating awareness on pre-eclampsia 2l support from community health professionals 2n social support 4d Partners pay more attention to these women. 4h support from family members, particularly partner

	4i an important function of the medical team 5d rely on the the health professionals 6j social support 6k no support from their health care providers 6l rely on their spouses and family 8i feel safe in hospital 8k support from partner, family and friends 8l Social support was necessary.

[1, 2, 3...10] = the number of the selected articles

[a, b, c...o] = the label of the word or sentence related to the topic from the selected articles