



The role of psycho-educational counselling of pregnant women with preeclampsia in improving their mental health

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The purpose of this study was to determine the role of psycho-educational counselling for women with preeclampsia. The primary objectives of the study were to reveal how psycho-educational counselling helps pregnant women with preeclampsia towards the restoration of their maternal health alongside treatment and whether there is enough support available for promoting the mental well-being of women with preeclampsia. The secondary objectives of the study involved exploring how psycho-educational counselling aids in the birth of an infant that thrives after birth and how psycho-educational counselling of women with preeclampsia helps in improving their mental state during pregnancy.

Preeclampsia is a condition specific to pregnant women, causing severe hypertension and proteinuria in women. The negative health outcomes resulting from preeclampsia result in severe mental tension and stress by the mother, which increases the likelihood of preeclampsia-related morbidities and mortality.

This study used an integrated literature review research method to gain sufficient knowledge regarding the topic, answer the research questions, and find existing gaps around the mental health of pregnant women with preeclampsia. Six electronic databases were searched, including BMC, ScienceDirect, Google Scholar, Wiley Online, Sage Journals, and PLOS One. Moreover, an inductive tactic of integrative content analysis was adopted in this research.

Following the literature review, several themes became apparent within the findings. These themes include: patient education, health practitioner competence, availability of psycho-educational training, the public health role, and socio-economic factors. The research found that psycho-educational counselling was an effective method of improving the mental health of women with preeclampsia. However, this method in itself is not appropriate for managing preeclampsia and its complications, whereby introducing teaching programs for health practitioners to reduce the stress of women with preeclampsia, improving public health focus to prevent preeclampsia, and managing these women with confirmed preeclampsia were the main findings in improving the mental health of women with preeclampsia on a general scale.

Keywords: Preeclampsia, mental health state, psycho-educational counselling, depression, anxiety, stress.

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1 Introduction

The estimate of preeclampsia affects around 4-7% of women globally (Dulay 2022; US Preventive Services Task Force 2017; Avanth et al. 2013). Untreated preeclampsia is usually seen among asymptomatic patients, which occurs in 1/200 of patients where eclampsia develops. The core purpose of health care is to provide physical, mental, emotional, and spiritual care towards the patient. Although the overall goal is to enhance the wellbeing of people through the provision of treatment and prevention of disease, it is crucial to include all facets of human wellbeing, such as the physical, spiritual, mental, and social.

Mental health issues are one of the many co-morbidities associated with pregnancy and are exacerbated by serious health issues such as preeclampsia (Roberts et al. 2022). These mental health issues are mainly stress, anxiety, and depression, which may cause severe complications among pregnant women with preeclampsia (Howard and Khalifeh 2020). Moreover, mental health issues can lead to complications in fetal health since it may lead to lessened effects of pharmacological interventions aimed at reducing blood pressure (Howard and Khalifeh 2020). The integrative literature review aims to add information and evidence on the use of psycho-educational counselling in restoring mental health among pregnant women with preeclampsia.

Psychoeducation is a form of therapeutic strategies that psychiatric professionals employ to help patients better comply with treatment and care guidelines while helping them cope with a sickness or condition (Alzahrani 2023). Tola et al. (2022) describes psychoeducational counselling as activities that utilize both education and counselling individually or in group sessions. Through the provision of emotive and motivating elements, psychoeducation entails the organized, structured, and didactic transmission of knowledge about an illness to enhance the patient's general mental state and help them manage and have hope for a successful course of treatment. To improve a patient's mental health, psychoeducation includes components like acceptance and commitment, mindfulness-based cognitive therapy, and mindfulness-based stress reduction approaches (Alzahrani 2023). Explaining the concepts and procedure of psychoeducation to the patient in clear and detailed terms will boost the effectiveness of psycho-educational counselling. This careful explanation raises the patient's willingness and agreeability to continue the intervention, thus increasing the likelihood that it will be successful. Therefore, the health systems and health practitioners must have the resources and specialized skills to ensure quality provision of psycho-educational counselling.

Public health's role in the field is to enhance and defend the health and well-being of the community, with a focus on prevention among big populations (Artiga and Hinton 2018). Henceforth, public health utilizes its resources to reduce the impact of preeclampsia by

improving psycho-educational training. Moreover, the health systems like the health ministry are also charged with the responsibility of hiring health professionals with the skills necessary to impart quality psycho-educational counselling. Additionally, the role of socioeconomic will come into play as health resources and skills may not be equal in areas of different economic statuses (Artiga and Hinton 2018). Psycho-educational counselling involves the use of cognitive behaviour practice, group sessions, and education to achieve positive mental health outcomes.

The purpose of this study is to ascertain whether the use of psycho-educational counselling for preeclampsia patients helps in the full recovery of the mother's health alongside treatment, whether psycho-educational counselling for preeclampsia patients helps in improving their mental health during pregnancy, whether psycho-educational counselling for preeclampsia patients helps in the delivery of a baby who thrives after birth, and whether there is sufficient support available for these patients.

2 Background

Preeclampsia occurs only in pregnancy, where there are multiple syndromes over the patient's body systems. The condition is categorized by a reduction in organ perfusion and activation of the coagulation cascade (Loki and Heikkinen-Eloranta 2021). Avanth et al. (2013) state that preeclampsia occurs in around 5% of all pregnancies, where first pregnancies have twice the likelihood of developing complications related to preeclampsia. Preeclampsia is also used to determine women with a higher probability of developing premature cardiovascular and cerebrovascular diseases in future (Avanth et al. 2013). Therefore, preeclampsia is a serious debilitating disease with far-reaching effects that may manifest after a long period.

A major issue associated with preeclampsia is the relatively low base of evidence regarding its etiology or main cause. However, Rana et al. (2019) posit that the placenta plays a chief role in the pathophysiology of preeclampsia. Rana et al. (2019) state that the presence of placental factors, like the antiangiogenic factor soluble fms-like tyrosine kinase 1, increases the risk of the disease's stratification and pathogenesis of the condition. However, due to the lesser-known pathogenesis of the syndrome, it is difficult to create preventive measures that effectively reduce the risk of the development of preeclampsia.

The major risk factors of preeclampsia, nevertheless, are widely known. The key risk factors that precipitate the development of the condition include a previous diagnosis of preeclampsia, history of hypertension, diagnosis of gestational diabetes mellitus, obesity, antiphospholipid syndrome, and alcohol and cigarette smoking. Less major risk factors that precipitate preeclampsia include high maternal age, nulliparity in which women of

reproductive age have not delivered, renal diseases, and a history of gynecological surgeries. Other minor risk factors are a family history of the syndrome and the patient having a trisomy 13 fetus, in which the fetus exhibits microphegaly, cleft lip, omphalocele, microphthalmia, or anophthalmia. (Rana et al. 2019).

Preeclampsia occurs after 20 weeks gestation that can be present as late as 4-6 weeks postpartum. In terms of the clinical definition, preeclampsia is defined as the onset of hypertension, and proteinuria, which may be with or without pathologic oedema. Preeclampsia is mild in about 75% of cases and occurs with severe symptoms in 25% of them. (Rana et al. 2019.) In extreme cases, the syndrome leads to liver and renal failure, disseminated intravascular coagulopathy, and central nervous system anomalies. The onset of seizures in a previously diagnosed preeclampsia patient is referred to as eclampsia. Moreover, preeclampsia is also detrimental to the fetus' growth and health (Rana et al. 2019). In these cases, preeclampsia leads to ischemic encephalopathy, growth retardation, and the various sequelae of premature birth. Bisson et al. (2023) state that sequelae referred to an illness that occurs due to an earlier disease.

The management of preeclampsia requires delivery. Therefore, healthcare workers are required to minimize maternal risk and in addition to maximize fetal maturity. The main reason for this management is to ensure the safety of the mother and the delivery of a healthy newborn. Pregnant women with mild preeclampsia often require pregnancy induction, where the immature fetus is treated with corticosteroids to accelerate lung maturity to prepare for early delivery (Rana et al. 2019). In such cases, the patient is required to be hospitalized with cardiac monitoring, a precaution taken against the onset of seizures, and transportation of the patient in the left lateral decubitus position.

Moreover, fetal monitoring is carried out for daily non-stress testing, ultrasonography, and fetal growth determination at 2-week intervals (Rana et al. 2019). These processes are tedious and important for both the patient and the health practitioners to ensure the health of the mother and the fetus post-delivery. Other practices carried out include maternal monitoring, where 24-hour urine collection for proteins, daily blood tests are taken, and reporting of any symptoms such as headaches, visual changes, epigastric pain, or decreased fetal movement (Rana et al. 2019). These tests help to monitor the mother's health to reduce the exacerbation of preeclampsia symptoms and complications. These tests and hospitalization carried out may be stressful for the mother since the future health of the child may be compromised, leading to stress, anxiety, or depression (Rana et al. 2019). Ethnic differences in the prevalence of pre-eclampsia has also been discovered.

The US Preventive Services Task Force (2017) found a link between preeclampsia and ethnic background in the US. The Task Force (2017) found that African American women are three times more likely to develop preeclampsia and its complications than Caucasian women. This

figure represents 73.5 per 100,000 pregnant women, as opposed to 27.4 per 100,000 Caucasian pregnant women (US Preventive Services Task Force 2017). These figures are concerning as they showcase racial disparity in terms of health inequality for African American women, increasing the risk of child and maternal mortality for the subgroup. The main reason attributed to this health inequality is the lack of adequate prenatal services, socioeconomic status, and level of obesity linked to the African American ethnic minority group.

2.1 Mental health linked to pregnancy

In terms of mental health, Srajer et al. (2022) state that it is often overlooked among women with preeclampsia. Health practitioners overlook mental health conditions due to the serious nature of the symptoms associated with preeclampsia, often looking to manage these symptoms rather than focus on their mental health. Srajer et al. (2022) state that anti-angiogenic aspects, as well as inflammatory cytokines that are released from the placenta of women with preeclampsia, damage the blood-brain barrier (BBB). The damage to the BBB is usually the main contributing factor to mental health impairment due to the structural and functional changes in the cerebral cortex (Srajer et al. 2022). Roberts et al. (2022) use an experimental study to determine the reasons for mental health issues among women with preeclampsia. The study found that most women with preeclampsia found the process of childbirth a traumatic event, creating anxiety regarding their infants' health and post-traumatic stress disorders (PTSD) after the experience.

Dachew et al. (2021) found that more than 55% of women with preeclampsia had an increased likelihood of depressive symptoms, mainly due to the experience associated with childbirth associated with preeclampsia and the risk of morbidity and mortality associated with preeclampsia. Therefore, in addition to the pathophysiology of mental health conditions related to cerebral functioning and structural changes, the experience related to preeclampsia creates anxiety, stress, and depression that may exacerbate during and after childbirth leading to more serious complications.

Other causes for mental health challenges are constant monitoring and hospitalization, which may be a causal factor for mental health disorders among women with preeclampsia. Roberts et al. (2022) state that poor maternal health increases the possibility of maternal mental health complications. Roberts et al. (2022) state that globally, the occurrence of post-traumatic stress disorder (PTSD) is 1-2%. Moreover, Simpson et al. (2016) determined that 20-48% of pregnant women reported the delivery as a traumatic experience, meaning that the occurrence of PTSD may be more prevalent than reported. Roberts et al. (2022) posit that life-threatening situations, especially during hospitalization, create involuntary physiological responses among pregnant women that may be detrimental to their health and that of their infant. Therefore, the experience of hospitalization and preeclampsia diagnosis leads to

mental health conditions such as PTSD in around 50% of pregnant women, increasing the need for interventions to reduce mental health illnesses that are more easily managed than preeclampsia syndrome. Roberts et al. (2019) found that 10% of pregnant women and 13% of those that have delivered develop a mental condition, chiefly depression. However, Roberts et al. (2019) also find that these figures increase (15.6% and 19.8%) in developing countries. This may also explain the socioeconomic factor that increases the prevalence of preeclampsia among African American women. Moreover, Ross et al. (2019) finds that African American women with preeclampsia are more likely to develop mental conditions due to the overarching factor of income and depression.

Chapuis-de-Andrade et al. (2019) state that depression is one of the primary conditions associated with pregnancy, which manifests as a clinical complication with multiple etiologies. Among young females, Chapuis-de-Andrade et al. (2019) find depression to be a major reason for their morbidity rates, mortality rates, and disabilities. A diagnosis of preeclampsia among pregnant women is a potential exacerbator of mental health complications, especially depression. Shay et al. (2020) suggest that psychosocial factors are major reasons and consequences of the development of hypertensive disorders such as preeclampsia among pregnant women. Here, Shay et al. (2020) found that there is a strong association between anxiety and pre-eclampsia complications, increasing their mental health severity as well as increasing preeclampsia complication severity.

Tola et al. (2022) state that pregnant women are susceptible to psychological issues, especially first-time mothers in childbirth. Moreover, Tola et al. (2022) assert that the emotional fluctuations lessen during the last three months of their pregnancy as negative feelings regarding their safety and that of their children start to become more apparent and intense. The authors explain that pregnant women from developing countries are another group that are more susceptible to negative psychological feelings. The main reasons include limited access to health information, inadequate counselling sessions for psychological care, and low levels of birth preparedness. Additionally, the transition to parenthood for first-time parents also exacerbates the psychological issues in terms of parental care, where the mothers often experience anxiety, fatigue, insomnia, mood fluctuations, depression, and stress (Tola et al. 2022). These psychological issues may be detrimental to their health and may also contribute to the development of preeclampsia and other hypertensive disorders in case of a second pregnancy. Most of the women discussed above do not have adequate knowledge regarding pregnancy due to their socioeconomic status or being first-time parents.

Another viewpoint of mental health is its manifestation postpartum among infants. Anwar (2021) conducted a study of 4,743 parent-infant pairings and discovered links involving child mental disorders and hypertension obstetric disorders, such as high blood pressure, gestational high blood pressure, preeclampsia, and eclampsia. Preeclampsia is a typical pregnancy problem that's frequently characterized by elevated blood pressure and protein in

the urine, which results in hepatic and renal impairment, among other organ damage. Eclampsia is a severe preeclampsia consequence in which pregnancy-related elevated blood pressure causes seizures (Anwar 2021). The intensity of maternal preeclampsia was linked to an increased risk of behavioural and emotional abnormalities, mental health disorders, and any childhood mental illness in the offspring. Also, they found that children born from mothers with previous preeclampsia history had a 66% higher chance of mental illnesses, and children whose moms had severe preeclampsia had twice a higher probability of psychiatric problems as children (Womersley et al. 2021). The exacerbating impacts of prenatal preeclampsia stretched to any child's mental condition in the progeny, which was a novel component of the findings.

Furthermore, researchers discovered that when high blood pressure disorders, adiposity, and diabetes occur during pregnancy, the accumulated prevalence of pediatric mental disorders accelerated from around 7% among children born to mothers without these conditions to more than 22% in offspring infants born in these maternal conditions (Bedaso et al. 2022). The correlations between maternal preeclampsia and offspring childhood mental disorder cannot be explained by prenatal psychiatric conditions, age, drug use, the number of prior pregnancies, educational background, disorders linked to being obese or diabetic, or paternal psychological or hypertensive disorders. The research highlights the need for preventative measures and interventions for prenatal hypertensive disorders, such as psycho-educational counselling interventions have the possibility of improving both the health of the expecting woman and her children. Traylor et al. (2020) also state that primary risk factors for maternal death, stillbirth, preterm delivery, and limited intrauterine growth include hypertensive pregnancy disorders, whereby they also indicate cardiac illness in both the mother and her infant.

2.1.1 Prevalence of mental health conditions in pregnancy

Karrar and Hong (2023) find that preeclampsia encompasses 2-8% of complications related to pregnancy globally, translating to more than 50,000 maternal and 500,000 fetal deaths. In terms of socio-economic zones, Karrar and Hong (2023) state that preeclampsia is more prevalent in low-income countries (26%) than in high-economy ones (16%). Auger et al. (2020) look into the global characteristics of preeclampsia and its risk of compounding depression rates. Auger et al. (2020) found that women with preeclampsia showed 1.16 times higher risk of being hospitalized with depression compared to women without preeclampsia. Sasaki et al. (2020) state that antenatal depression is at a rate of 5 -15%, while postpartum depression occurs at a rate of 15%. Moreover, Sasaki et al. (2020) find that postpartum depression leads to 20% of mortality rates among women, representing a high figure. Sasaki et al. (2020) also state that postpartum depression results in problems performing activities that were previously enjoyable, insomnia and sleeping difficulties, breastfeeding issues, difficulty in seeking prenatal care, and suicide. Additionally, more severe consequences of postpartum

depression include poor parenting skills, poor infantile health, and hygiene, are behavioural problems associated with the infant. Sasaki et al. (2020) suggest that psychoeducational counselling sessions are a suitable intervention for women experiencing postpartum depression. One approach suggested by Sasaki et al. (2020) focuses on maternal sleep and infant sleep. Here, the first step for maternal sleep is sleep hygiene education and cognitive behavioural therapy for insomnia to improve the mother's sleep difficulties. Infant sleep is also helped through psychoeducational sessions, as the infant's short sleep cycles affect the mother's sleep cycles. Sasaki et al. (2020) state that the most important psychoeducational interventions for infant sleep are to provide knowledge regarding normal sleeping patterns, crying patterns, settling methods, and face-to-face sessions that teach the mother regarding infantile patterns. Diotaiuti et al. (2022) posit those mental conditions such as anxiety, negative perceptions of pregnancy, and poor self-efficacy are all linked. Diotaiuti et al. (2022) state that more than 30% of women are affected by anxiety disorders during their lifetime. The effects mainly come across as depressive symptoms and moods, along with pleasant and worrying emotions. However, Diotaiuti et al. (2022) find that antenatal training using psychoeducational counselling interventions is useful in reducing these anxiety symptoms. Moreover, Diotaiuti et al. (2022) state that the requirement for knowledge and information, reassurance, and support for women with anxiety disorders helps in increasing gratification and utilization of the information provided within the sessions.

2.1.2 Psycho-educational counselling in pregnancy

Psycho-educational counselling combines behavioural therapy with psychological science. It is utilised in a structured, open-ended group format that is particular to a disease. The academic element of psycho-educational counselling conveys knowledge about the mental or physical condition that is experienced by the group members, whereas the behavioural therapy component deals with feelings, perspectives, dealing, calmness, and self-care (Sarkhel et al. 2020). The treatment of the condition; management of the condition, particularly those that are persistent and insoluble; adherence with the therapeutic and psychological routine; and mitigation of development, aggravation, or flare-up are the four components of psycho-educational therapy, which may fluctuate in their intensity depending on the situation being resolved (Sarkhel et al. 2020). Psycho-educational programmes are helpful for a variety of patient types, including those with chronic physical illness, debilitating psychological disorders, and specific life circumstances. Individuals who have persistent physical ailments, and mental conditions, high consumers of healthcare, and clients before or after surgery can benefit from psycho-educational therapy in terms of better health outcomes and reduced healthcare expenditures (Longley et al. 2022). Psycho-educational counselling started with individualized sessions led by nursing practitioners and health instructors, then developed into complex group sessions widely utilised in disease control and other contexts. According to Sarkhel et al. (2020), the efficiency of most group programmes is rather constrained due to a heavy emphasis on educational components and a

dearth of intense intervention programs, particularly when the expertise of a psychiatrist is necessary.

2.2 Psycho-educational counselling

Psycho-educational counselling is the main intervention, as Abazarnejad et al. (2019) claim, that is proposed for this study in terms of helping the mental state of pregnant women with preeclampsia. Psychoeducation is a therapeutic intervention tactic used by experts in psychiatry to enable patients to cope with a disease or condition, as well as improve their adherence to treatment and rules of managing the condition. Psychoeducation involves a systematic, structured, and didactic transfer of knowledge regarding a disease through the provision of emotive and motivational factors to improve the overall mental state of the patient to cope and be hopeful of positive health outcomes.

2.2.1 Models/frameworks of psycho-educational counselling

There are several frameworks developed to ensure quality improvement of psychoeducation within hospital settings. Fenwick et al. (2018) state that these frameworks were created to improve nurses' knowledge in the provision of counselling, to reduce barriers in counselling, and to reduce negative perceptions among pregnant women, thus reducing their fear. One framework in psychoeducation is the Midwives Improving Care through Psychoeducation in Practice (MIPP) (Fenwick et al. 2018). The MIPP framework first finds organizational factors that hinder the capacity of nurses or midwives to utilize psycho-educational counselling in practice and address them effectively. The MIPP framework involves two phases.

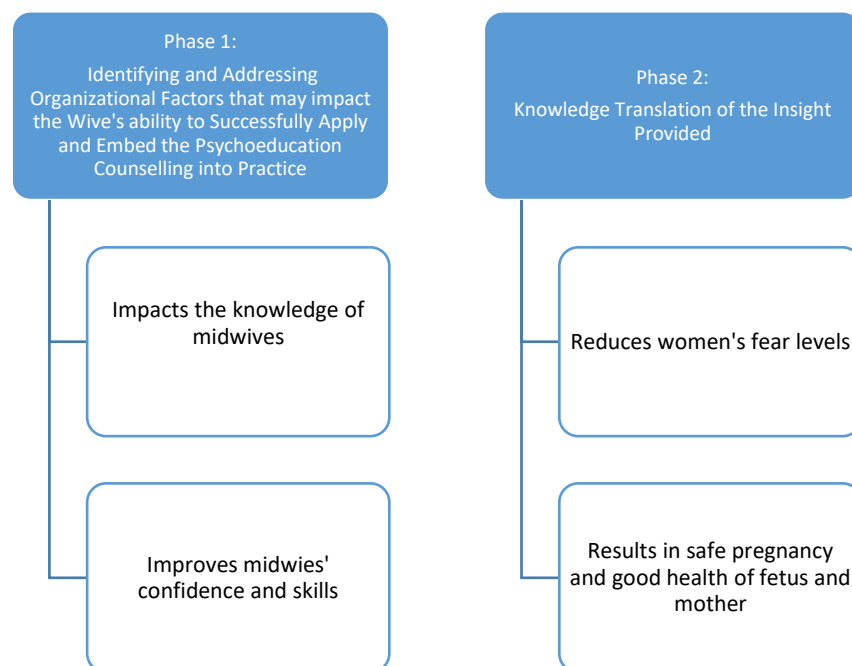


Figure 1: Midwives Improving Care through Psychoeducation in Practice Framework

The framework also involved the training of midwives and nurses to provide psycho-educational counselling (Fenwick et al. 2018). The framework provides the importance of clinical supervision in mental health service provision, where quality care is to be provided in all instances.

2.2.2 Psycho-educational counselling for mental health

Psychoeducation often involves imparting to patients and family members certain fundamental pieces of knowledge about a specific condition, in this case, preeclampsia and how the resultant mental distress may be detrimental to the health of the fetus and the mother (Sarkhel et al. 2020). The modules can be changed to meet the demands of patients, their families, the physicians, or they can be tailored to a specific illness. As a result, both the quantity and schedule of the sessions as well as the overall subject matter may change. Depending on the target demographic, psychoeducation might be personal, familial, community or society based. Psychoeducation may also be compliance/adherence-focused, disease-focused, therapy-focused, or rehabilitation oriented, depending on the prevailing focus. Active psychoeducation entails the therapist actively participating in the process with the patient/family, resulting in interaction and clarification (Mirzaee et al. 2020). In passive psychoeducation, patients and family members are given pamphlets, audio, and video content that they are expected to read and absorb on their own (Mirzaee et al. 2020). A doctor may use passive psychoeducation in a busy clinic with time constraints by giving out brochures or educational materials on the illness that are written in plain language that the patient and their guardians can readily grasp and absorb.

Group sessions typically include patients suffering from comparable illnesses. Patients with anxiety, depression, or stress may be included in groups. It is not advisable to join a group with individuals who have various illnesses. Typically, groups contain four to twelve members, with eight being the ideal amount. The ideal number of sessions is decided by study and practice and typically ranges from 5 to 24 sessions (Suranata 2019). The general areas to be covered for each disease stay the same, although frequently, the resource availability in terms of available time and personnel may lead to adjustments in the number of sessions. The lessons typically run for 40 to 60 minutes and take place once a week (Suranata 2019). The ideal session length and frequency aid in quicker retention of the shared and discussed knowledge. After each session, it can be helpful to give out printed material that summarises in plain terms the key points of the subjects covered.

For familial psychoeducational counselling, such as that held postpartum to encourage quality parental caregiving, it can be conducted in a setting with only one family or in a group with several families that have patients with comparable illnesses (multifamily groups) (Fitriani and Suryadi 2019). In the Indian setting, family-based psychoeducation methods can be quite helpful because, unlike their Western counterparts, most Indian patients live with their

families (Fitriani and Suryadi 2019). Models of family-based psychoeducation have been demonstrated to be successful in treating anxiety and depression. Here, Rahayu et al. (2019) state that sessions are held on average between six and twelve times per week, while the quantity and frequency may vary. Following the patient's discharge, follow-up sessions could be held every month.

In this case, it is important to apply to practice the use of psycho-educational counselling for anxiety and depression, as these two mental health symptoms are most common among pregnant women with preeclampsia. Mental health professionals should thoroughly inform the patient about the symptoms, causes, available treatments, side effects of medications, the need for compliance, and the overall course and outcome of the disorder after diagnosing anxiety and depressive disorder and carrying out any necessary assessments (Frias et al. 2020). The need for nonpharmacological interventions, such as activity planning and consistent physical activity, is highlighted in addition to the use of pharmaceuticals. Patients with anxiety disorders often benefit greatly from passive psychoeducation. This entails giving patients access to a variety of resources, such as books, brochures, or films that clearly explain various facets of anxiety disorders (Maheshwari et al. 2021). Here, the therapist does not actively engage the patient while conveying information regarding the ailment, in contrast to active psychoeducation. Moreover, Physical, and psychological problems are covered in great detail. Patients may have misconceptions about physical sickness; for instance, they may believe they are well if they do not exhibit overt physical symptoms (Patel and Vageriya 2019). Henceforth, these misunderstandings are dispelled, creating a better mental shape for pregnant women with preeclampsia.

Additionally, due to the presence of a dual diagnosis in women with preeclampsia and mental health disorders such as anxiety and depression, it is also crucial to develop a psycho-educational counselling plan that caters for the phenomenon (Schofield et al. 2020). Those who have both a psychiatric disease and concurrent illness, such as preeclampsia, are said to have a dual diagnosis. The prevalence of mental health disorders such as anxiety and depressive disorders in people with preeclampsia is ever-increasing. Parallel and sequential approaches are the most common types of care for these patient populations (Dimitriou et al. 2022). The comorbid conditions are treated independently by different specialists under the parallel model, while the primary ailment is treated first under the sequential model, then the comorbid condition (Dimitriou et al. 2022). The group psychoeducation paradigm for patients with dual diagnoses is based on a comprehensive, integrated strategy in which the same team treats both diseases. The primary benefit of an integrated strategy is that the same team can offer both conditions the care they require in a single sitting. Therefore, the following topics must be highlighted in dual diagnosis patients' individual or group psycho-educational counselling sessions:

- Phases of motivation and methods for overcoming depression and anxiety.
- A number of features of pre-eclampsia and how it affects behavior and emotions.
- The detrimental effects of preeclampsia on mental health and how they change the course and outcome of maternal and fetal health.
- Skills training
- How to deal with emotional difficulties and signs of mental health deterioration
- Skill development and a change in lifestyle (Sarkhel et al. 2020).

3 Study Goal, objectives and research questions

The goal of the study is to determine the role of psycho-educational counselling for women with preeclampsia.

The objectives of the study are:

- To determine whether psycho-educational counselling of women with preeclampsia helps in the restoration of the mother's mental health alongside treatment.
- To determine whether there is enough support available for promoting the mental well-being of women with preeclampsia.
- To explore how psycho-educational counselling aids the birth of an infant that thrives after birth.
- To determine how psycho-educational counselling of women with preeclampsia helps in improving their mental state during pregnancy.

The research questions are:

1. What is the role of psycho-educational counselling in restoring the mental health of pregnant women with preeclampsia?
2. A secondary research question of the study is what factors support successful psychoeducational counselling with women having preeclampsia?

Pico question was also phrased to help in the formulation of the research questions and in the identification of the key terms.

PICO Question: (Primary Question)	Patient/Population	Intervention	Comparison/Control	Outcome
What is the role of psycho-educational	Pregnant women with preeclampsia	Psycho-educational counselling	No psycho-educational counselling of	Reduction of psychological burden and mental

counselling in restoring mental health among pregnant women with preeclampsia?			pregnant women with preeclampsia	distress among these pregnant women
(Secondary Question) What factors support successful psychoeducational counselling with women having preeclampsia?	Pregnant women with preeclampsia	Psycho-educational support	No psycho-educational support provided	Increased mental distress among expectant women with preeclampsia without psycho-educational support

Table 1: Pico question

4 Methods

4.1 Integrative literature review

The study design of this research is an integrative literature review that includes a critical appraisal of the articles where validity is evaluated, the review results interpreted, and the application of the findings elucidated (Whittemore and Knafl 2005). The use of the integrative literature review was due to its past effectiveness in gaining new perspectives on existing problems, critical analysis of research, and its ability to gain inferences from past studies. This integrative literature review is geared towards the provision of knowledge synthesis and the application of results attained from the relevant studies for suitable practice. Whittemore and Knafl (2005) state that the integrative review involves several chapters, where components such as the studies' problem statements, the significance of the problem, methodology, data analysis, finding synthesis, and the whole body of the publications will be investigated.

The steps followed when undertaking this integrative literature review are; the identification of the problem, conducting of a literature search, evaluation of data, analysis of data, and finally, its presentation (Whittemore & Knafl 2005). This five-step process was utilized in the thesis, as outlined in Figure 1.

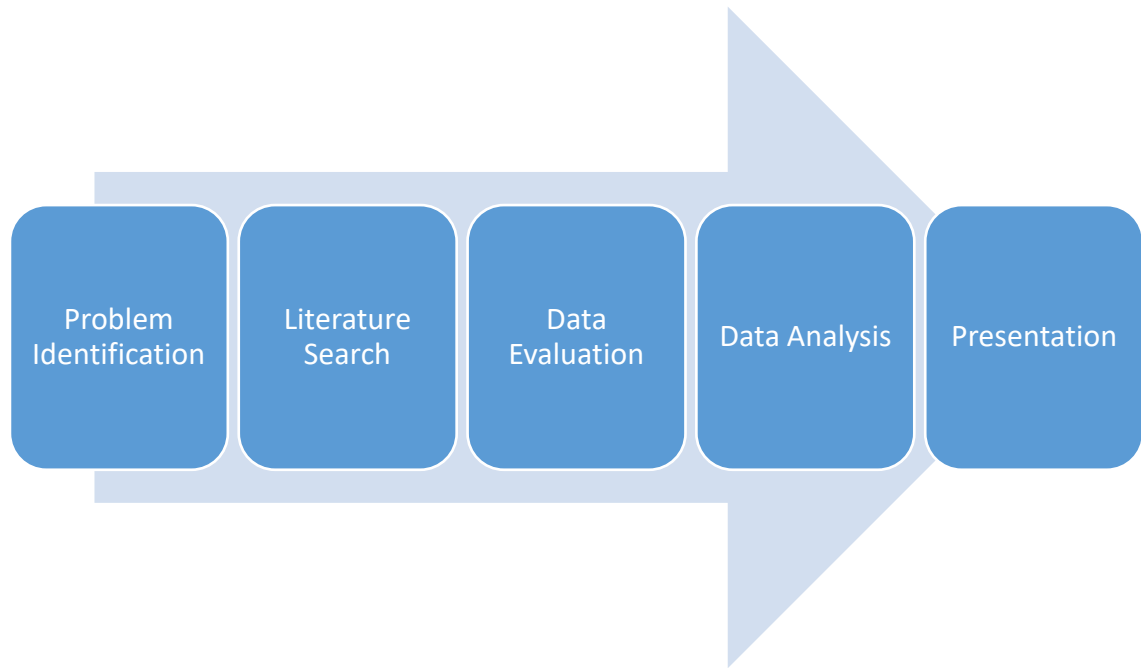


Figure 1: The Five Steps of Integrative Literature Review (Whittemore and Knafl 2005)

Whittemore and Knafl (2005) posit that preparing and identifying the problem is the primary step in an integrative literature review. This step involves a clear definition of the study's topic and purpose. The target population through literature are then identified as a key step of the literature review, where searching and sampling of the publications occurs. The target population involve the group or persons that the author plans to represent in the study. In this case, the target population are pregnant women with preeclampsia experiencing mental health issues. Additionally, the accessible population represents an altogether different term that is defined as the published articles and studies linked to the research topic. To conduct a suitable search and sampling for the literature review, the author elected to use proper search terms guided by the project goals, objectives, and research questions. The PICO model further provided clarity of the problem to improve the thesis structure.

For research validity, the sampling of data needs to be adequate, where all the sampling needs are documented and properly justified. The data collection process began with the determination of the inclusion and exclusion criteria (table 3). Data examination and evaluation is another crucial stage of the integrative literature review. To allow for careful evaluation of the data, the study was created within the Introduction, Methods, Results, and Discussion (IMRD) structure. Whittemore and Knalf (2005) assert that proper sampling should be included in the data collection process to increase the study's validity and that all sample-related decisions should be explicated and clearly explained in the integrative literature review technique section. Data gathering should include numerous tactics, and several approaches that are accessible should be employed to gather data for the review (Whittemore & Knafl 2005). The PRISMA tool for study eligibility was used to report

transparent studies and present the data search protocols used within the study. Moreover, the inferences and recommendations generated from the integrative literature review are presented in the discussion section.

4.2 Inclusion and exclusion criteria

The inclusion criteria used for the studies included the study design, which involves choosing publications with the right study design for the research issue (Haraldstad et al. 2019). Specifying study dates and a schedule for the topic or problem under investigation was also a necessary inclusion criterion. Second, participant types help determine the characteristics of the target population. Specifying the target group's condition and other pertinent details is crucial. Here, the participants are articles that involve pregnant women diagnosed with preeclampsia and women reviewed by psychiatrists and determined to have psychological and mental distress caused by preeclampsia. Thirdly, the intervention, which is psycho-educational counselling as an intervention to reduce mental distress among pregnant women with preeclampsia, should be well stated under the inclusion criteria.

Category	Inclusion Criteria	Exclusion Criteria
Study methods	Original peer-reviewed articles and academic research studies, such as systematic reviews	Papers that are not peer-reviewed OR scholarly
Publishing date	Studies conducted 2018-2023	Studies done before 2018
Access	Accessed from Laurea Finna, full-text articles	Not accessible through Laurea Finna, full texts are not available
Results	Studies that include the use of psycho-educational counselling as an intervention to reduce mental distress among pregnant women with preeclampsia	Studies that do not include the use of psycho-educational counselling as an intervention to reduce mental distress among pregnant women with preeclampsia
Language	Studies that were done in the English language	Studies were done in another language than English

Table 3: Inclusion and Exclusion Criteria

4.3 Data collection

To identify the relevant articles to include in the integrative review, relevant databases were utilized in the search to gain specific information among pregnant women with preeclampsia and to determine if psycho-educational counselling a useful strategy in reducing mental burden. The databases and journals used included BMC, ScienceDirect, Google Scholar, Wiley Online, Sage Journals, and PLOS One. To further get the relevant articles, the key phrases

used were; 'preeclampsia', 'mental health burden', 'pregnant women', 'psycho-educational counselling', 'psycho-educational training', and 'psychosomatic education'.

The integrative review process described by Page et al. (2021) is illustrated in the PRISMA flow diagram below, which also includes the database and register searches that were utilised to identify the most pertinent papers about preeclampsia and mental health burden. In addition, decision-making was oriented on feasibility; therefore, it was crucial to provide the number of records found in each database or register that was searched (as opposed to the overall number across all databases/registers). Also, it was stated how many records were excluded by a person and how many were excluded by automated techniques if such tools were employed.

14 publications (Appendix 6) that were timely and relevant for this research study were found via the PRISMA review technique. To present the information flow for describing the potential data search procedure, the PRISMA flowchart will be utilised. The flowchart presents the information across several stages of the review within the databases. The topic must relate to the research questions and keywords mentioned, and identified papers must have been published since 2018 (most recently published papers). Non-duplicate papers were retained for further review. Then based on the titles and the abstract, the selected papers were reviewed, and those that did not have adequate information about the subject were excluded. The remaining papers were again subjected to full-text review, and those that did not meet the criteria (not having adequate data recorded) were excluded. Those with sufficient data were retained, and the data extracted. Some relevant papers may be obtained from the selected papers. Thus, they also contributed to the extracted data, making them part of the article that was used in the literature search (Page et al. 2021).

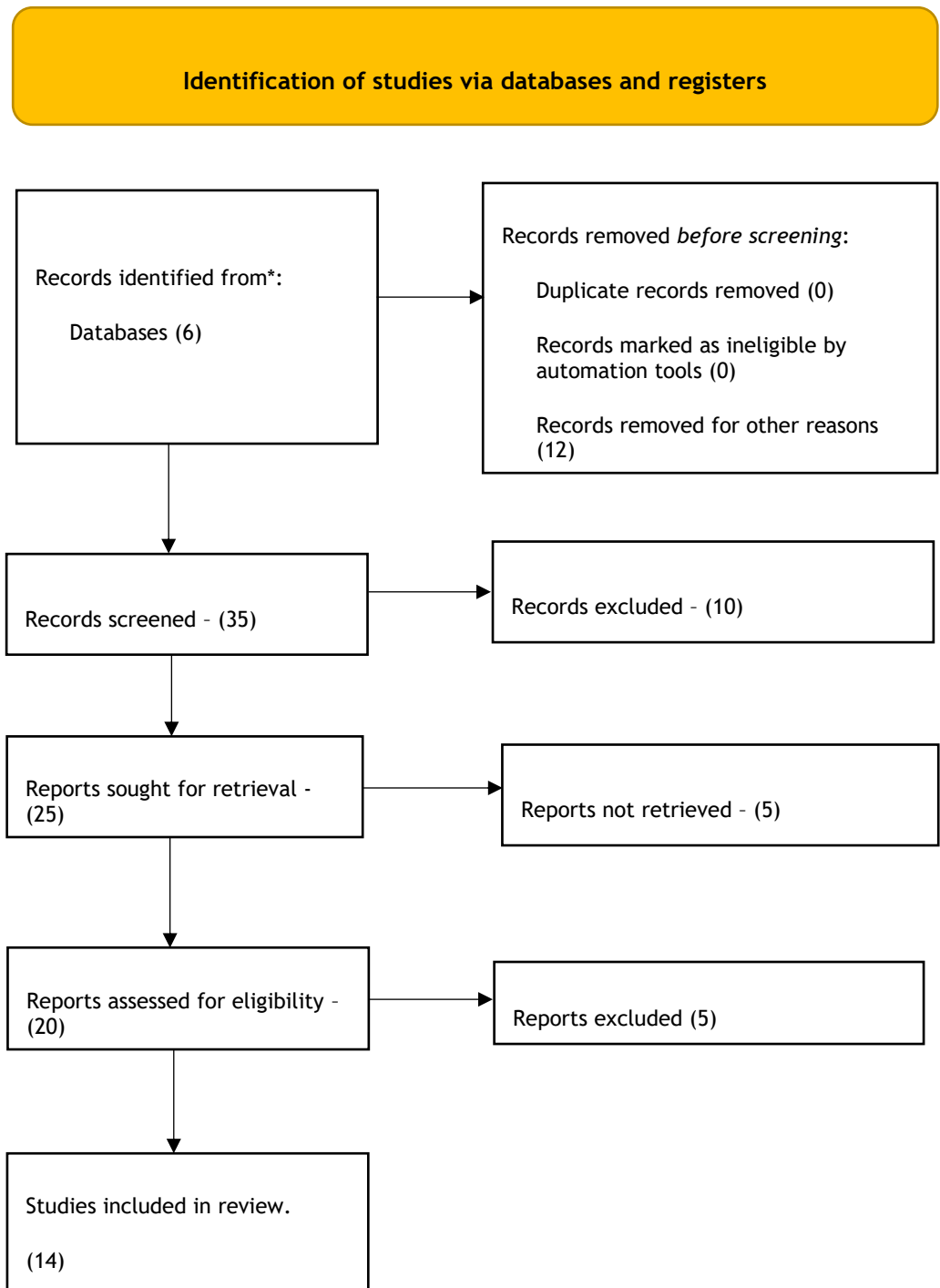


Figure 2: PRISMA Flow Chart for Included Studies

4.4 Quality assessment

The quality assessment and critical appraisal of an integrative literature review remain difficult processes due to the nature of the studies used for the thesis. For effective quality assessment of an integrative literature review, the correct balance is to be found between the criteria set and the evaluation methods. For an integrative review with a broad,

accessible sample population, the focus is placed on representation, originality, the value of data, and the quality of study methods used within the sources. As the search and sampling of articles in the literature review involved peer-reviewed and scholarly articles from reputable databases, Page et al. (2021) state that these articles are then subjected to thorough quality evaluation and may be considered quality research sources.

For the critical appraisal of the articles, the Joanna Briggs Institute (JBI) Appraisal Tool provides a precise evaluation of academic research using predetermined criteria for determining the levels of evidence and evaluating literature publications. The JBI Appraisal Tool is an international method used in healthcare systems and research to aid in the assessment of the trustworthiness, relevance, and results of research studies. The checklist allows the author to appraise the studies by focusing on the acceptable purpose and goals of the study. Such issues to focus on range from what entails an adequate search process or the right techniques of data synthesis. The criteria being used will examine how effectively the findings may be applied in clinical practice as well as the reliability and validity of the material obtained from the systematic review of research. The reliability and validity of the studies utilized in the literature review for this investigation were assessed using the JBI evaluation technique. There are 11 questions within the checklist that the author used to guide the appraisal of the studies, whereby the reviews yielded the answers 'yes', 'no', 'unclear', or 'not applicable(N/A)'.

The first question regards the review question, an important step in the integrative literature review process. By having a well-formulated review question, the research scope is well-defined and helps in the creation of a search strategy for finding the relevant evidence. In the best-case scenario, the review question revolves around its PICO, which helps find whether the article in question achieved its study objectives. The rating given is based on the answers; 'yes', 'no', 'unclear', or 'not applicable (N/A)'. The next question revolves around the appropriateness of the inclusion criteria and whether they are identifiable and match the review question. Other questions regard the appropriateness of the search strategy, the adequacy of the sources and resources used, the appropriateness of the criteria for study appraisal, whether the critical appraisal was conducted by two or more reviewers independently, the minimization of errors in data extraction, the appropriateness of the methods used to combine studies, the assessment of bias, support of policy recommendations, and the appropriateness of specific directives for new research. By using the answers; 'yes', 'no', 'unclear', or 'not applicable (N/A)', the author was able to critically appraise the articles used to assess the trustworthiness, relevance, and results of research studies. 1 point was given for a 'yes' answer, representing the highest ranking, 0 points for a 'no' answer, as well as 0 points for 'unclear' and 'N/A' answers. The highest score possible from the checklist was 11, while the lowest possible was 0.

4.5 Data analysis

Whittemore and Knalf (2005) provide the rationale for conducting data analysis for an integrative review to improve its reliability, trustworthiness, and integrity. The author integrated a data analysis strategy for this integrative review to allow for the removal of bias and an analytical interpretation of the sources identified and extracted from the electronic databases. The organisation, classification, comparison, and summarization of specific study results were all goals of data analysis. The gathered data was coded, categorised, organised, synthesised, and finally offers, an analysis of the data. The choice of the verification technique affected the analytical methodology. Writing and interpreting the findings to provide comprehensive knowledge was another goal for the thesis. Data reduction, data presentation, data comparison, conclusion drawing, and verification phases were all included in the data analysis approach outlined in Whittemore and Knafl (2005).

The individual research papers (n=14) were condensed to a single page during the data compression phase using comparable data that was taken from each source separately. The analysis of data was conducted using a table which included information such as the reference, purpose of the study, the method used, and the findings relevant to the study. This data analysis approach used was coined by Whittemore and Knafl (2005) through data reduction, data display, data comparison, conclusion drawing, and verification. The data reduction involved the reduction of the specific research articles (n=14) into a single page where the findings were subdivided into two main groups, the facilitators, and barriers. This data analysis table is presented in Appendix 7. Conclusion drawing and verification phases involved developing the data once it had been divided into subgroups, tying together, and extrapolating the descriptions of patterns and correlations, figuring out similarities and differences, and drawing conclusions. As Whittemore and Knafl (2005) state, analysis of integrative review literature allows for the identification of common themes, variations, and findings of inference

5 Results

5.1 Description of the studies included

The studies (n=14) from the articles retrieved were qualitative studies in nature. The data analysis table in Appendix 7 explains every article in detail. The included articles were published between 2018-2023. These studies range from three different continents, where the countries are: Netherlands (n=3), Iran (n=3), Iraq (n=1), Tanzania (n=1), Canada (n=1), Spain-Portugal-Iran (n=1), Egypt (n=1), Sub-Saharan Africa (n=1) and the rest of the world in two literature reviews.

Publication Year	No. of Studies (n=14)
2023	1
2022	4
2021	1
2020	3
2019	2
2018	1
2017	1
2016	1

Table 4: Included studies according to the year of publication

5.2 Impediments to improved mental health among pregnant women with preeclampsia

The study identified key impediments to improving mental health among pregnant women with preeclampsia. Low socio-economic factors, patient education, and poor health practitioner skills were seen as the main impediments to good mental health, where the thesis investigates the role of psychoeducation in restoring mental health.

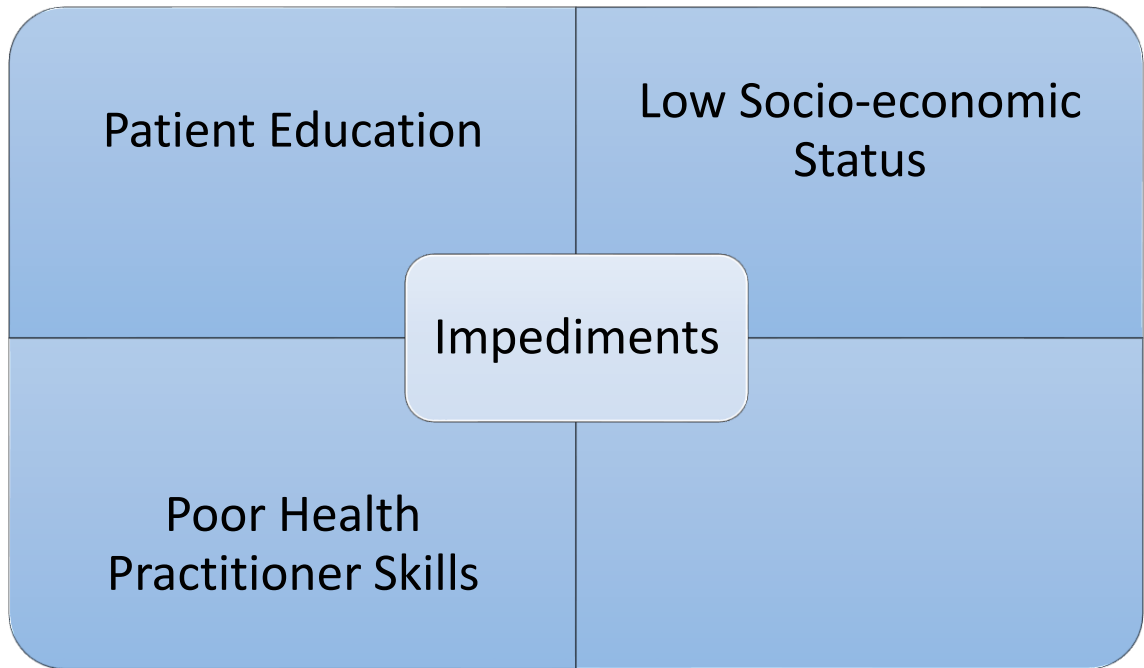


Figure 3: Impediments of good mental health among pregnant women with preeclampsia

5.2.1 Inadequate patient education

The author identified patient education as one major impediment of mental health issues among pregnant women with pregnancy and how psycho-educational counselling is a key intervention in improving patient insight. The lack of patient education regarding their condition, in this case, preeclampsia, is seen as a major facilitator of stress, anxiety, and depression among pregnant women and new mothers. Missler et al. (2020) state that the first months postpartum are the most difficult for mothers who experience exacerbating symptoms of parental stress, anxiety, and depression. Moreover, these symptoms often create issues with parenting, where the child is not given the optimal quality of caregiving (Missler et al. 2020).

One major difference between the study by Missler et al. (2020) to other studies identifying patient education as a facilitator is that it investigates how both parents are affected by pregnancy-related complications. Psycho-educational counselling is henceforth important for both parents to ensure greater insight regarding self-care to reduce mental health distress. Missler et al. (2020) identify the transition to parenthood as an important step that may increase the mental distress experienced by mothers. Here, due to the feelings already experienced before and during childbirth caused by preeclampsia symptoms, as well as the knowledge of complications that may be caused by preeclampsia, the mothers often get even more overwhelmed and feel unworthy. These feelings of psychological burdens are more often present in mothers with preeclampsia than those without the condition.

Missler et al. (2020) found that psycho-educational counselling was not effective in reducing the symptoms of depression and anxiety postpartum, as well as showing no great reduction in parental caregiving quality after the intervention. This research provides a stark contradiction regarding the effectiveness of psycho-educational counselling on pregnant women concerning their mental health. However, Missler et al. (2020) acknowledge that psycho-educational counselling showed better effectiveness in reducing psychological distress among pregnant women during their pregnancies, as they were provided with sufficient knowledge regarding preeclampsia and how the condition can be managed. Using the psycho-educational counselling intervention postpartum shows no effect on reducing mental distress among mothers providing parental caregiving. However, during pregnancy, the use of psycho-educational counselling is highly effective in reducing psychological distress such as anxiety, stress, and depression among women during their 26th to 34th week of pregnancy.

El-Refaey et al. (2020) offered subtly different research from Missler et al. (2020), where they examine the effect of the tailored psycho-educational program on pregnant women's anxiety and knowledge regarding self-management. Missler et al. (2020) are focused on finding the differences in parenting stress due to postpartum complications. Pregnancy is associated with increased vulnerability and risk of developing complications. The time during pregnancy is often associated with hormonal changes that affect the person's physiology and psychology, making them susceptible to mental health distress symptoms.

El-Refaey et al. (2020) provided a more detailed account of how the use of psycho-educational counselling is beneficial to expectant women, as opposed to Missler et al. (2020). The use of psycho-educational counselling offers additional benefits such as improving the knowledge of their pregnancy, where they are more willing to participate and adhere to treatment and management plans to increase the likelihood of positive health outcomes for the infant and themselves during delivery (El-Refaey et al. 2020). Moreover, El-Refaey et al. (2020) also find that the use of psycho-educational counselling is useful in creating self-care management practices among pregnant women. This situation is important as the hospital setting is an outpatient clinic, meaning that the women do not undergo constant monitoring. Therefore, through the psycho-educational effort, they undergo training where the study shows that the retaining rates of self-care management practices are higher among those that receive psycho-educational counselling. This improves their mental state of being, as they are more confident in their ability to take care of themselves and the eventuality of bringing up healthy offspring.

Qadir et al. (2022) provided a different approach to the psycho-educational program, where they research the relationship between demographic and the impact of the program on anxiety levels in people with a history of generalized anxiety disorder by improving their insight on specific details regarding their condition. Psycho-educational counselling program drastically reduced the participants' anxiety levels, as well as their knowledge regarding how

to combat anxiety and safely practice self-care management (Qadir et al. 2022). Although some of the information provided within the research is irrelevant to the topic, in terms of pregnant women with preeclampsia, the study's findings shed light on the use of psycho-educational counselling on people with severe anxiety problems through improving their education levels and knowledge regarding their personal health. Therefore, its use among pregnant women with preeclampsia is justifiable since it does not involve pharmacological or physical exertions that may cause severe effects on the women. Moreover, the psycho-educational aspect may prove beneficial in terms of creating a sustainable knowledge base and improving self-care management practices among pregnant women with preeclampsia. Henceforth, although the study is not particularly specific to the intended target, it may be used to promote mental well-being among pregnant women with preeclampsia who have anxiety and other psychological distress symptoms due to uncertainty caused by the condition.

5.2.2 Poor health practitioner/nurse skills

Umamah et al. (2020) brought into further focus the role of mental health nurses in providing cognitive-behavioural therapy in psycho-educational counselling sessions. One of the main roles of specialist nurses, for example, diabetes specialist nurses and mental health/psychiatric nurses, is to the provision of education and training to their patients regarding their diseases and their management. Mental health nurses are already well trained in providing psycho-educational counselling in terms of cognitive-behavioural therapy. Moreover, a self-guided counselling program specifically created to enhance self-care practices in hypertension management was especially important among pregnant women with preeclampsia who had little prior knowledge regarding how to manage their blood pressure. Furthermore, the participants need to be given a thorough insight into the pathophysiology of their preeclampsia, where they would be reassured about their health and that of their infants (Umamah et al. 2020). Here, the reason for the search for knowledge was for the participants to become familiar with the therapeutic services offered, as well as understand the importance of reducing mental health distress during their preeclamptic period.

A finding of the study by Abazarnejad et al. (2019) was that there are not enough psycho-educational counselling experts currently to offer the required training to pregnant women with preeclampsia to reduce their psychological distress. The support stems from hiring specialised experts and providing the resources to ensure sustainable practice. Therefore, along with the findings regarding the effectiveness of psycho-educational counselling on anxiety for women with preeclampsia, Abazarnejad et al. (2019) found that there is not enough support currently to help pregnant women with preeclampsia experience mental wellness.

Gingras-Charland et al. (2018) answer one major research question, which is whether psycho-educational counselling of women with preeclampsia helps in the restoration of the mother's mental health alongside treatment. Gingras-Charland et al. (2018) state that the use of a preeclampsia educational tool is not effective in reducing anxiety among women regarding their condition. The main reason behind this phenomenon, as Gingras-Charland et al. (2018) postulate, is the fact that the women did not feel any sort of empathy from the tutorials, pamphlets, and videos regarding preeclampsia. This study then shows the importance of conducting a psycho-educational counselling session using trained professionals to reduce anxiety and other psychological burdens among pregnant women with preeclampsia.

Therefore, the study by Gingras-Charland et al. (2018) shows that the use of educational tools is not enough in itself to reduce psychological distress among women with preeclampsia, where psycho-educational counselling conducted by trained nurses would help in reducing the rate of psychological distress. Moreover, it is important to note that using the preeclampsia educational tool is another way of increasing satisfaction among pregnant women visiting antenatal clinics, which in turn may help in improving their confidence in the health services being provided towards healthy outcomes for themselves and their infants. Although similar in determining the importance of psychoeducational counselling in improving patient education, it is crucial to utilize the proper tools that may elicit the wanted outcome of restoring the mental health of pregnant women with preeclampsia.

Balogun and Sibai (2017) state that due to the lack of support available for promoting the mental well-being of women with preeclampsia, women with SPE normally experience symptoms of psychological distress since the complications involved may be detrimental to the foetus and the mother. Therefore, psycho-educational counselling is important to women with preeclampsia, as it helps to improve their knowledge of the management and treatment strategies involved in SPE. Moreover, due to the stressful nature of hospitalization and the realization that pre-term delivery has a high likelihood, psycho-educational counselling may help provide a calm attitude due to the presentation of relaxation techniques for the pregnant women, gradually helping them to reduce the stress that may affect the foetus and mother's health. Another reason for the importance of psycho-educational counselling is the role that mindfulness plays in reducing psychological distress. For instance, meditative walking, stretching, breathing techniques, and gazing meditations are some of the activities carried out by trained experts within psycho-educational counselling sessions that may help reduce stress in women with SPE. Therefore, it is important to improve the rate of psycho-educational counselling among women with SPE, to improve the outcomes related to the management of the condition. Having self-care activities during pregnancy is a form of patient education which precipitates better mental health outcomes (Umamah et al. 2020). However, Blogun and Sibai (2017) introduce the role of support, financially and structurally, in promoting these activities, which is dissimilar to the other studies highlighting patient education as a facilitator. Hence, finding support, especially in underprivileged communities,

as Edward et al. (2020) suggest that it is crucial in improving the mental health outcomes of women with preeclampsia by utilizing said interventions.

Wortman et al. (2019) dwell deeper into psycho-educational practice by detailing the role of psychosomatic therapy as an intervention tool to reduce mental distress. Wortman et al. (2019) state that psychosomatic therapy is a subset of psycho-educational counselling in that it is multi-faceted and specialised. Psychosomatic therapy involves the empowering of patients through involving psycho-educational counselling, relaxation activities, mindfulness activities, cognitive behavioural practices, and graded activity (Wortman et al. 2019). Use of psychosomatic therapy improves the satisfaction of patients, where they also showcase clinical improvements in terms of the severity of their symptoms (Wortman et al. 2019). Moreover, according to all the measurements, the participants placed in the intervention group showed greater improvement in terms of health change, mental health well-being, and confidence levels of their health outcomes. The use of psychosomatic therapy has a positive effect on mental wellness, physical well-being, and cost-related activities since the patients do not require numerous consultation services as they know self-care practices concerning pre-eclampsia and mental well-being (El-Refaey et al. 2020). These studies have all shown the usefulness and effectiveness of integrating psycho-educational counselling within the management of preeclampsia in pregnant women. The main themes are that it helps in relaxation, mindfulness, and increase in knowledge regarding their preeclamptic condition, which results in better mental health. One study contradicted the effect of psycho-education counselling in women with preeclampsia, although the study was catered to determine its effect in preeclamptic women postpartum. This shows that psycho-educational counselling has some gaps, where its use postpartum should be tailored to serve parents with severe psychological distress post-delivery. This finding is similar to Missler et al. (2020), who posit that the use of psycho-educational counselling postpartum does not improve the mental health outcomes of the mother effectively.

5.2.3 Socio-economic factors

Low socioeconomic status is seen as another key facilitator of mental health issues among pregnant women with preeclampsia. Moreover, low socioeconomic status also correlates to low skills among nurses or health practitioners providing care. Edward et al. (2020) utilize another approach to understand the use of psycho-educational counselling in hypertension management, especially among newly-diagnosed pregnant women. Edward et al. (2020) also provide the perspective of hypertension management, mental health status, and the use of psycho-educational counselling from a third-world country. Edward et al. (2020) state that in Tanzania, the reason for the prevalence of hypertensive crises, even in pregnancies, is attributed to the limitations of the country's healthcare system in the prevention and management of hypertension. Moreover, the authors also find that inadequacy in healthcare provider knowledge, their system's capability, medication availability, and patient insight are

other reasons for the high prevalence of hypertensive disorders in the country (Edward et al. 2020). Balogun and Sidai (2017) also found that the lack of support available for promoting the mental well-being of women with preeclampsia, women with SPE normally experience symptoms of psychological distress since the complications involved may be detrimental to the foetus and the mother. Moreover, the study showed that nurses performed better in providing screening services than physicians in terms of blood pressure measurements and diagnosis of the conditions (Edward et al. 2020). This is unprecedented and shows the true scope of how health practitioner knowledge affects the mental health of pregnant women with preeclampsia. Therefore, Edward et al. (2020); Balogun and Sidai (2017) show that low socioeconomic factors play a role in the number of unskilled labour capable of dealing with complications related to preeclampsia.

The study by Edward et al. (2020) is important as it provides the theme of utilizing psycho-educational counselling, not just for pregnant women with preeclampsia but for the health practitioners providing medical care to these patients. Most of the health practitioners in third-world countries have inadequate knowledge regarding the provision of hypertensive management and screening, which may increase the number of cases of women with preeclampsia. Moreover, this high number of women with preeclampsia without screening adds to their psychological burden and the probability of negative outcomes for their infants and their health. Therefore, Edward et al. (2020) looks at the role of psycho-educational counselling, both for the patients and the health practitioners, to improve hypertensive screening services as well as improve the health outcomes of patients in the country.

There is a dire need for psycho-educational counselling and training required for health practitioners in third-world countries. The psycho-educational counselling conducted by health practitioners should be different to that practiced on patients to reduce mental distress. The purpose of psycho-educational counselling for health practitioners is to improve their awareness and diligence in the apt screening of hypertensive disorders, especially among middle-aged adults and pregnant women. Doing so would improve healthcare provision and reduce the burden of preeclampsia and other hypertension-related disorders in third-world countries. Moreover, patients would gain more trust in the individuals providing health care and increase their confidence in more positive health outcomes in future. Therefore, the study by Edward et al. (2020) and Balogun and Sidai (2017) are useful publications for this integrative review as they increase the versatility and crucial nature of psycho-educational counselling, not just for improving the psychological burdens of women with preeclampsia but by improving the diligence and practice methods of health practitioners in third-world countries to create a health service that is sustainable and improves the health outcomes for future patients.

5.3 Facilitators to improved mental health among pregnant women with preeclampsia

The facilitators to improved mental health among pregnant women with preeclampsia are positive factors that help in reducing the problem. The main facilitators identified in this thesis are the public health role and the role of competent psycho-educational counsellors.



Figure 4: Facilitators to the mental health issues faced by pregnant women with preeclampsia

5.3.1 Public Health Role

Poon et al. (2021) found the role of the public health department important in improving both the statistics regarding preeclampsia and mental health conditions attributed to pregnancy. According to Edward et al. (2020), streamlining health services in low-economy countries enables efficient service delivery of health services, ensuring health equity, affordable services, and access. As preeclampsia is a public health menace, its eradication should be made a priority to improve the mental health and physical health outcomes of patients.

Poon et al. (2021) highlighted that antenatal care is crucial and should be provided mostly around the third semester due to the high risk of development of pregnancy complications. However, the current approaches in the detection of preeclampsia only manifest during the late stages, meaning that blood pressure stabilization and early management occur later. Therefore, the best way of addressing preeclampsia involves maintaining the public health focus, risk stratification of asymptomatic women, and management of women with confirmed preeclampsia. Moreover, the study is more attuned to providing general management

techniques and methods for reducing the mortality and morbidity associated with preeclampsia, different to Edward et al. (2020), who look at health sector improvement as the main strategy in improving preeclampsia-related issues. These methods also include providing accurate delivery plans for women with confirmed preeclampsia and provision of quality postpartum care for both the mothers and their infants. It is not academically suitable to create assumptions regarding these management techniques and how they impact the mothers' mental well-being, as the authors only discuss the overall management of preeclampsia.

Following the main points highlighted by Poon et al. (2021), these authors offer differing interventions regarding the management of preeclampsia. First is public health emphasis, stating that the international community is required to place greater attention on preeclampsia and how it increases the development of non-communicable diseases. Public health control measures are useful in enhancing awareness, access, and acceptance of counselling regarding antenatal and postnatal health services (Edward et al. 2020). Therefore, the authors show the connection between counselling and the management of preeclampsia by stating how public health efforts are a valuable tool in improving the health outcomes of pregnant women. However, the authors fall short in describing how counselling is helpful in terms of improving the mothers' mental well-being, instead focusing on the management of preeclampsia as an epidemiological factor. Another point highlighted by the authors is risk stratification and monitoring in asymptomatic women. Here, the diagnosis of preeclampsia is often ineffective due to its asymptomatic nature in some cases. Balogun and Sidai (2017) recommend the establishment of antenatal clinics geared towards the provision of screening services among pregnant women to determine their risk of developing preeclampsia. Finally, the management of women with confirmed preeclampsia is the final point highlighted by the authors. This requires the determination of the patient's stability, where they are either placed in outpatient or inpatient facilities depending on this factor (Poon et al. 2021). Improving the public health's sector role in activities related to improving mental health is crucial in improving their mental health outcomes, which may even reduce the need for implementing interventions such as psycho-educational counselling, which may be a costly undertaking for women from less privileged backgrounds.

5.3.2 Health practitioner and counsellor competence role

Having skilled and well-trained psycho-educational staff is another barrier to mental health issues among pregnant women with preeclampsia. Alves et al. (2022) map an evidence-based practice of a perinatal mental health counselling program and determine its features and outcomes. The study by Alves et al. (2020) shows a major difference from other studies that provide the role of the health practitioner in reducing mental health distress in that it does not specify the use of psycho-education as a counselling technique, although its use is implied by stating that the sessions provided involve the use of cognitive behaviour practice, group

sessions, and education to achieve positive mental health outcomes. Therefore, this implied meaning means that the perinatal mental health counselling programs researched are psycho-educational due to their attributes.

Alves et al. (2022) find that perinatal mental health counselling programs are effective in creating better positive health outcomes among the participants. Moreover, the research also finds that the participants gain further knowledge regarding their pregnancy, better attitude, and learn more safe self-management practices throughout their pregnancy. Henceforth, Alves et al. (2022) state that the adoption of healthy behaviours by the participants is an indicator of improved mental health, leading to better health outcomes in pregnant women. Moreover, another theme is touched on by Alves et al. (2022), who find that the perinatal mental health counselling program is useful in providing psychotherapeutic and psycho-educational properties to the participants, who then find the program helpful throughout their lifecycle and can mobilize friends and family members to adopt these healthy behaviours in future.

5.3.3 Availability of psycho-educational training

Additionally, Alves et al. (2022) state that mental health counselling improves the patients' perception of their environment, conditions, and hope for well-being. This helps provide a better and positive frame of mind, whereas Andrade (2019) states a positive mindset in healthcare that is not extreme contributes to a patient's mental wellness and results in more positive health outcomes. However, the study by Alves et al. (2022) contains some gaps in the literature, especially surrounding the topic of perinatal nursing, which may have future implications in this research in terms of adopting and applying into practice. For instance, in the perinatal nursing world, there currently does not exist any counselling program with the sole objective of reducing stress, anxiety, and other psychological burdens in practice. This shows the need to address this gap since perinatal nursing objectives are mainly catered towards the overall care and support of mothers and their families during and after childbirth. There should exist a specific component within perinatal nursing catered towards the provision of psycho-educational counselling of mothers towards the reduction of stress, depression, and anxiety. Therefore, the use of perinatal mental health counselling programs, which are psycho-educational, is effective in reducing stress, anxiety, and depression among women before, during, and after childbirth.

The only drawback of the study by Parang et al. (2023) is that it does not explicitly discuss the mental state of pregnant women with preeclampsia but defines preeclampsia as one of the conditions that affect pregnant women, affecting their mental state. Parang et al. (2023) state that postpartum depression is one of the most common conditions experienced by mothers, where they exhibit feelings of discouragement, irritability, lowered self-esteem, and a sense of inability to perform their maternal duties. Parang et al. (2023) provide a

unique reasoning behind the pathophysiology of postpartum depression among mothers, stating that it is caused mainly by unintended pregnancy, lack of support during pregnancy, history of depression, and hospitalization after childbirth. This goes against the grain, as previously seen by Alves et al. (2022), where mental health distress is seen to originate and stem from the absence of specific psycho-educational counselling. Srajer et al. (2022) stated that anti-angiogenic aspects, as well as inflammatory cytokines that are released from the placenta of women with preeclampsia, damage the blood-brain barrier (BBB). The damage to the BBB is usually the main contributing factor to mental health impairment due to the structural and functional changes in the cerebral cortex (Srajer et al. 2022). Moreover, the length of hospitalization, the uncertainty of maternal and infant health outcomes, and newborn difficulties, preeclampsia, mostly cause mental health issues.

Parang et al. (2023) found that the use of training sessions and psychosomatic empowerment techniques were crucial in improving the mental health of pregnant women. This study shows that psychosomatic empowerment - a tailored intervention that combines the use of training sessions, psycho-educational counselling, relaxation methods, and mindfulness activities (Wortman et al. 2019) - is an effective intervention in improving the mental health of pregnant women with preeclampsia. However, the study contains some limitations since it does not provide the full explanation of how the psychosomatic empowerment techniques were carried out, bringing out some difficulty in translating the research into applicable evidence-based practice. Moreover, the study does not show specific details regarding the training sessions, mindfulness activities, and relaxation techniques, bringing about vagueness and ambiguity within the study. Therefore, future publications need to come up with greater details regarding their psychosomatic and psycho-educational strategies to provide the readers with greater details regarding the interventions in use within the study.

Martin et al. (2016) is the next study where the client's psychosocial communication and midwives' communication during prenatal screening affects the screening services. This study mainly looks at the nurses' and midwives' roles in providing psycho-educational counselling to improve the screening of anomalies such as preeclampsia, thus reducing their mental distress. Moreover, Martin et al. (2016) tried to determine whether facilitating and improving communication during prenatal counselling improves health outcomes and chances of detecting anomalies. This study also shows the techniques used within psycho-educational prenatal counselling that may offer better effectiveness in an adaption by the patients. The study is different from others as it showcases, with clarity, the role of nursing staff communication and competence rather than the specific activities carried out in improving mental health (Alves et al. 2022; Parang et al. 2023). For instance, it was important for midwives to ask more psychosocial questions during the counselling sessions to gain more feedback from the patients. Instituting feedback from the clients is a way in which communication is achieved, and response, trust, and adaption of practices taught within the counselling sessions are achieved.

Martin et al. (2016) also found that using a client-directed gaze was not effective in improving the communication between the midwives and the clients but rather decreased feedback from the clients. Another finding by Martin et al. (2016) was that the use of verbal and non-verbal cues during counselling sessions was important, especially when used properly. For instance, verbal communication, such as oral communication and written communication, was more effective when done confidently and professionally. The clients responded more candidly and were more engaged within the counselling sessions when the speaker was confident and professional, asking questions and listening to the clients. The use of non-verbal cues was also important. The only non-verbal cue that did not lead to good communication patterns between the midwives and the clients was eye-contact/ client-directed gaze. Other than that, proper use of non-verbal cues, such as the use of body language, was found to be highly effective for communication between the two parties. In this case, the use of body language included gestures, body positioning, use of the arms, and posturing. Gestures, body positioning, and posturing were found to induce a feeling of empathy when performed correctly while also leading to general mistrust from the clients when done incorrectly. Since non-verbal cues such as body language cannot be disrupted, clients would often sway with the midwives' body language to direct their state of mind and mindfulness regarding the counselling program.

Therefore, the study by Martin et al. (2016) is important as it dictates the general communication habits that midwives and nurses are meant to exhibit when carrying out psychosocial and psycho-educational counselling sessions. Correct use of communication cues, such as verbal and non-verbal cues, maybe the difference between the clients assimilating the contents of the counselling sessions or not. Henceforth, the study showed that many of the midwives in the Netherlands did not possess the required level of communication skills to enhance the role of psycho-educational counselling for prenatal care. This goes in stark contrast to the study by Edward et al. (2020) and Balogun and Sidai (2017), who claim that mainly nurses in third-world countries and low socioeconomic backgrounds possess little nursing skills that reduce the impact of psychoeducational counselling among pregnant women. Therefore, Martin et al. (2016) suggested that the use of proper communication cues such as proper body language, effective communication, psychosocial communication, and client engagement helps in improving prenatal psycho-educational counselling, thus improving the health outcomes of both the mothers and the infants before, during, and after delivery.

Hasani et al. (2021) researched the effect of counselling based on health promotion awareness on mental health in women with ectopic pregnancy. The study offers good insight into the role of counselling on the mental health of women. The only drawback regarding this study is that its main participants and focus of the study are women diagnosed with ectopic pregnancies. Ectopic pregnancies occur when the fertilized egg attaches itself outside the uterine wall. This may result in a woman having pregnancy signs and symptoms, although no

infant develops within the uterus. Therefore, the mental health of women with ectopic pregnancies may not be compared to those with preeclampsia. However, the study may be useful as it may show the effectiveness of the psycho-educational counselling technique in improving the mental health and self-esteem of women with a pregnancy-related condition.

Hasani et al. (2021) found that there was a significant reduction in mental health distress in the intervention group as well as a significant increase in the total self-esteem levels in the intervention group compared to the control group. Therefore, this study shows that psycho-educational counselling is effective in reducing mental health distress and improving self-esteem among women with ectopic pregnancies rather than receiving routine care in hospitals. However, the major pitfall of this study is whether these results can be replicated using similar controls for women with preeclampsia. Although previous studies show that psycho-educational counselling helps reduce the psychological burden and mental health distress among women with preeclampsia, jumping to conclusions and making assumptions based on this study would be improper academic practice and ethically incorrect.

This integrative literature review has responded to the research questions and hypotheses regarding psycho-educational counselling, finding that its use is effective in reducing mental health distress and the psychological burden associated with preeclampsia in pregnant women. Furthermore, the literature found that there is currently little to no support for the mental health of women with preeclampsia due to the lack of resources available to curb mental health distress and psychological burdens, which may worsen the symptoms of preeclampsia.

6 Discussion

Pregnant women affected by preeclampsia have variations in mental health state, precipitated by hospitalization, the stress of uncertainty, and lack of knowledge regarding their condition. These processes are tedious and important for both the patient and the health practitioners to ensure the health of the mother and the fetus post-delivery. Furthermore, Roberts et al. (2022) find that most women with preeclampsia find the process of childbirth a traumatic event, creating anxiety regarding their infants' health and post-traumatic stress disorders (PTSD) after the experience. Health practitioners overlook mental health conditions due to the serious nature of the symptoms associated with preeclampsia, often looking to manage these symptoms rather than focus on their mental health.

Poon et al. (2021) found that emphasizing public health and management of pregnant women with preeclampsia is more beneficial to their health. Here, the authors state that the public health sphere offers better intervention in helping pregnant women with preeclampsia than psychoeducational counselling. Missler et al. (2020) also infer that psychoeducational

interventions for expectant parents do not enhance the quality of caregiving, thus having little effect on reducing stress, anxiety, and depression.

Alves et al. (2022) concluded that perinatal mental health counselling helped improve the patients' emotional management and problem-solving skills and made them more relaxed and mindful. Furthermore, Parang et al. (2023) also determined that maternal functioning in all areas was improved as a result of counselling with STA. This helps in reducing the parental stress associated with postpartum depression. The study by Wortman et al. (2019) showed that the women in the experimental group empowered with psychosomatic techniques had a lower rate of depression than those not exposed to the intervention. Henceforth, the determination of the importance of using psychosomatic techniques in reducing mental health conditions such as depression is stated clearly by the authors.

El-Refaey et al. (2020) showed that psycho-educational programs helped improve the knowledge of pregnant women regarding their health and self-care practices. Qadir et al. (2022) state that psychiatric education intervention is highly effective in reducing patients' anxiety levels, which increases their knowledge and problem-solving skills in emergencies. This is especially important as determined earlier that women with nulliparity are more likely to develop preeclampsia, thus making them more susceptible to mental health issues. Edward et al. (2020) found that autogenic training, physical exercise, and psycho-educational counselling all had similar impacts on reducing preeclampsia symptoms among pregnant women and reducing their anxiety and stress. Furthermore, Abazarnejad et al. (2019) state that prenatal empowerment through psycho-educational counselling helps pregnant women experience fewer complications and maintain a healthy psychological state. Gingras-Charland et al. (2018) come up with a similar conclusion, where they find that a reduction of anxiety is witnessed among preeclamptic women exposed to psycho-educational counselling. In terms of the importance of increasing awareness and ensuring positive perceptions of pregnancy, Balogun and Sibai (2017) state that raising women's awareness of pre-eclampsia may help them recognise its symptoms, leading to the early diagnosis and treatment of this condition and possibly reducing its negative effects. Therefore, the overwhelming data collected from these articles prove that the use of psychoeducational counselling is effective in reducing mental health distress among pregnant women with preeclampsia. However, it is also noteworthy the preeclampsia educational tool increased the knowledge of preeclampsia in the women, as well as their satisfaction with the tools, but did not increase their anxiety about preeclampsia. This might show that the tools provide sufficient knowledge regarding preeclampsia, also offering enough insight to suggest that the management and treatment strategies available do not create negative health outcomes for pregnant women and their infants. Nevertheless, it is important to create tools where psycho-educational counselling may not be feasible, which also seek to reduce the levels of anxiety among pregnant women with preeclampsia. Following the MIPP framework that seeks to identify and deal with the

factors that result in poor health practitioner competence, the results show that integrating psycho-educational counselling will improve the mental health of pregnant women with preeclampsia. The MIPP framework looks into psychoeducation as a tool for improving midwives' skills, competence, confidence, and knowledge, which results in the reduction of fear and anxiety among women. Therefore, the framework in correspondence with the findings show that maternal confidence is possible when these factors are controlled.

6.1 Review results interpretation

The interpretation of the study findings should demonstrate consistency across all identified studies, the overall findings, and the accuracy of the findings (Wilson et al. 2021). The majority of the articles that were found backed up the claim that psycho-educational counselling use is beneficial. All of the cited articles provide evidence-based information about the use of psycho-educational counselling in reducing the psycho-educational burden and mental distress among pregnant women with preeclampsia. Also, the articles that refuted the concept were generally vague and unclear about the psycho-educational counselling technique.

6.2 Applicability of the results

The question of applicability is if the data collected can demonstrate that the patients in the initial trial experienced similar outcomes. Adult hospital patients are the participants in this study, and the literature review's findings should represent similar outcomes when the patients receive the intervention (Wilson et al. 2021). It is wise to conclude from the studies that the intervention based on the interpreted results will be practical in a hospital context, will produce clinically relevant results, and will have more advantages than disadvantages. This demonstrates that the findings of the integrative review will be useful in clinical practice.

6.3 Evaluating validity

Finding out the caliber of the procedures utilised to assess the reliability of the consulted articles is part of evaluating validity. To ensure that the articles' findings can be recognised as transparent, truthful, and reflecting the truth, methodical meticulousness should be the rule (Wilson et al. 2021). To find the best publications, the PRISMA model, databases, use of key phrases, and inclusion/exclusion criteria were given priority. It is crucial to ascertain whether these strategic methods used the PICO framework, whether they adhered to the requirements for this research, whether the literature search technique was clearly described, and whether the chosen articles had already been evaluated for methodological quality and the number of people evaluating to assess their quality.

Using the Lincoln and Guba (1985) trustworthiness criteria also provides an important method of evaluating the validity and worth of the study. Trustworthiness manifested in this study by using credible sources whose data was easily transferred to find inferences and conclusions. According to Lincoln and Guba (1985), trustworthiness refers to the evaluation of the quality and worth of a research study, where the findings are matched to the aims of the study. The criteria used to identify trustworthiness are credibility, dependability, conformability, and transferability. Credibility includes confidence in the truth of the data and the inferences, where ensuring believability and demonstrating to the reader that the study is credible ensures credibility. Dependability requires the study's stability over time, while conformability refers to remaining objective when interpretations of the data are found. Finally, transferability involves the ability to transfer the results of the study to other groups or settings. To establish the presence of these criteria, prolonged engagement within the settings, persistent observation, auditing, and using thick descriptions allowed the author to determine the trustworthiness of the study. Following the criteria of trustworthiness, the study was determined to be credible, dependable, conformable, and transferable. Henceforth, the trustworthiness and, in turn, the validity of the study was ascertained.

Uniformity of evaluation of an interesting concept is referred to as the study's dependability. Validity refers to the extent to which a measurement accurately captures the primary notion that it is intended to assess. The relationship between the results of the search and the study's findings must be shown in order to define and prove the study's dependability (Harrison et al. 2021). Tables and appendices should be used to expound on and show these linkages, and the analytical procedure should be documented in sufficient depth. In accordance with the JBI Appraisal criteria, the author critically assessed the data. The scores are given on a scale of four in order to show how well the requirements are satisfied. The JBI Appraisal tool's output data gave the author a chance to think about how information about each criterion should be reported across an entire body of work. Harrison et al. (2021) state that although parameters are not evaluated in this way, some may be seen to be of special importance to the researcher's field of study.

Research writers are recommended to examine the quality evaluation results through narration and take into consideration components of which documentation is detailed or less so and the reason by looking at scores for each individual criterion throughout the entire piece of work instead of the overall scores (Harrison et al. 2021). Scores from 64 to 82 per cent, with an average of 70%, were collected by the author after counting the totals and the proportion of the studies. Overall, all of the included studies for the study were of high level. The analytical portion of the study did not place any particular importance on better-quality research studies in comparison with lesser-quality ones.

6.4 Ethical considerations

Since humans are not involved in this research, there are no typical ethical considerations that call for their permission and approval. Instead, the research is focused on an integrative and comprehensive analysis of online publications and journals, which have separated but related ethical problems. The fundamental components of ethically good research are still present, though. These qualities include responsibility, honesty, transparency, and scientific integrity. They also involve ensuring diversity and eliminating all forms of bias.

According to Suri (2019), the topic of ethical issues related to literature reviews is not frequently explored. One explanation for this is that the researcher is not required to obtain participant agreement, authorization to use resources from any databases or journals, or institutional approval to perform the literature review (Suri, 2019). According to Suri (2019), there are still three primary ethical factors to consider when doing literature reviews. They are audience-appropriate transparency, consciously informed selective inclusion, and informed subjectivity and reflectivity (Suri 2019). All these factors prepare the way for an excellent and moral literature review investigation.

It was crucial to determine the epistemological perspective for this paper. Epistemological perspective is described as the set of assumptions that direct one's knowledge of the natural world or quest for understanding (Brown and Dueñas 2020). Here, involvement and interpretation were the primary and best epistemic orientations. The goal of the interpretive orientation was to increase understanding of preeclampsia and mental health problem, where patients can have a variety of experiences. Identifying the paper's objective was the second ethical factor to consider. The study's applicability and value to patients at risk for mental health problems were made obvious in this way.

Another ethical issue used throughout the preparation of the research is the search for pertinent literature. In this case, the PRISMA tool was used to strategically locate databases and pertinent papers to increase the research's credibility. Also, other techniques were used in the strategies for finding pertinent material, including databases, the use of key phrases, and the establishment of inclusion and exclusion criteria.

The following step in the ethical considerations made to guarantee study relevance and legitimacy included review, interpretation, and data distillation from the identified research publications (Dwivedi et al. 2022). When doing integrative literature reviews, it is important to keep these ethical issues in mind. This makes it possible to get rid of any conflicts of interest, prejudices, and issues with misrepresentation. When performing literature reviews, it is important to keep these ethical issues in mind. This makes it possible to get rid of any conflicts of interest, prejudices, and issues with misrepresentation. It is crucial to give information that is reliable, unbiased, and transparent because literature reviews are

typically frequently used and cited by other researchers. This makes it necessary to conduct more precise studies in the future.

6.5 Strengths and limitations of the study

The major strength of this integrative review is that it analysed the literature critically and comprehensively, bringing about different thematic points regarding mental health and preeclampsia, including public health role, health practitioner role, patient education, and socioeconomic factors. Furthermore, the research utilized the JBI appraisal tool and the PRISMA tool to evaluate the quality of evidence, bringing about further research queries and research gaps. However, certain limitations were apparent. Firstly, the research articles combined several research methods and designs, such as scoping reviews, systematic reviews, quasi-experimental designs, and randomized controlled trials. Therefore, issues concerning precision, accuracy, and bias were evident in the studies.

The limitations encountered for this research were that the establishment of the integrated literature search approach was difficult since there was so little research that provided solid data. The inclusion of research using various approaches might lead to bias. It may have been difficult for the author to assess all of the included studies, particularly their methodological elements and quality, due to his lack of knowledge of ILR methodology; as a result, JBI, a thorough critical evaluation tool, was strictly required. Moreover, key themes such as the public health role and socioeconomic factors were not discussed in extensive detail, leaving several gaps in knowledge.

Additionally, a single reviewer evaluated the selected studies' quality. This might have had an impact on the study's validity and dependability. Additionally, one author conceptualized and combined the concepts, which makes them subject to personal prejudice. This study's search technique excluded valuable papers published in other languages by restricting searches to just English-language publications. Furthermore, one of the included studies was more than five years old and given the dynamic and developing nature of psycho-education, there may have been updates and improvements since then that have rendered the data ineffective. Finally, during the assessment, some of the included studies' quality was below average. This was due to the approach being comparatively weaker in nursing studies.

7 Conclusions

As evident from the integrated review, the results were aligned with the presumptions that psychoeducational counselling in women with preeclampsia helps in the restoration of the mother's mental health alongside treatment, and that psycho-educational counselling of women with preeclampsia helps in improving their mental state during pregnancy. In

conclusion, the use of psychoeducational counselling is helpful among pregnant women with preeclampsia by increasing their awareness of the condition, reducing anxiety, improvement of nurses' skills in psychosocial communication, improving the parental skills of new parents, implementing self-care practices, and improvement of maternal functioning. Therefore, psychoeducational counselling is an effective method to use to improve the mental state of pregnant women with preeclampsia.

7.1 Recommendations

The thesis provides the following recommendations on the use of psychoeducational counselling in restoring the mental health of pregnant women with preeclampsia.

- The focus should be on improving patient education and insight, especially among newly pregnant women. The patient's education and knowledge help to create a positive mindset and attitude toward their health, which is important in maintaining a healthy mental state. Health facilities and health workers' role in providing educative services for pregnant women and revitalizing the role of antenatal clinics within hospitals.
- Strengthening psycho-educational counselling departments in hospital settings to ensure readily available services for pregnant women with deteriorating mental states. This includes the hiring of specialized counsellors skilled in providing psychotherapy, cognitive behavioural lessons, and psychosomatic therapy.
- Education and training of hospital nurses and midwives in providing first-line counselling sessions for their patients newly diagnosed with preeclampsia. Training will also encompass the improvement of communication skills among nurses and midwives to ensure information is relayed effectively. Nurses and midwives are mostly the first points of contact with patients, and they require skills needed for psycho-educational counselling, especially in circumstances where psycho-educational experts are not readily available.
- Future research should focus on how public health departments can combat preeclampsia and reduce the morbidities and mortalities associated with the syndrome. The role of public health departments is crucial in the health sector, where diseases are studied and prevented before high prevalence. The public health sector should be mandated with more resources to ensure neonatal health and reduced mortality among pregnant women.
- Future studies should look into how socioeconomic factors increase the mental health burden among women with preeclampsia. For instance, further studies should be conducted to determine the extent of mortality and morbidity rates among pregnant women with preeclampsia among underprivileged communities globally to find better interventions.

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9 Appendices

Appendix 1: Article Retrieval Process

Databases	Search Category	Number of Hits	Relevant Articles	Selected Articles
BMC	Preeclampsia AND mental health	4	1	1
	Psycho-educational counselling AND preeclampsia	3	1	1
ScienceDirect	Pregnancy AND psycho-educational counselling	12	4	2
	Psycho-educational counselling AND mental health AND preeclampsia	9	6	2
Google Scholar	Psychoeducational counselling AND mental health AND preeclampsia	15	7	3
	Mental Health AND psycho-educational counselling	10	4	2
Wiley Online	Preeclampsia AND mental health AND pregnancy	3	1	1
Sage Journals	Psychoeducational counselling AND mental health AND preeclampsia	4	2	1

PLOS One	Psychoeducational counselling AND mental health AND preeclampsia	3	2	1
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Appendix 2: Inclusion and Exclusion Criteria

Category	Inclusion Criteria	Exclusion Criteria
Study methods	Original peer-reviewed articles and academic research studies	Papers that are not peer-reviewed OR scholarly
Publishing date	Studies conducted 2018-2023	Studies done before 2018
Access	Accessed from Laurea Finna, full-text articles	Not accessible through Laurea Finna, not full texts available
Results	Studies that include the use of psycho-educational counselling as an intervention to reduce mental distress among pregnant women with preeclampsia	Studies that do not include the use of psycho-educational counselling as an intervention to reduce mental distress among pregnant women with preeclampsia
Language	Studies that were done in the English language	Studies done in another language than English

Appendix 3: JBI Appraisal Tool

Question	Yes	No	Unclear	N/A
Is the review question clearly and explicitly stated?				
Were the inclusion criteria appropriate for the review question?				
Was the search strategy appropriate?				
Were the sources and resources used to search for studies adequate?				
Were the criteria for appraising studies appropriate?				
Was the critical appraisal conducted by two or more reviewers independently?				
Were the methods used to combine studies appropriate?				
Were the methods used to combine studies appropriate?				
Was the likelihood of publication bias assessed?				
Were the recommendations for policy and/or practice supported by the reported data?				
Were the specific directives for new research appropriate?				

Appendix 4: Results from the JBI Evaluation Tool for Included Studies

No.	References	Criteria Checklist (Yes/No)											Value (%)
		1	2	3	4	5	6	7	8	9	10	11	
1	Poon et al. 2022	1	1	1	1	1	0	0	1	1	0	1	8/11 - 73%
2	Alves et al. 2022	1	1	1	1	1	0	0	0	1	1	0	7/11 - 64%
3	Parang et al. 2023	1	1	1	1	1	1	0	1	0	1	1	9/11 - 82%
4	Wortman et al. 2019	1	1	1	1	1	1	1	0	0	0	0	7/11 - 64%
5	Missler et al. 2020	1	1	1	1	1	0	0	1	1	1	0	8/11 - 73%

6	El-Refaey et al. 2020	1	1	1	1	1	0	0	1	1	0	0	7/11 - 64%
7	Qadir et al. 2022	1	1	1	1	1	1	0	0	1	0	1	8/11 - 73%
8	Edward et al. 2020	1	1	1	1	1	0	1	1	0	1	0	8/11 - 73%
9	Umamah et al. 2022	1	1	1	0	0	1	1	1	0	1	0	7/11 - 64%
10	Abazarnejad et al. 2019	1	1	1	1	1	1	1	1	1	0	0	9/11 - 82%
11	Martin et al. 2016	1	1	1	1	0	0	1	1	0	0	1	7/11 - 64%
12	Gingras-Charland et al. 2018	1	1	1	1	1	1	0	0	1	0	1	8/11 - 73%
13	Balogun and Sidai 2017	1	1	1	1	1	1	0	0	0	0	1	7/11 - 64%

14	Hasani et al. 2021	1	1	1	1	1	1	0	0	1	1	0	8/11 - 73%
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Appendix 5: Related Studies Results

Article Number	Title	Publication Year	Study Design	Main Outcome
Article 1 Poon, L. C., Magee, L. A., Verlohren, S., Shennan, A., Dadelszen, P., Sheiner, E., Hadar, E., Visser, G., Da Silva Costa, F., Kapur, A., McAuliffe, F., Nazareth, A., Tahlak, M., Kihara, A. B., Divakar, H., McIntyre, H. D., Berghella, V., Yang, H., Romero, R., ... Hod, M.	A literature review and best practice advice for second and third-trimester risk stratification, monitoring, and management of Pre-eclampsia	2021	Literature Review	the authors find that putting emphasis on public health, risk stratification, and management of pregnant women with preeclampsia is more beneficial to their health

<p>Article 2 Alves, S. P., Costa, T., Ribeiro, I., Néné, M., and Sequeira, C.</p>	<p>Perinatal Mental Health Counselling programme: A scoping review</p>	<p>2022</p>	<p>Scoping Review</p>	<p>Perinatal mental health counselling helped improve the patients’ emotional management, problem-solving skills and made them more relaxed and mindful.</p>
<p>Article 3 Parang, L., Vakili, V., and Aliabadi, M. M.</p>	<p>Impact of maternal psychosomatic empowerment during pregnancy on the improvement of mental health and maternal and fetal outcomes: A pilot study.</p>	<p>2023</p>	<p>Quasi- experimental</p>	<p>Maternal functioning in all areas was improved as a result of counselling with STA. Mothers play important and frequently multifaceted roles, including those of wife,</p>

				mother, daughter, employee, and citizen.
Article 4 Wortman, M. S., van der Wouden, J. C., Grutters, J. P., Visser, B., Assendelft, W. J., van der Horst, H. E., and olde Hartman, T. C.	Psychosomatic therapy for patients frequently attending primary care with medically unexplained symptoms, the corpus trial: Study protocol for a randomised controlled trial.	2019	Randomised Controlled Trial	Women in the experimental group empowered with psychosomatic techniques had a lower rate of depression than those not exposed to the intervention.
Article 5 Missler, M., van Straten, A., Denissen, J., Donker, T., and Beijers, R.	Effectiveness of a psycho-educational intervention for expecting parents to prevent postpartum parenting stress, depression and anxiety: A randomized controlled trial.	2020	Randomized Control Trial	the intervention did not enhance the quality of parental caregiving, but all reported the intervention to have some value in terms of the

				reduction of parental distress symptomatology.
Article 6 El-Refaey, S. R. I., Abd El-Hady, R. M., Elmasry, Y. M., Abd-Elmohdy, H., and Ali, H. H.	The Effect of Tailored Psycho-Educational Program on Pregnant Women's Anxiety and Knowledge about Self-care Management Regarding Minor Discomforts.	2020	Quasi-Experimental research	Psycho-educational programs helped improve the knowledge of pregnant women regarding their health and self-care practices.
Article 7 Qadir, F., Shakor, J., Raheem, S., and Abdulla, I.	Relation of demographic and impact of psych educational program on anxiety level in a patient diagnosed with generalized anxiety disorder in Garmian Psychiatric Center/Kalar.	2022	Quantitative quasi-experimental study	Psychiatric education intervention is highly effective in reducing patients' anxiety levels, where they increase their knowledge and problem-solving skills in

				emergency situations.
Article 8 Edward, A., Hoffmann, L., Manase, F., Matsushita, K., Pariyo, G. W., Brady, T. M., and Appel, L. J.	An exploratory study on the quality of patient screening and counselling for hypertension management in Tanzania.	2020	Literature Review	Autogenic training, physical exercise, and psycho-educational counselling all had similar impacts on reducing preeclampsia symptoms among pregnant women, reducing their anxiety and stress.
Article 9 Umamah, F., Santoso, B., Yunitasari, E., Nisa, F., and Wulandari, Y.	The effectiveness of psycho-educational counselling in pregnant women with preeclampsia: A systematic review.	2022	Systematic literature review	The authors found a clear connection between preeclampsia and mental distress among pregnant women.

<p>Article 10 Abazarnejad, T., Ahmadi, A., Nouhi, E., Mirzaee, M., and Atghai, M.</p>	<p>Effectiveness of psycho- educational counselling on anxiety in preeclampsia.</p>	<p>2019</p>	<p>Randomized intervention- controlled study</p>	<p>Prenatal empowerment through psycho- educational counselling helps pregnant women experience fewer complications and maintain a healthy psychological state.</p>
<p>Article 11 Martin, L., Gitsels-van der Wal, J. T., Pereboom, M. T. R., Spelten, E. R., Hutton, E. K., and van Dulmen, S.</p>	<p>Clients' psychosocial communication and midwives' verbal and nonverbal communication during prenatal counselling for anomaly screening.</p>	<p>2016</p>	<p>Randomized controlled study</p>	<p>By spending more time providing prenatal counselling, asking psychosocial questions, and providing psychosocial inquiries, nurses can enhance clients'</p>

				psychosocial communication during decision-making support by demonstrating emotional communication.
Article 12 Gingras-Charland, M.-E., Côté, A.-M., Girard, P., Grenier, A., Pasquier, J.-C., and Sauvé, N.	Pre-eclampsia educational tool impact on knowledge, anxiety, and satisfaction in pregnant women: A randomized trial.	2018	Randomized controlled trial	Reduction of anxiety is witnessed among preeclamptic women exposed to psycho-educational counselling.
Article 13 Balogun, O., and Sibai, B	Counselling, management, and outcome in women with severe preeclampsia at 23 to 28 Weeks' gestation	2017	Systematic review	Raising women's awareness of pre-eclampsia may help them recognise its symptoms, leading to the early diagnosis and

				treatment of this condition and possibly reducing its negative effects.
Article 14 Hasani, S., Mirghafourvand, M., Esmailpour, K., and Sehhatie Shafaie, F.	The effect of counselling based on health promotion awareness on mental health and self-esteem in women with ectopic pregnancy: A randomized controlled clinical trial.	2021	Quasi-experimental study	It is advised that early preconception counselling diminishes SPE in subsequent pregnancies.

Appendix 6: Shows the data analysis from the information extracted from each article.

Reference	Country	Purpose and Aim of the Study	Design and study sample	Data and methods	Results	Quality Assessment
<p>Poon et al. 2022</p> <p>A literature review and best practice advice for second and third-trimester risk stratification, monitoring, and management of pre-eclampsia</p>	Asia	To determine the best practice advice for second and third-trimester risk stratification, monitoring, and management of pre-eclampsia	Qualitative literature review	Peer-reviewed articles and research articles	Maternal functioning in all areas was improved as a result of counselling with STA. Mothers play important and frequently multifaceted roles, including those of wife, mother, daughter, employee, and citizen.	73%
<p>Alves et al. 2022</p> <p>Perinatal mental health counselling programme: A scoping review</p>	Iran Italy Portugal	To map the evidence on a Perinatal Mental Health Counselling Programme, identifying its characteristics,	Qualitative literature review The JBI and PRISMA-ScR tools used for appraisal and assessment	Qualitative literature review n = 9 Studies written in English, Portuguese, and Spanish included	All articles suggest a decrease in the levels of stress, anxiety, and depression after the counselling intervention.	64%

		participants, and outcomes.				
Parang et al. 2023 Impact of maternal psychosomatic empowerment during pregnancy on the improvement of mental health and maternal and fetal outcomes: A pilot study	Iran	To investigate the effect of maternal psychosomatic empowerment during pregnancy on improving mental health in Mashhad, Iran.	Qualitative Quasi-experimental pilot study n = 90 pregnant women assigned to groups with training sessions and routine care and the other only routine care	The General Health Questionnaire - 28 (GHQ - 28) and Edinburgh Postnatal Depression Scale (EPDS) were the data collection tools used.	The mean GHQ scores were reduced from 39.3 ± 14.8 and 43.1 ± 12.84 in the first stage to 15.7 ± 8.66 and 22.72 ± 11.3 in the fourth stage in the intervention and control groups, respectively.	82%
Wortman et al. 2019 Psychosomatic therapy for patients frequently attending primary care with medically unexplained symptoms, the CORPUS	Netherlands	To establish whether psychosomatic therapy by specialised psychosomatic exercise therapists is cost- effective in	Qualitative Randomised effectiveness trial. Patients assigned to psychosomatic therapy in addition	Patients recruited from general practices participating in the Academic Network of General Practices of the VU Medical Center (ANH-VUmc), the Academic General Practices Network Academic Medical Center	Improvement of symptoms and daily functioning and disability Reduction of consultation frequency and referrals to secondary care	64%

trial: study protocol for a randomised controlled trial		decreasing symptoms and improving functioning in patients who frequently consult their general practitioner (GP) with MUS.	to usual care or usual care only.	(AHN-AMC) and the Radboud University Medical Center Academic General Practices Network (Radboudumc-AHN). Targeting patients 18-80 years with unexplained physical complaints and visits to the general practitioner over the past 2 years		
Missler et al. 2020 Effectiveness of a psycho-educational intervention for expecting parents to prevent postpartum parenting stress, depression and anxiety: a randomized controlled trial	Netherlands	To examine the effectiveness of low-intensity universal psychoeducational programs to prevent postpartum parenting stress and to enhance parental well-being and caregiving quality.	Qualitative randomized controlled trials n = 138 pregnant women and n = 96 partners randomised	The study included a booklet, a video, a home visit, and a telephone call.	No between-group differences were observed in parenting stress nor in the secondary outcomes. The intervention was rated as useful and of added value by the parents.	73%

<p>El-Refaey et al. 2020</p> <p>The Effect of Tailored Psycho-Educational Program on Pregnant Women's Anxiety and Knowledge about Self-care Management Regarding Minor Discomforts</p>	<p>Egypt</p>	<p>To evaluate the effect of a tailored psycho-educational program on pregnant women's anxiety and knowledge about minor discomforts among mothers attending Benha University hospital antenatal clinic.</p>	<p>Quasi-experimental research design</p> <p>n = 59 pregnant women filled out structured knowledge questionnaires and the Zung Self-Rating anxiety scale</p>	<p>Quasi-experimental research design</p> <p>Data collected from September 2019 to November 2019</p>	<p>11.9% of studied pregnant women had no anxiety pre-program, and that results increased to reach 28.8% post-program</p> <p>Severe anxiety decreased from 32.2% pre- program to 6.8% post-program.</p>	<p>64%</p>
<p>Qadir et al. 2022</p> <p>Relation of Demographic and Impact of Psych educational Program on Anxiety Level in Patient Diagnosed with Generalized Anxiety Disorder in Garmian Psychiatric Center/Kalar</p>	<p>Iraq</p>	<p>To assess the effectiveness of psycho-educational programs among patients diagnosed with anxiety.</p>	<p>Quasi-experimental design</p> <p>n = 82 patients assessed with anxiety disorder using the Zang anxiety self-rating scale</p>	<p>Data was analysed using the statistical package for social sciences (SPSS) version 23.</p>	<p>Anxiety was high among females (67.1%) and high educated (44.9%) comparatively.</p> <p>Psychoeducation program has a significant impact on decreasing anxiety severity.</p> <p>The percentage of severe anxiety in the pre-intervention state was</p>	<p>73%</p>

					(40.2%), the mild and moderate anxiety level was (9.8%) and (50%) respectively, while in post-intervention status, the severe anxiety level was (20.7%), mild and moderate anxiety level were (15.9%), (63.4%) respectively.	
Edward et al. 2020 An exploratory study on the quality of patient screening and counselling for hypertension management in Tanzania	Tanzania	To assess the quality of hypertension screening and patient counselling, we conducted a study in an ambulatory setting in Tanzania.	Observational exploratory study n = 69 adult patients assessed during routine outpatient care	Observational exploratory study Data was collected over two weeks in an outpatient facility in Northwest Tanzania.	Aspects of BP measurement, nurses performed better than doctors. Provider knowledge assessments showed critical gaps in the consequences of hypertension, 1st line medicines, and awareness of guidelines at baseline.	73%
Umamah et al. 2022 The effectiveness of psycho-educational counselling in pregnant women with	No specified countries	To review the effectiveness of psycho-educational counselling in	Qualitative Systematic literature review of n=15 articles.	n = 907 patients receiving 1.5 hour counselling sessions for cognitive behaviour and 1.5	Counselling with STA resulted in improved maternal functioning in all domains.	64%

preeclampsia: A systematic review		pregnant women with preeclampsia		hours counselling for solution-focused therapy	Improved prenatal empowerment and self-care enable mothers to experience fewer complications in this period of their life. The use of cognitive-behavioural counselling in depressed pregnant women reduced Post-Partum Depression (PPD)	
Abazarnejad et al. 2019 Effectiveness of psycho-educational counselling on anxiety in preeclampsia	Iran	To investigate the effectiveness of individual psycho-educational counselling on anxiety in pregnant women with preeclampsia.	Qualitative randomised intervention-controlled study n = 44 pregnant women assessed in two sessions	Qualitative randomized intervention-controlled study Data collected from January 30 2017, to March 31 2017	Significant reduction in the anxiety level after the counselling sessions in the intervention group ($p < 0.005$). Slight increase in the anxiety level in the control group after the study.	82%
Martin et al. 2016 Clients' psychosocial communication and	Netherlands	How psychosocial communication by clients is related to midwives'	Qualitative observational cohort study	A qualitative observational cohort analysis	Clients' psychosocial communication was higher if midwives' asked more psychosocial questions and showed more affective behaviour ($\beta = 0.90$;	64%

midwives' verbal and nonverbal communication during prenatal counselling for anomaly screening		psychosocial and affective communication, client-directed gaze and counselling duration	Consisted of n=20 midwives undergoing prenatal counselling consultations	Data collected from July 2011 to July 2015.	<p>CI: 0.45-1.35; $p < 0.00$ and $\beta = 1.32$; CI: 0.18-2.47; $p = 0.025$, respectively).</p> <p>Clients "psychosocial communication was not related to midwives" client-directed gaze.</p> <p>Psychosocial communication by clients was directly, positively related to the counselling duration ($\beta = 0.59$; CI: 0.20-0.99; $p = 0.004$).</p>	
Gingras-Charland et al. 2018 Pre-eclampsia Educational Tool Impact on Knowledge, Anxiety, and Satisfaction in Pregnant Women: A Randomized Trial	Canada	To evaluate the impact of educational tools concerning pre-eclampsia on knowledge, anxiety, and women's satisfaction.	Qualitative randomised controlled trial Compared n = 362 pregnant women (20-32 weeks gestation) using questionnaires	Qualitative randomized controlled trial Data was collected from March to July 2014	<p>Patients who received the tools scored significantly higher on global knowledge ($70.1\% \pm 19.2\%$ compared with $51.1\% \pm 23.4\%$; mean difference of 19.0%; $P < 0.001$).</p> <p>Anxiety scores regarding pre-eclampsia were similar between the groups, with a mean of 2.40 out of 6 for the control group and 2.53 out of</p>	73%

					6 for the intervention group (equivalence test, $P < 0.001$). High score levels of satisfaction for the pamphlet and video were found: 5.1 out of 6 and 5.2 out of 6, respectively.	
Balogun and Sidai 2017 Counselling, Management, and Outcome in Women With Severe Preeclampsia at 23 to 28 Weeks Gestation	Sub-Saharan Africa	To determine the effect of counselling and management in women with severe preeclampsia	Qualitative literature review Analysed scientific research.	n = 15 articles reviewed to determine best practices for pregnant women with severe preeclampsia	Careful in-hospital maternal care and fetal surveillance are the most effective	64%
Hasani et al. 2021 The effect of counselling based on health promotion awareness on mental health and self-esteem in women with ectopic pregnancy: a	Iran	To determine the effect of counselling on mental health and self-esteem following an ectopic pregnancy (EP).	Qualitative Randomized controlled clinical trial Consisted of n = 68 pregnant women receiving four	The intervention group received four sessions of counselling, including 1) providing medical information about EP and its physical and psychological complications; 2) explaining the syndrome of sadness after losing a	There was no significant difference between the two groups in terms of sociodemographic characteristics and the scores of mental health and self-esteem before the intervention. Two weeks after the end of the intervention, the mean (SD) total scores of mental health of women in	73%

<p>randomized controlled clinical trial</p>			<p>sessions of counselling.</p>	<p>pregnancy; 3) mental health and ways to improve it after pregnancy loss; and 4) self-esteem and how to increase it after losing a pregnancy and control group received only routine care.</p> <p>Data was collected using the General Health Questionnaire-28 and Rosenberg self-esteem questionnaires.</p>	<p>counselling and control groups were 20.1 (5.0) and 32.9 (9.8), respectively.</p> <p>When compared with the control group, a significant reduction in the total score of mental health (adjusted difference = -11.27; 95% confidence interval: -15.19 to -7.34; $p < .001$) was observed in the counselling group</p>	
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