



## Risk Factors for Depression in Pregnancy: Scoping Review

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### ABSTRACT

Antenatal depression has become a common and serious problem that can affect the health of both mother and baby. This study aims to review the latest obstetric scientific evidence on the risk factors for depression in pregnancy. This research is a Scoping review using the Arksey & O'Malley Framework and the PRISMA-ScR Checklist. The literature search used 3 databases, namely Pubmed, Science Direct, and Wiley Online Library. The keywords used were pregnant women, risk factors, and pregnancy depression. The inclusion criteria were original articles; published in 2018 to 2022, in English, open access and full text, and a focus on risk factors for pregnancy depression. Article quality assessment uses the Joanna Briggs Institute (JBI) Checklist. 13 articles were quantitative studies conducted in hospitals and clinics, and came from 8 different countries. Mapping themes from the results of the article analysis are the prevalence of depression in pregnancy, risk factors based demographics including age, education level, marital status and occupation, risk factors based on obstetric characteristics including the number of pregnancies, history of abortion, unwanted pregnancies and diseases in pregnancy, as well as risk factors based on psychosocial including husband support, family, domestic violence, and harmful habits. Information on recognizing risk factors for depression in pregnancy is important for health workers to detect depression on time and implement relevant psychosocial interventions to reduce the incidence of depression during pregnancy

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### Kata kunci:

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### ABSTRAK

Depresi antenatal telah menjadi masalah umum dan serius yang dapat mempengaruhi kesehatan ibu dan bayinya. Penelitian ini bertujuan meninjau bukti ilmiah kebidanan terbaru tentang faktor-faktor risiko yang menyebabkan terjadinya depresi pada kehamilan. Penelitian ini merupakan *Scoping review* dengan menggunakan *Arksey & O'Malley Framework* dan *PRISMA-ScR Checklist*. Pencarian literatur menggunakan 3 database yaitu *Pubmed*, *Science Direct* dan *Wiley Online Library*. Kata kunci yang digunakan adalah ibu hamil, faktor risiko dan depresi kehamilan. Kriteria inklusi adalah original artikel, terbit tahun 2018 hingga 2022, bahasa Inggris, open akses dan full teks serta fokus pada faktor risiko depresi kehamilan. Penilaian kualitas artikel menggunakan *Ceklist Joanna Briggs Institute (JBI)*. Didapatkan 13 artikel yang merupakan penelitian kuantitatif dilakukan di rumah sakit dan klinik, serta berasal dari 8 negara berbeda. Pemetaan tema dari hasil analisis artikel adalah prevalensi depresi dalam kehamilan, faktor risiko berdasar demografi meliputi umur, tingkat pendidikan, status pernikahan dan pekerjaan, faktor risiko berdasar karakteristik obstetri meliputi jumlah kehamilan, riwayat abortus, kehamilan tidak diinginkan dan penyakit dalam kehamilan, serta faktor risiko berdasar faktor psikosocial meliputi dukungan suami, keluarga, kekerasan dalam rumah tangga serta kebiasaan yang merugikan.

Pengetahuan dalam mengenali faktor risiko depresi kehamilan penting bagi tenaga kesehatan mendeteksi depresi secara tepat waktu dan menerapkan intervensi psikososial yang relevan untuk mengurangi kejadian depresi selama kehamilan.

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## INTRODUCTION

Antenatal depression has become a common and serious problem that significantly affects the health of the mother and fetus. However, evaluation and intervention methods for pregnant women and midwifery clinics are inadequate (Guo et al., 2021). One in three to one in five women in developing countries and around one in ten women in developed countries have mental health problems during pregnancy and after childbirth. High levels of mental health problems in pregnant women and mothers have been reported in many African countries such as Ethiopia, Nigeria, Senegal, South Africa, Uganda, Zimbabwe, and many others (World Health Organization, 2016).

A study in Ethiopia stated that the overall prevalence of general mental disorders in pregnant women was 37.5%. The intimate partner violence, parity, gestational age, history of abortion, and the absence of follow-up antenatal care were significantly associated with general mental disorders during pregnancy (Tamiru et al., 2022). Women with a history of mental health disorders have a worse pregnancy course. Psychiatric illness increases the risk of having a baby (Sudziute et al., 2020). The results of the meta-analysis showed that multigravida pregnant women, in the first and third trimesters of pregnancy, are more prone to experiencing mental health disorders than other pregnant women (Yan et al., 2020).

Social determinants are the main cause of mental health problems in pregnant women and mothers. Women living in developing countries are more vulnerable to risk factors that increase their vulnerability to mental health problems. Some of these include poor socioeconomic status, undervalued social roles and status, unwanted pregnancies, and gender-based violence. The rate of mental health problems in women exposed to intimate partner violence is at least 3 to 5 times higher. After the rape, nearly 1 in 3 women develop post-traumatic stress disorder compared to 1 in 20 non-victims. Pre-existing psychological disorders often present as depression, substance abuse, or suicide attempts, especially when it is combined with an unwanted pregnancy (WHO, 2022).

A woman's mental health not only impacts the mother but also influences the developing baby. Depressive conditions in pregnant women can reduce appetite and lack of self-care behavior. They will tend not to have routine pregnancy checks which can endanger the baby and the mother (Yayasan Project HOPE, 2022). Maternal depression is directly related to lower birth weight, higher rates of malnutrition and stunting, higher rates of diarrheal disease, communicable diseases and hospitalization, and reduced completion of the recommended immunization schedule for children. It also adversely affects the physical, cognitive, social, behavioral, and emotional development of children (World Health Organization, 2016). A study stated that positive maternal mental health during pregnancy can bring mental health benefits to children (Tuovinen et al., 2021)

(Lahdepuro et al., 2022). The purpose of this scoping review study is to review the latest obstetric scientific evidence on risk factors for depression in pregnancy.

## METHODS

This study is a scoping review. The reference sources used vary from several articles. Scoping review is a method of identifying comprehensive and in-depth literature from various sources related to the research topic (Munn et al., 2018). The preparation and report in this study used PRISMA-ScR through 5 steps according to Arksey and O'Malley: 1. Identifying research questions; 2. Identifying relevant articles; 3. Selecting articles; 4. Mapping data; 5. Aggregating data, summarizing and presenting results (Tricco et al., 2018).

### STEP 1. Identifying Research Question

The PEO (Population, Exposure, and Outcome) framework in this study is to help find articles, determine inclusion and exclusion criteria, and identify suitable articles.

Table 1. PEO Framework

<i>P (Population)</i>	<i>E (Exposure)</i>	<i>O (Outcomes)</i>
<i>Pregnan* Women</i>	<i>Risk Factor</i>	<i>Depression in Pregnan* OR Antenatal Depression</i>

The review question in this scoping review was "What is the latest obstetric scientific evidence on risk factors related to depression in pregnancy?"

### STEP 2. Identifying Relevant Articles

In determining the articles that match the questions and research objectives, the researchers identified the inclusion and exclusion criteria as follows:

Table 2. Inclusion and Exclusion Criteria

<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
Original article	Review article
Articles published with a deadline of the last 5 years	Opinion
Articles published in English	Books
The article focuses on risk factors for depression in pregnancy	Thesis research
Open access and free full text	

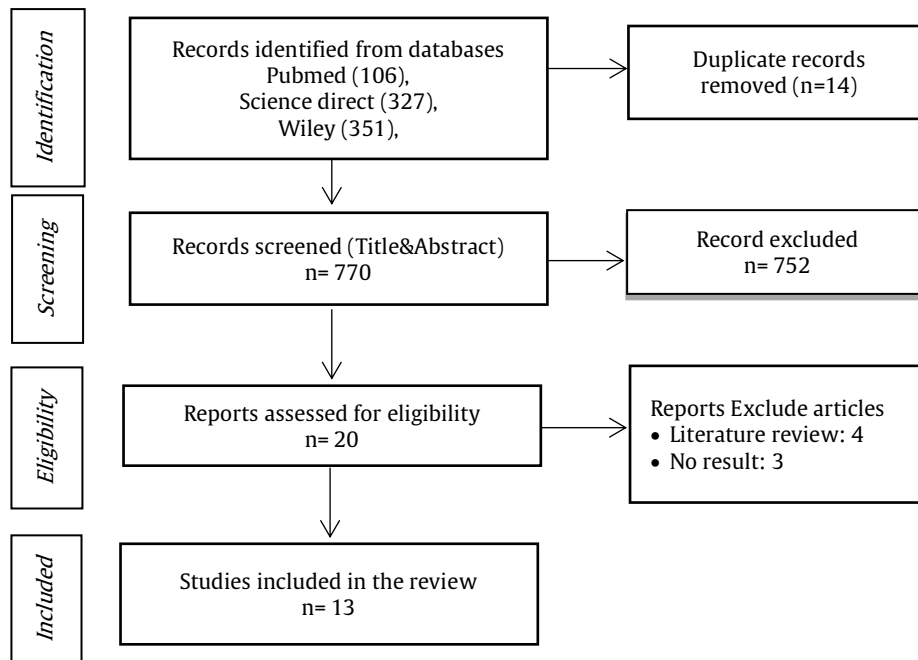
In searching for articles, the researchers used several strategies, namely using keywords, using medical subject headings (MeSH), using truncation, using Boolean operators (OR, AND, and NOT), and paying attention to the use of keywords in British English and American English. This scoping review used three databases, namely Pubmed, Science Direct, and Wiley Online Library. The keywords are as follows:

**Table 3. Keywords**

Population	Exposure	Outcomes
Mother OR Women	Depression pregnancy OR antenatal depression	Risk Factor

**STEP 3. Article Selection**

The next step is searching for articles from the selected database, which is shown in the PRISMA flowchart as follows:



**Figure 1. PRISMA Flow Chart**

Based on searching articles using keywords in databases and search engines, 784 articles were found. Then, all articles were included in Rayyan and 14 articles were deleted through duplication checks. Furthermore, the researchers screened the titles and abstracts. 752 articles were excluded because they did not meet the inclusion and exclusion criteria. After that, 20 articles were screened as a whole. 3 articles were excluded because they did not find results that fit the purpose, and 4 others were excluded because of a literature review. Article extraction and article quality

assessment were carried out on 13 articles that met the requirements.

**STEP 4. Charting Data**

The charting data used was adopted from the Joana Briggs Institute including author data, article title, year, country, aims, research type, data collecting technique, number of participants/samples, and research results (Peters et al., 2020). Then, the mapping through discussion was carried out with the second author.

No	Author/ Year/ Title	Country	Aim	Research Type, Participant/ Sample Size, Data Collecting Technique, Data Analysis	Result
A1	Perinatal depression among mothers in a South African birth cohort study: Trajectories from pregnancy to 18 months postpartum	South Africa	To investigate perinatal patterns of depressive symptoms among a cohort of pregnant women whose data on perinatal depression were collected up to 18 months postpartum	Based on the data from women enrolled in the cohort study (N=831), depressive symptoms were measured continuously using the Edinburgh Postnatal Depression Scale (EPDS). Between March 2012 and March 2015, the cohort enrolled 1225 pregnant women during their second trimester	Moderate depressive symptoms during pregnancy but at least postpartum was 3.5%. The minimal level during pregnancy and the increase in postpartum was 3.7%. The unstable level peaked at 12 months postpartum was 6.6%. The mild levels with little postpartum decrease were

	(Pellowski et al., 2019)			and followed mother-child pairs for up to 5 years postpartum.	82.9%. Meanwhile the rate of weight during pregnancy and postpartum was 3.1%. Membership in the chronic severe symptom group was associated with stressful life events, intimate partner sexual violence, and tobacco use.
A2	Prevalence and risk factors of perinatal depression among women in rural Bihar: A community-based cross-sectional study (Raghavan et al., 2021)	India	To estimate the prevalence of perinatal depression and identify social risk factors	It was a cross-sectional study in a rural area of Bihar. All perinatal women were screened through a door-to-door survey and recruited after approval. A semi-structured proforma was used to collect socio-demographic characteristics and family-related variables. 564 perinatal women were recruited into the study.	The estimated prevalence of PND was 23.9%. Multivariate analysis showed perinatal depression was associated with physical illness in the mother, a history of prior abortion, poor financial status, and poor treatment by in-laws.
A3	Prevalence of antenatal depression and associated factors among pregnant women during COVID-19 pandemic in North Shewa zone, Amhara region, Ethiopia (Sewnet Amare et al., 2022)	Ethiopia	To know the prevalence of depression during the COVID-19 pandemic in pregnant women and its related factors	An institutional-based cross-sectional study was conducted among 422 pregnant women attending antenatal care. The data were collected from 1 May – 30 June 2021. A logistic regression model with adjusted odds ratio (AOR) and P-value < 0.05 at 95% confidence intervals was used to determine which factors were significantly related.	The prevalence of antenatal depression in pregnant women during the COVID-19 pandemic was 34.1%. Divorced marital status, husband's educational status "could not read and write" without formal education" were statistically significant variables associated with depression in pregnant women during the COVID-19 pandemic.
A4	Prevalence and associated risk factors of antenatal depression among Brazilian pregnant women: A population-based study (Faisal-Cury et al., 2021)	Brazil	To estimate the prevalence of antenatal depression and associated socio-demographic and obstetric risk factors	It was a cross-sectional study consisting of a representative sample of residents in private households in Brazil. 800 women were reported to be pregnant at the time of the interview.	Among 800 pregnant women, 95 were classified as depressed. The variables were related to elementary school, not white skin color, and living alone.
A5	Prevalence and risk factors associated with depression in pregnant adolescents in Nairobi, Kenya (Tele et al., 2022)	Kenya	To know the prevalence of depression and related risk factors among pregnant adolescents	It was a cross-sectional study. 153 pregnant adolescents (14-18 years old) were recruited. The Patient Health Questionnaire 9 was used to screen for depression. Multivariate stepwise linear regression modeling was used to identify the main predictors of depression.	43.1% of respondents experienced depression. Depressive symptoms were independently related to being at school, experiencing intimate partner violence, using drugs in the family, and having experienced pressure to use drugs from family or peers.
A6	Factors associated with household food insecurity and depression in pregnant South African women from a low socio-economic setting: a cross-sectional study (Abrahams et al., 2018)	South Africa	To assess factors related to food insecurity and depression in a sample of pregnant women	It was a cross-sectional study at the Midwifery Unit of Midwives in a low-income suburb of Cape Town. Pregnant women attending the clinic for their first antenatal visit were invited to participate.	42% of households were food insecure and 21% of participants experienced depression (N = 376). The likelihood of food insecurity increased in women with suicidal behavior, with depression, and in those with three children or more. The likelihood of depression was greater in women who were food insecure, substance dependent or diagnosed with an anxiety disorder.
A7	Mental	Sweden	To describe mental	In total, 2271 women answered	149 (6.6%) women were found

	disorders and risk factors among pregnant women with depressive symptoms in Sweden—A case-control study  (Lilliecreutz et al., 2021)		disorders and risk factors for mental disorders in women with depressive symptoms as assessed by the Edinburgh Postnatal Depression Scale during the first trimester and to compare them with pregnant women without depressive symptoms	the Edinburgh Postnatal Depression Scale at the first antenatal visit with the midwife. An Edinburgh Postnatal Depression Scale score of 13 or higher was considered a positive screening and these women were further assessed. Pregnant women with negative screens, adjusted for age and parity, were selected as controls.	to be screen positive. The majority (126, 85%) had at least one mental disorder or risk factor for a mental disorder, such as depression (36.0%), anxiety (14.8%), or a severe fear of childbirth (20.8%). Positive screening women were more likely to smoke (16.1% vs. 1.3%), be unemployed (19.9% vs. 1.3%), or take sick leave (25.3% vs. 14.1%) during pregnancy and more frequently use selective serotonin reuptake inhibitors during pregnancy (14.2% vs. 2.7%).
A8	Prevalence of Antenatal Depression and Associated Factors among Pregnant Women Attending Antenatal Care at Dubti Hospital: A Case of Pastoralist Region in Northeast Ethiopia Yihalem (Belay et al., 2018)	Ethiopia	To assess the prevalence of antenatal depression and related factors among Dubti Hospital antenatal care workers	It was a cross-sectional study. It was conducted among 363 Antenatal care workers at Dubti Hospital from 7 March to 7 May 2016. The Beck Depression Inventory tool was used to collect data. Data were entered into Epi-Data 3.1 and analyzed using SPSS 20. It used bivariable and multivariable logistic regression analysis.	The prevalence of antenatal depression was 17.9%. Pregnancy planning, social support, and marital conflict significantly associated with antenatal depression.
A9	Anxiety and depression during pregnancy in women attending clinics in a University Hospital in eastern province of Saudi Arabia: prevalence and associated factors  (Alqahtani A et al., 2018)	Saudi Arabia	To assess the prevalence of anxiety and depression during pregnancy in women presenting to the hospital for antenatal care and assess associated factors	It was a prospective cohort study. It was conducted at Imam Abdulrahman Bin Faisal University Hospital. Anxiety was evaluated using the State-Trait Anxiety Inventory. Depression was assessed using the Edinburgh Postnatal Depression Scale (EPDS).	Complete data were available for 575 women. The mean EPDS score was 10.5 (SD 5.5). The prevalence of depression was 26.8%. The mean anxiety score was 38.4 (SD 11.4) and the mean anxiety score was 38.2 (SD 9.5). The prevalence of anxiety using the state-anxiety scale was 23.6% while using the trait scale was 23.9%. The risk was higher among unemployed women with a history of miscarriages and unplanned pregnancies.
A10	Screening for Mental Health Disorders among Pregnant Women Availing Antenatal Care at a Government Maternity Hospital in Bengaluru City  (Johnson, 2018)	India	To screen antenatal women for common mental health disorders and to determine factors associated with mental health disorders during pregnancy	It was a cross-sectional study among 208 third-trimester pregnant women attending an antenatal clinic at a Government Maternity Hospital in a low-income urban area of Bengaluru. It was conducted using the revised clinical interview schedule questionnaire (CIS-R) as a screening tool to detect the presence of mental morbidity. The collected data were analyzed using SPSS version 16.	In the study population, 12 (5.8%) screened positive for antepartum mental morbidity, depression being the most common. 3.8% of all women screened positive for depression, with 15.4% showing depressive symptoms. Overall, 82 (39.4%) had one or more psychological symptoms, including fatigue, irritability, anxiety, and problems with sleeping. Factors associated with the presence of antepartum mental morbidity included a poor relationship with a partner, a



					poor/unsatisfactory relationship with a sibling or in-law, and a desire to have a son.
A11	Depression and its psychosocial risk factors in pregnant Kenyan adolescents: a cross-sectional study in a community health Centre of Nairobi  (Osok et al., 2018)	Kenya	To determine the prevalence of depression and associated psychosocial risk among reporting pregnant adolescents	The sample was 176 pregnant adolescents. It used the PHQ-9 to assess the prevalence of depression. Hierarchical multivariate linear regression was performed to determine independent predictors of depression from psychosocial factors that were significantly associated with depression on univariate analysis.	32.9% (n = 58) of the 176 pregnant adolescents between the ages of 15-18 who were sampled in this study, tested positive for a diagnosis of depression using the PHQ-9. Experiencing stressful life events followed by a lack of social support for pregnant adolescents, being diagnosed with HIV/AIDS, and being young were risk factors for depression in pregnancy.
A12	Sociodemographic, obstetric characteristics, antenatal morbidities, and perinatal depressive symptoms: A three-wave prospective study  (Lau et al., 2018)	China	(1) To investigate the pattern of perinatal depressive symptoms, and (2) To determine the relationship between socio-demographic characteristics, obstetric factors, antenatal morbidity, postnatal conditions, and perinatal depressive symptoms using a structural equation model (SEM)	A three-wave prospective longitudinal design was used for 361 women in the second trimester, third trimester, and six weeks postpartum. The Edinburgh Postnatal Depression Scale (EPDS) was used to assess depressive symptoms	The intensity of depressive symptoms was highest in the second trimester. SEM showed that unmarried status, unplanned pregnancy, gestational diabetes, and headaches were significantly associated with EPDS in the first and second waves.
A13	A cross-sectional study of depression among women attending antenatal clinics in Blantyre district, Malawi (Chorwe-Sungani & Chipps, 2018)	South Africa	To describe the demographic, clinical, and risk profile of antenatal depression in pregnant women attending antenatal clinics	It was a cross-sectional study of 480 randomly selected pregnant women. Prevalence was determined using the Edinburgh Postnatal Depression Scale (EPDS) which was validated against a subsample using the Mini International Neuropsychiatric Interview. Risk factors for depression were assessed using the Pregnancy Risk Questionnaire. Data were analyzed using descriptive statistics, Pearson chi-square test, and binary logistic regression.	The prevalence of antenatal depression using EPDS was 19%. The main risk factors were being distressed by anxiety or depression for more than 2 weeks during this pregnancy, feeling that the relationship with the partner was not an emotionally supportive one, having experienced great stress, change, or loss during this pregnancy, feeling that the father criticized him growing up and a having history of feeling miserable or depressed for $\geq 2$ weeks before pregnancy.

### STEP 5. Article Quality Assessment with the Critical Appraisal Tool

Critical appraisal is a systematic and careful assessment of research results to assess the quality of articles (Al-Jundi & Sakka, 2017). The scoping review uses the Joanna Briggs Institute (JBI) checklist, by dividing it into 4 categories: A (85-100) Very Good, B (70-84) Good, C (55-69) Adequate, and D (<55) Poor.

Based on the assessment of 13 articles, there were 9 cross sectional articles with 8 questions, cohort (n=3) with 11

questions, and 1 case-control article with 10 questions. Based on the results of the quality assessment of the articles, It was found 11 articles of A quality (A1, A2, A3, A4, A5, A6, A7, A9, A10, A11, A13) and 2 articles of B quality (A8, A12). Articles A1, A7, and A9 have good value because they are following the aims, methods, and results of the research. Articles A8 and A12 had the lowest score because they did not explain the inclusion or exclusion criteria and the study setting.

**Table 5 Results of Critical Appraisal Cross Sectional Studies**

NO	ASSESSMENT ELEMENTS	A2	A3	A4	A5	A6	A8	A10	A11	A13
1	Were the criteria for inclusion in the sample clearly defined?	10	10	10	10	10	10	10	10	10
2	Were the study subjects and the setting described in detail?	10	10	10	10	10	10	10	10	10
3	Was the exposure measured in a valid and reliable way?	10	10	10	10	10	10	10	10	10
4	Were objective, standard criteria used for measurement of the condition?	10	10	10	10	10	7,5	10	10	10
5	Were confounding factors identified?	5	5	5	7,5	10	7,5	7,5	7,5	7,5
6	Were strategies to deal with confounding factors stated?	7,5	7,5	7,5	7,5	7,5	5	7,5	7,5	5
7	Were the outcomes measured in a valid and reliable way?	10	10	10	10	10	10	10	10	10
8	Was appropriate statistical analysis used?	10	10	10	10	10	10	10	10	10
TOTAL SCORE/GRADE		9,1/A	9,1/A	9,1/A	9,4/A	9,6/A	8,7/B	9,4/A	9,4/A	9,1/A

**Table 6 Results of Critical Appraisal Cohort Studies**

NO	ASSESSMENT ELEMENTS	A1	A9	A12
1	Were the two groups similar and recruited from the same population?	10	10	10
2	Were the exposures measured similarly to assign people to both exposed and unexposed groups?	10	10	10
3	Was the exposure measured in a valid and reliable way?	10	10	10
4	Were confounding factors identified?	10	10	10
5	Were strategies to deal with confounding factors stated?	7,5	7,5	5
6	Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?	10	10	10
7	Were the outcomes measured in a valid and reliable way?	10	10	10
8	Was the follow up time reported and sufficient to be long enough for outcomes to occur?	10	10	10
9	Was follow up complete, and if not, were the reasons to loss to follow up described and explored?	10	10	10
10	Were strategies to address incomplete follow up utilized?	7,5	7,5	5
11	Was appropriate statistical analysis used?	10	10	7,5
TOTAL SCORE/GRADE		9,5/A	9,5/A	8,8/B

**Table 7 Results of Critical Appraisal Case Control Studies**

NO	ASSESSMENT ELEMENTS	A7
1	Were the groups comparable other than the presence of disease in cases or the absence of disease in controls?	10
2	Were cases and controls matched appropriately?	10
3	Were the same criteria used for identification of cases and controls?	10
4	Was exposure measured in a standard, valid and reliable way?	10
5	Was exposure measured in the same way for cases and controls?	10
6	Were confounding factors identified?	10
7	Were strategies to deal with confounding factors stated?	10
8	Were outcomes assessed in a standard, valid and reliable way for cases and controls?	10
9	Was the exposure period of interest long enough to be meaningful?	7,5
10	Was appropriate statistical analysis used?	10
TOTAL SCORE/GRADE		9,7/A

## RESULT AND DISCUSSION

### Articles Characteristics

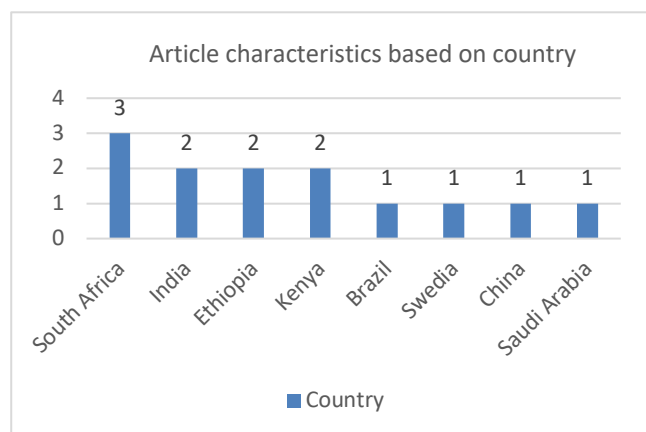


Figure 2. Article characteristics based on country

The research articles used in this scoping review come from several countries, such as African continents, namely South Africa, Ethiopia, and Kenya; Asian continents, namely India, China, and Saudi Arabia; American continents, namely Brazil; and Europe namely Sweden.

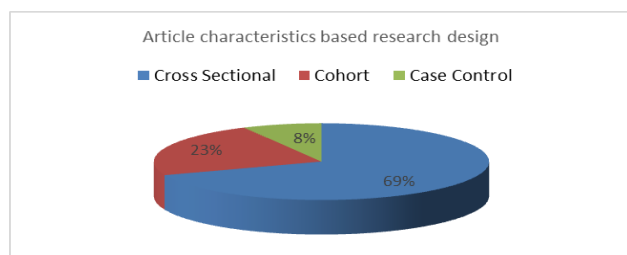


Figure 3. Article characteristics based on research design

Based on the research design used, there were 13 articles. 9 articles were cross-sectional articles, 3 articles were cohort articles, and 1 article was a case-control article.

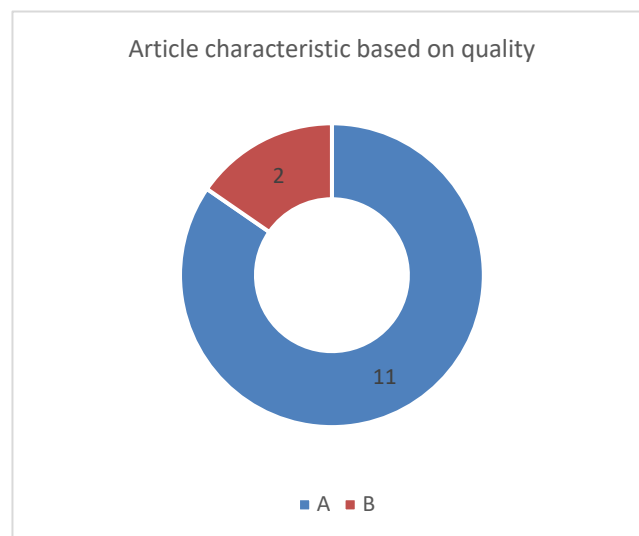


Figure 4. Article characteristics based on quality

Based on the critical assessment conducted on the 13 articles in this study, there were 11 articles with quality A and 2 articles with quality B. Articles with quality A had good value because they were appropriate and provided clear information regarding the aims, methods, and results of the study. Articles with quality B had a moderate value because they did not explain the criteria and limitations of sample inclusion in the study setting.

Table 8. Theme Mapping

No	Theme	Sub Theme	Research Articles
1.	Prevalence of pregnancy depression	Incidence of pregnancy depression	A1,A2,A4,A5,A6,A9,A10,A13
2.	Demographic Factors Causing Pregnancy Depression	Age	A5, A11
		Education Level	A3, A4
		Marital Status	A3, A4, A12
		Occupation	A2, A6, A7, A9
3.	Obstetrics Characteristics Causing Pregnancy Depression	Number of Pregnancy	A2, A6
		Abortion History	A2, A9
		Unwanted Pregnancy	A9, A12
		Diseases in Pregnancy	A2,A6,A11,A12
		Husband Support	A8, A10, A13
4.	Psikosocial factor Causing Pregnancy Depression	Parents Support	A2, A8, A10, A11, A13
		Domestic Violence	A1, A5, A8
		Harmful Habit	A1,A5,A6,A7

## DISCUSSION

### Prevalence depression in pregnancy

Many women experience changes in mental health during the perinatal period. Poor mental health can have a negative impact on women's health and the well-being of their babies and families. Likewise, poor health or difficult circumstances in the life of women, babies and families can negatively impact women's mental health (WHO, 2022).

Perinatal anxiety and depression are common, affecting around 1 in 10 women in high-income countries and one in five in low- and middle-income countries (WHO, 2022). Mental health and mental disorders are generally shaped by various social, economic and physical environments (WHO, 2014). Perinatal depression affects 21-50% of women in South Africa and poses significant health risks to both mother and child, depressive symptoms will decrease after delivery (A1). The highest intensity of depressive symptoms in the second trimester is related to unmarried status,



unplanned pregnancies, gestational diabetes, and headaches (Lau et al., 2018). Teenage pregnancy is associated with various adverse outcomes for these young mothers such as depression, substance abuse, and post-traumatic stress disorder (43.1%) (Tele et al., 2022). The prevalence of perinatal depression in India (23.9%) is in rural areas (A2). In Brazil, antenatal depression was common (11.4%) associated with a vulnerable sociodemographic (A4). The prevalence of depression in Saudi Arabia is 26.8% higher among unemployed women with a history of miscarriage and unplanned pregnancy (A9). Pregnant women who are depressed have one or more psychological symptoms, including fatigue, irritability, anxiety, and problems with sleeping and concentration (A10). Prevalence of antenatal depression in pregnant women during the COVID-19 pandemic was 34.1% depression and COVID-19 during the pandemic (Sewnet Amare et al., 2022).

### Demographic risk factors for depression in pregnancy

Perinatal depression was one of the most common mental disorders in women during the perinatal period. In India, the prevalence of perinatal depression was 23.9%. Weak financial status with or without debt resulting in poverty and stress was a strong risk factor for perinatal depression (A2, A6). Malnutrition during pregnancy due to low family income was a risk factor for pregnancy depression (Madeghe et al., 2021). A study stated that the mental health of pregnant women was related to the growth of fetal head circumference (Handayani et al., 2020).

Based on the factors related to antenatal depression was that antenatal depression was significantly higher among women in divorced marital status. Divorced women were 7.52 times more likely to experience pregnancy depression than married women (A3). Being an unmarried mother was considered a shame or a stigma not only for herself but also for the whole family. In some cases, the family rejected and left the unmarried mothers. It could create pressure and guilt, then, led to depressive symptoms (A12).

Antenatal depression was 4.05 times higher among women whose husbands cannot read and write, whereas women whose husbands can read and write without formal education were 2.39 times more likely to experience antenatal depression (A3). It was in line with the results of research in Iran that partner work and education had a statistically significant relationship with antenatal depression (Alipour et al., 2018). Thus in Brazil, antenatal depression was common and associated with vulnerable socio-demographics, including mothers with primary school education, non-white skin color, and living alone (A4). In Kenya, perinatal depression often occurred in teenage pregnancies with a prevalence of around 11-18%, teenage pregnancies result in dropouts which can lead to perinatal depression (A11).

### Characteristics of obstetric risk factors for depression in pregnancy

Pregnancy was a very vulnerable time for women, as income potential and health declined, and childcare needed to increase. Antenatal depression was common in women who had three or more children (A6). Physical illness in the mother increased the risk of perinatal depression eightfold, as did gestational diabetes and HIV AIDS (A11). Headache was a significant factor in antenatal depressive symptoms, which might occur due to changes in cortisol secretion (A12). History of miscarriage was not only associated with perinatal

depression, but also with other psychiatric disorders such as anxiety and post-traumatic stress disorder. Abortion caused grief as well as deteriorating physical health which could increase the risk of perinatal depression (A2, A9). It was in line with the meta-analysis studies which showed a history of abortion and a history of previous pregnancy complications were risk factors for antenatal depression (Zegeye, 2018).

Women with unplanned pregnancies had an increased risk of antenatal depressive symptoms. Unplanned pregnancies were associated with delays in attending prenatal classes, and were less likely to discuss pregnancy problems with their friends and relatives, consequently, unplanned pregnancies could contribute to the risk of antenatal depressive symptoms due to lack of proper support and treatment (A12). An unplanned pregnancy would make women think that their pregnancy would harm their lives (A9). A systematic review study reported that maternal age, marital status, income, occupation, history of previous psychiatric disorders, antenatal follow-up, unplanned pregnancies, complications during pregnancy, and social support were associated with antenatal depression (Getinet et al., 2018).

### Psikososial risk factors for depression in pregnancy

The perinatal period was a sensitive period for the occurrence of depressive symptoms due to profound physiological and psychosocial changes. Women whose partners had a negative attitude toward pregnancy had higher rates of depression than women whose partners had a positive attitude. Women who had got intimate partner violence had higher depression scores than women who had not (A5). Domestic violence was a global public health problem and a potential risk factor for adverse pregnancy and fetuses. Women who experienced psychological violence had a significant impact on prenatal depression and adverse birth outcomes (Yu et al., 2018) (Pasaribu, 2021).

Poverty, poor social support, abuse by in-laws, and poor access to health services could contribute to women's health (A2). Women who often smoked (A7) and lived with drinkers/alcohol or illegal drug users had a higher rate of depression than those who did not (A5). Feeling of depression during pregnancy and a history of depression were risk factors for antenatal depression (A13). Marital conflict was found to be a significant factor associated with antenatal depression. Women who experienced marital conflict were six times more likely to get antenatal depression than women who did not. Women who had social support were 79% less likely to get antenatal depression than women with low support. Social support from husband, family, and friends during pregnancy would help a woman deal with stressful life events during pregnancy (A8, A10). The husband's support during the antenatal period included physical support, psychological support, and informational support (Halim & Kurniawan, 2018). It was in line with the results of research which showed that the husband's support affected the anxiety of third-trimester pregnant women (Alza & Ismarwati, 2018) which was strongly associated with perinatal depression (Bernard et al., 2018).

### LIMITATION OF THE STUDY

The limitation of this study is that data was not collected directly, because it only analyzed previous articles.

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## CONCLUSIONS AND SUGGESTIONS

Based on the 13 articles used, it was found that depression in pregnancy can be caused by socio-demographic factors including relatively young age, low education level, unemployed mothers, and families with low incomes. Based on obstetric characteristics, depression in pregnancy can occur in women with more than 3 pregnancies, a history of miscarriages, unwanted pregnancies, and pregnant women with the disease. Meanwhile, from the psikososio factor, antenatal depression can occur due to a lack of support from husband and family, domestic violence, and harmful habits such as smoking and drinking in the family. Information on risk factors for antenatal depression is important for health workers to detect depression on time and implement relevant psychosocial interventions to reduce the incidence of antenatal depression.

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## ETHICAL CONSIDERATIONS

In this scoping review, ethical considerations cannot be applied.

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In writing this scoping review, the authors have no conflict of interest and will be responsible for the content and writing of the paper.

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