Common mental disorders in the perinatal period in Primary Healthcarein Latin America: A Systematic review and meta-analysis
Trastornos mentales comunes en el período perinatal en Atención Primaria de Salud en América Latina: una revisión sistemática y metanálisis.
Transtornos mentais comuns no período perinatal na Atenção Primária à Saúde na América Latina: uma revisão sistemática e meta-análise

Authors:
Bruno Pereira Da Silva[1]
Thiago Da Silva Domingos[2]
Roberto Ariel Abeldaño Zuñiga[3]

DOI:
https://doi.org/10.59843/2618-3692.v24.n41.41444

Abstract
There is a statistically higher risk for developing mental comorbidities in the perinatal period. There is a scientific gap in the analysis of the occurrence of mental health problems in the perinatal period among middle and low-income countries in the context of Primary Healthcare. Thus, the objective of this study was to review the occurrence of common mental disorders in the perinatal period in Primary Healthcare in Latin America. An overall estimate of 37% (95%CI: 32%-43%) of common mental disorders was identified for the entire perinatal period. Despite the high frequencies identified for mental comorbidity symptoms, there were no studies in other Latin American countries with the exception of Brazil, preventing an analysis on the mental health of Latino women in the perinatal period.

Key Words: perinatal, primary care, mental disorders, public health

Resumen:
Existe un riesgo estadísticamente mayor de desarrollar comorbilidades mentales en el período perinatal. Existe un vacío científico en el análisis de la ocurrencia de problemas de salud mental en el período perinatal entre países de ingresos medios y bajos en el contexto de la Atención Primaria de Salud. Así, el objetivo de este estudio fue revisar la ocurrencia de trastornos mentales comunes en el período perinatal en la Atención Primaria de Salud en América Latina. Se identificó una estimación global del 37 % (IC 95 %: 32 %-43 %) de trastornos mentales comunes durante todo el período perinatal. A pesar de las altas frecuencias identificadas para los síntomas de comorbilidad mental, no hubo estudios en otros países de América Latina con excepción de Brasil, lo que impide un análisis sobre la salud mental de las mujeres latinas en el período perinatal.

Palabras clave: trastornos mentales, atención primaria perinatal, salud publica

Resumo:
Existe um risco estatisticamente maior de desenvolver comorbidades mentais no período perinatal. Existe uma lacuna científica na análise da ocorrência de problemas de saúde mental no período perinatal entre famílias de média e baixa renda países no contexto da Atenção Primária à Saúde. Assim, o objetivo deste estudo foi revisar a ocorrência de transtornos mentais comuns no período perinatal em Atenção Primária à Saúde na América Latina. Uma estimativa geral de 37% (95% CI:32%-43%) de transtornos mentais comuns foram identificados durante todo o período perinatal período. Apesar das altas frequências identificadas para sintomas de comorbidade mental, não houve estudos em outros países latino-americanos com exceção de Brasil, impossibilitando uma análise sobre a saúde mental das mulheres latinas no período perinatal.

Palavras chave: perinatal,atenção primária, transtornos mentais, saude publica

1. Curso de Enfermagem, Centro Multidisciplinar (CMULTI), Universidade Federal do Acre (UFAC). Cruzeiro do Sul, Acre. Brazil. Programa de Pós-graduação em Educação e Saúde (PPGES), Escola de Filosofia, Letras e Ciências Humanas (EFLCH), Universidade Federal de São Paulo. São Paulo. Brazil.
2. Escola Paulista de Enfermagem. Departamento de Enfermagem Clínica e Cirúrgica. Universidade Federal de São Paulo. São Paulo. Brazil.
3. División de Estudios de Posgrado. Universidad de la Sierra Sur. Oaxaca, Mexico.

Corresponding author:
Dr. Roberto Ariel Abeldaño Zuñiga
Guillermo Rojas Mijangos SN.
Ciudad Universitaria.
Miahuatlan de Porfirio Diaz,
Oaxaca. (70800) Mexico.
ariabeldanho@gmail.com, rariel@unsis.edu.mx

Trabajo Recibido : Diciembre 2022. Trabajo aprobado: Marzo 21 del 2023

Common mental disorders (CMDs) are defined as a suspected mental comorbidity for mood, anxiety, and somatization disorders, being characterized by non-psychotic manifestations of depressive symptoms, anxiety symptoms and somatization, with manifestations of difficulty concentrating, forgetfulness, insomnia, fatigue and irritability, in addition to non-specific somatic complaints. Although the initial symptoms are not aggressively characterized, they can generate extreme consternation and lead to dysfunction in the person's daily activities (World Health Organization, 2017).

Women at all stages of life are susceptible to manifesting CMDs. The risk for developing CMDs and/or other mental health problems is significantly increased (Austin et al., 2017) during the perinatal period, from the beginning of pregnancy to 12 months after delivery (Lara-Cinisomo et al., 2018; O'Hara & Wisner, 2014). Systematic reviews have pointed to high occurrences of gestational CMDs in the world, with a prevalence between 10-15% being estimated in high-income countries, while the occurrence in low and middle-income countries is between 10-41% (Fisher et al., 2012; Gelaye et al., 2016).

The occurrence of CMDs in high-income countries is well established, and although there are studies with alarming data for low- and middle-income countries (Silva et al., 2020), such systematic reviews analyzed the occurrence of CMDs in different contexts from Primary Healthcare (PHC) to specialized services. This configures in considerable heterogeneity of screening and diagnostic methods and instruments used to achieve the outcome of interest (Fisher et al., 2012; Gelaye et al., 2016). Conceptual differences in relation to CMDs and the perinatal period have also been found (Silva et al., 2020).

A previous study reported 13% of postpartum depression in a global review and meta-analysis (O'Hara & Swain, 1996), but no review studies on CMDs in the perinatal period in Latin American countries were identified. The most recent systematic review on this phenomenon is from 2012 (Fisher et al., 2012), which investigated the prevalence and determinants of CMDs in women in low- and middle-income countries, but with the inclusion of only a few studies from Latin America and it did not have PHC as a scenario of interest.

Given the gap presented above, the relevance of CMDs in the perinatal period, as well as the possible negative outcomes for the woman, the child and the family, the aim of this study is to review the occurrence of CMDs in the perinatal period in PHC in Latin America.

Methods

Study design

This is a systematic review carried out in accordance with the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA), Figure 1, for conducting systematic reviews (Galvão et al., 2015; Moher et al., 2009). The question of this review is the following: What is the occurrence of CMDs in the perinatal period in women treated in PHC in Latin America?

The PICOS strategy was applied in developing the research question: Population (P): women in the perinatal period, from pregnancy to 12 months after delivery, attended in PHC; Intervention or exposure (I): occurrence of CMDs in the perinatal period; Comparison or control (C): none; Outcomes or outcome measures (O): prevalence and incidence of CMDs (depressive and anxiety symptoms, depressive symptoms and anxiety symptoms during pregnancy, postpartum and both periods); Studies (S): cross-sectional (prevalence) and cohort (prevalence and incidence).

The searches were carried out in the following information resources: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Embase, PubMed, PsycINFO, Latin American and

Caribbean Health Science Literature (LILACS) and Scientific Electronic Library Online (Scielo). A specific search strategy was used for each resource, as shown in Table 1. The search results were organized for screening in the EndNote software program which excluded duplicate articles, and the Rayyan software program (Ouzzani et al., 2016) was used with "blind on" reading by two researchers (BPS and TSD) and by a third (RAAZ) to break a tie.
Studies which met the following inclusion criteria were occurrrence of CMDs (WHO, 2017) in the perinatal period (Lara-Cinisomo et al., 2018); (VI) conducted in PHC; and (VII) of Latin American countries. As exclusion criteria: (I) review articles; (II) articles which did not answer the guiding question; (III) articles which did not cover the selected theme; and (IV) studies developed in countries other than Latin America.
Titles and abstracts were initially read with the application of eligibility criteria in order to refine the sample with the inclusion of studies that responded to the objective of the review. Next, each selected article was read in full, subsidizing reflections on the phenomenon studied and the organization of articles for data collection. Finally, a critical analysis was carried out to identify the issues related to each article, different methodologies, samples and data collection.
The initial search was performed by two independent reviewers with "blind on" (BPS and TSD), with a standardized protocol for applying the inclusion and exclusion criteria. The final decision to include disagreement cases between independent reviewers was made by a third reviewer (RAAZ).
Data extraction
The data extracted from the selected studies in this review was done using a structured form that contains the following information: authors, date of publication, country in which the study was conducted, language, diagnosis of the patients studied, number of patients included, study design, and incidence/prevalence (Table 2).

Quality analysis
The study quality analysis was performed according to the criteria of the Mixed Methods Appraisal Tool (MMAT), a strategy for evaluating the quality of studies when a review includes different designs. This tool was developed in 2006 and updated in 2018 by researchers at McGill University (Hong et al., 2018).
The MMAT scoring system enables reviewers and readers to view the global quality for each study assessed. The MMAT was designed to appraise the methodological quality of the studies, not the quality of their reporting (writing). This is an important feature because good research may not be well reported. Each article was independently assessed by all three reviewers for methodological quality using the MMAT to critically appraise the quality of the research studies (Table 3). The 2018 version of the MMAT enables describing and appraising the methodological quality of five types of studies: i) qualitative; ii) quantitative randomized controlled trials; iii) quantitative non-randomized; iv) quantitative descriptive; and v) mixed methods. Each type has its own set of quality criteria. The criteria are scored 'yes', 'no' or 'can't tell', followed by comments (Hong et al., 2018).

Qualitative synthesis
A qualitative synthesis was conducted with the studies that met the inclusion criteria. The synthesis included the study design, the period of the occurrence (pregnancy and/or post-partum), and the type of mental disorder screened by the original authors (common mental disorders, anxiety, and/or depression).

Statistical analysis
The number of women diagnosed with common mental disorders,

depression and/or anxiety and the total sample size were extracted from the original literature to calculate the pooled prevalence. Data were analyzed using the Stata statistical software program, and the command metaprop described by Nyaga et al. (2014). The pooled estimates of binomial data, the confidence intervals, continuity correct, and the Freeman-Tukey transformation were used. The protocol of this systematic review was registered in the PROSPERO platform with record number CRD42021249557.

Results

General description

All 12 included studies were developed in PHC in Brazil. Of these, nine used a cross-sectional design (Cardillo et al., 2016; Fernandes Moll et al., 2019; Hassan et al., 2016; Shu et al., 2016; Silva & Cavalcante Neto, 2015; Silva et al., 2017; Silva et al., 2016; Silva et al., 2015; Tabb et al., 2015) and three were of the cohort type (Lima et al., 2017; Maclean et al., 2015; Paskulin et al., 2017).

Sample sizes ranged from 66 (Fernandes Moll et al., 2019) to 831 participants (Shu et al., 2016). Three articles (Silva et al., 2017; Silva et al., 2016; Silva et al., 2015) were presumably developed with the same sample, with different objectives and published in different journals. The same occurred with studies conducted by Shu et al. (2016) and Tabb et al. (2015) which relied on data from a study conducted by Faisal-Cury et al. (2009) to carry out their analyzes.

Screening instruments and cut-off points

Several screening instruments were identified: the Edinburgh Postnatal Depression Scale (EPDS) was used for depression with scores ≥12 and ≥13 (Cardillo et al., 2016; Fernandes Moll et al., 2019; Lima et al., 2017); the General Health Questionnaire (GHQ-12) with a score ≥9 (Hassan et al., 2016); the Hospital Depression Subscale (HADS-D), part of the Hospital Anxiety and Depression Scale (HADS), with a cutoff point ≥9 (Silva et al., 2016; Silva et al., 2015); and the Primary Care Evaluation of Mental Disorders (PRIME-MD), diagnostic criteria according to the DSM-III-R for major depression (Paskulin et al., 2017).

The Hamilton Rating Scale for Depression (HAM-D) with a cut-off point ≥25 (Cardillo et al., 2016), and the Hospital Anxiety Subscale (HADS-A) with a cut-off point ≥9 (Silva et al., 2017; Silva et al., 2015) were used for anxiety screening; and the Primary Care Evaluation of Mental Disorders (PRIME-MD) with diagnostic criteria according to the DSM-III-R was used to assess generalized anxiety (Paskulin et al., 2017).

The instruments used for CMD screening were the Self-Report Questionnaire (SRQ-20) (Maclean et al., 2015; Shu et al., 2016; Silva & Cavalcante Neto, 2015; Tabb et al., 2015) with two cut-off points of ≥7 and ≥8; and the General Health Questionnaire (GHQ-12) (Hassan et al., 2016), with a cut-off point ≥3.

Groups (CMD, SD, SA, Pregnancy, Postpartum and both) and study designs (cross-sectional and cohort)

Most studies were performed during pregnancy. Three screened CMDs (Shu et al., 2016; Silva & Cavalcante Neto, 2015; Tabb et al., 2015), two screened depressive symptoms (Lima et al., 2017; Silva et al., 2016) and two others depressive and anxious symptoms (Paskulin et al., 2017; Silva et al., 2015). Three studies investigated occurrences of the disorders only in the postpartum period, with screening for depressive and anxious symptoms (Cardillo et al., 2016), CMDs and depressive symptoms (Hassan et al., 2016), and only depressive symptoms (Fernandes Moll et al., 2019). Only one study screened CMDs during both pregnancy and postpartum (Maclean et al., 2015).

The gestational moments divided into weeks or trimesters assumed by the studies were quite diverse. Three cross-sectional studies considered screening for depressive and anxiety symptoms (Silva

et al., 2015), depressive symptoms (Silva et al., 2016) and anxiety symptoms (Silva et al., 2017) in all gestational trimesters, evaluating the disorders as the participants sought care at the PHC. In a cohort study, Lima et al. (2017) defined three moments (20th, 28th and 36th weeks) for screening depressive symptoms, as well as Paskulin et al. (2017) in the 16th and 36th weeks of pregnancy. Shu et al. (2016) and Tabb et al. (2015) screened CMDs in women at 20 and 30 gestational weeks, and Silva and Cavalcante Neto (2015) in the 12th and 34th gestational weeks.

Among the studies that screened the occurrence of disorders in the postpartum period, a cross-sectional study screened depressive and anxiety symptoms among women at 0 to 4 months postpartum (Cardillo et al., 2016); another cross-sectional study screened CMDs and depressive symptoms in participants at 6 months postpartum (Hassan et al., 2016), whereas Fernandes Moll et al. (2019) identified the occurrence of depressive symptoms among participants at two weeks and 6 months after delivery. Only one cohort study screened the occurrence of CMDs during both pregnancy (between 20 and 30 weeks) and postpartum (between 6 and 18 months) (Maclean et al., 2015).

Qualitative synthesis

A qualitative synthesis was conducted with the studies that met the inclusion criteria. The synthesis included the period of the occurrence (pregnancy and/or post-partum), and the type of mental disorder (common mental disorders, anxiety, and/or depression).

The prevalence of depressive symptoms during pregnancy ranged from 21.6% (Paskulin et al., 2017) to 25.4% (Lima et al., 2017) at the 36th gestational week, as evaluated by the PRIM-MD/PHQ and EPDS, respectively. The occurrences of anxious symptoms observed in the studies were 19.8% (Paskulin et al., 2017) evaluated with the PRIM-MD/PHQ, 26.8% (Silva et al., 2015) and 28.6% (Silva et al., 2017), both with the HADS, score ≥9. A high prevalence of CMDs was observed (61.4%) screened with the SRQ-20, cut-off point ≥7, between the 12th and 34th gestational weeks (Silva & Cavalcante Neto, 2015).

High prevalence was also observed in a cohort study that evaluated the occurrence of depressive symptoms (EPDS≥13) at the 20th, 28th and 36th weeks of pregnancy of 27.2%, 21.7% and 25.4%, respectively, in one of the evaluation moments. The prevalence for the entire pregnancy was 7% (Lima et al., 2017).

In the study by Cardillo et al. (2016), the occurrence of depressive symptoms screened with EPDS and adopting a cut-off point ≥12 from 0 to 4 months postpartum was 20.8%. On the other hand, Hassan et al. (2016) found a prevalence of 8.3% for depressive symptoms using the GHQ-12 with a score ≥9 at 6 months after delivery. On the other hand, these same authors found a high prevalence of CMDs (39.9%) for the same sample and period screened with the GHQ-12 with a score ≥3.

Finally, a cohort study carried out between the 20th and 30th weeks of pregnancy and between the 6th and 18th months postpartum adopting a score ≥8 for positive CMDs found a prevalence of 36% CMDs screened only during pregnancy.

Meta-analyses (overall estimate)

The prevalence of disorders (CMDs, depressive symptoms or anxiety symptoms) in the first group of analyses for studies carried out in the gestational period was 31% (95% CI: 24%-38%); the estimate in the postpartum period was 22% (95% CI: 6%-38%) and heterogeneity of p=0.365 between groups. The overall estimate of occurrences was 28% (95%CI 22%-34%).

The overall prevalence for each of the disorders (CMDs, depressive symptoms and anxiety symptoms) in the second group of analyses was 37% (95%CI: 32%-43%) for CMDs, 21% (95%CI: 12%-31%)

for depressive symptoms and 20% for anxiety symptoms (95%CI: 16%-23%), with statically significant heterogeneity (p<0.0001).
Finally, a prevalence of 37% (95%CI: 30%-43%) of CMDs during pregnancy was found in the third group of analyses (type of disorder by perinatal period), 27% (95%CI: 13%-41%) for depressive symptoms during pregnancy, and 20% (95%CI: 16%-23%) for anxiety symptoms during pregnancy. The prevalence of CMDs in the postpartum period was 40% (95%CI: 34%-46%) and 15% for depressive symptoms (95%CI: 95%:6%-25%).

Discussion

All included studies were conducted in Brazil between 2015 and 2019, applying different instruments and cut-off points. As a result of the differences in the study designs used by the authors, different instruments were applied in different perinatal periods.
The lowest and highest prevalences for depressive symptoms were 7% and 27.2%, respectively, observed in the same study. The lowest prevalence was estimated for all pregnancy periods and the highest for the 20th gestational week. The instrument used was the EPDS with a score ≥13 (Lima et al., 2017). The lowest prevalence for anxiety disorders was 19.8% assessed with the PRIME-MD/PHQ (Paskulin et al., 2017); the highest was 28.6% (Silva et al., 2017), screened with the HADS-A≥9. The prevalence for CMDs ranged from 32% (Tabb et al., 2015) and 32.5% (Shu et al., 2016), with the use of the SRQ-20 score ≥8, and the highest prevalence of 61.4% for CMDs screened with SRQ-20, cut-off point ≥7 (Silva et al., 2015).
Such differences in occurrences are related to the perinatal period evaluated, the instruments used and the cut-off points used. Study designs and populations included are quite different.
In a systematic review study (Gelaye et al., 2016) performed with studies developed in low- and middle-income countries, the pooled prevalence for the gestational period was 25.3% (95%CI 21.4-29-6%), with significant heterogeneity between studies (p<0.001). The pooled prevalence of depression in a sensitivity analysis after excluding a study with a larger sample size was 25.8% (95%CI 22.8-29%).
Gelaye et al. (2016) found estimates of 19% for the postpartum period (95%CI 15.5-23.0%) in a grouped analysis of the studies, with significant heterogeneity (p<0.001). The prevalence in the sensitivity analysis was 19.6% (95%CI 16.8-22.6%).
The overall estimate for depression in the present study was 21% (95%CI 12%-31%), with a higher pooled prevalence for the studies included in this review. Our analysis considered the occurrences of depression (pooled analysis) for the entire perinatal period.
In a systematic review with meta-analysis which summarized the evidence on the prevalence and determinants of CMDs in the perinatal period in low- and middle-income countries, Fisher et al. (2012) found a prevalence of 15.9% in the gestational period (95%CI 15.0%-16.8%). The prevalence of CMDs for the postpartum period was 19.8% (95%CI 19.2%-20.6%). The overall estimate in the present review was 37% (95%CI 32%-43%) for CMDs for the entire perinatal period.
Through the high frequencies found for depression, anxiety and CMDs throughout the perinatal, pregnancy and postpartum period, this systematic review supports the importance of actions to detect mental disorders in the perinatal period in primary healthcare, with emphasis on the need for screening starting from the first prenatal visit. All studies were developed with the population of Brazil, which indicates the absence of investigations analyzing the population of other Latin American countries and shows a gap that should mobilize researchers, scholars and professionals to analyze the conditions and outcomes of maternal mental health in the perinatal period. From the care point of view, the results of the analysis point to the need to create and implement clinical protocols for tracking and monitoring mental health in the perinatal period, with a view to preventing maternal and child

mental health problems.
The leadership and work of nurses comprise a central role in qualifying mental healthcare in the prenatal and postpartum periods. Due to the prenatal and postpartum follow-up carried out by nurses, the decrease in maternal mortality rates is central to the leadership and performance of Primary Health Care nurses in the Brazilian context. The leadership and work of nurses comprise a central role in qualifying mental healthcare in the prenatal and postpartum periods.
As a limitation of the present study, only studies available electronically in certain databases in English, Portuguese and Spanish were included. Only observational studies of the cohort and cross-sectional types were considered. These choices may have led to omitting studies which include other inclusion criteria related to the descriptors used. Furthermore, the heterogeneity of the study designs, screening instruments and scores used in each of them and the evaluation moments of the occurrences, both during pregnancy and in the postpartum period. The use of the metrapop command used for the statistical analysis does not allow differentiating prevalence from incidence. Therefore, only the prevalence measures from the cohort studies were considered.

Conclusion

High frequencies were found for depression, anxiety and CMDs throughout the perinatal period, pregnancy and postpartum, which demonstrate the need to focus attention/care on maternal mental health in prenatal care. There is a very diverse population and methodological set, even though all the studies were carried out in the same country, making it difficult to compile the results around a single estimate.
Research is needed to determine paths for professional training and the establishment of care protocols within the scope of PHC, calling for special attention from researchers and health professionals to mental health during the perinatal period.

Funding: There was no funding for conducting this research.

Disclosure statement: The authors report there are no competing interests to declare.

Data availability statement: The data that support the findings of this study are available from the corresponding author, RAAZ, upon reasonable request.

References

Austin, M., Highet, N., & Expert Working Group. (2017). Mental health care in the perinatal period: Australian clinical practice guideline. Centre of Perinatal Excellence. https://cope.org.au/wp-content/uploads/2017/10/Final-COPE-Perinatal-Mental-Health-Guideline.pdf

Cardillo, V. A., Oliveira, L. C. Q., Monteiro, J. C. S., & Gomes-Sponholz, F. A. (2016). Identification of depressive symptoms during postpartum in adolescent mothers. Revista Eletronica de Enfermagem, 18, 1–10. https://doi.org/10.5216/ree.v18.32728

Faisal-Cury, A., Menezes, P., Araya, R., & Zugaib, M. (2009). Common mental disorders during pregnancy: Prevalence and associated factors among low-income women in São Paulo, Brazil. Archives of Women's Mental Health, 12(5), 335–343. https://doi.org/10.1007/s00737-009-0081-6

Fernandes Moll, M., Matos, A., Rodrigues, T. A., Martins, T. S., Pires, F. C., & Pires, N. A. S. (2019). Tracking postpartum depression in young women. Journal of Nursing UFPE / Revista de Enfermagem UFPE, 13(5), 1338–1344.

Fisher, J., Mello, M. C., Patel, V., Rahman, A., Tran, T., Holton, S., & Holmesf, W. (2012). Prevalence and determinants of common perinatal mental disorders in women in low-and lower-middle-income countries: A Systematic review. Bulletin of the World Health Organization, 90(2), 139–149. https://doi.org/10.2471/BLT.11.091850

Galvão, T. F., Pansani, T. S. A., & Harrad, D. (2015). Principais itens para relatar revisões sistemáticas e meta-análises: A Recomendação PRISMA [Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement]. Epidemiologia e Serviços de Saúde, 24(2), 335–342. https://doi.org/10.5123/S1679-49742015000200017

Gelaye, B., Rondon, M. B., Araya, R., & Williams, M. A. (2016). Epidemiology of maternal depression, risk

factors, and child outcomes in low-income and middle-income countries. Lancet Psychiatry, 3(10), 973–982. https://doi.org/10.1016/S2215-0366(16)30284-X

Hassan, B. K., Werneck, G. L., & Hasselmann, M. H. (2016). Maternal mental health and nutritional status of six-month-old infants. Revista de Saude Publica, 50, 7. https://doi.org/10.1590/S1518-8787.2016050006237

Hong, Q. N., Fàbregues, S., Bartlett, G., Boardman, F., Cargo, M., Dagenais, P., Gagnon, M.-P., Griffiths, F., Nicolau, B., O'Cathain, A., Rousseau, M.-C., Vedel, I., & Pluye, P. (2018). The Mixed Methods Appraisal Tool (MMAT) version 2018 for information professionals and researchers. Education for Information, 34(4), 285–291. https://doi.org/10.3233/EFI-180221

Lara-Cinisomo, S., Clark, C. T., & Wood, J. (2018). Increasing diagnosis and treatment of perinatal depression in latinas and african american women: Addressing stigma is not enough. Womens Health Issues, 28(3), 201–204. https://doi.org/10.1016/j.whi.2018.01.003

Lima, M. O. P., Tsunechiro, M. A., Bonadio, I. C., & Murata, M. (2017). Sintomas depressivos na gestação e fatores associados: Estudo longitudinal [Depressive symptoms in pregnancy and associated factors: Longitudinal study]. Acta Paulista de Enfermagem, 30(1), 39–46. https://doi.org/10.1590/1982-0194201700007

MacLean, J. V., Faisal-Cury, A., Chan, Y. F., Menezes, P. R., Winters, A., Joseph, R., & Huang, H. (2015). The relationship between sleep disturbance in pregnancy and persistent common mental disorder in the perinatal period (sleep disturbance and persistent CMD). Journal of Mental Health, 24(6), 375–378. https://doi.org/10.3109/09638237.2015.1036969

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. Journal of Clinical Epidemiology, 62(10), 1006–1012. https://doi.org/10.1016/j.jclinepi.2009.06.005

Nyaga, V. N., Arbyn, M., & Aerts, M. (2014). Metaprop: A Stata command to perform meta-analysis of binomial data. Archives of Public Health, 72(39). https://doi.org/10.1186/2049-3258-72-39

O'Hara, M. W., & Wisner, K. L. (2014). Perinatal mental illness: Definition, description and aetiology. Best Practice & Research Clinical Obstetrics & Gynaecology, 28(1), 3–12. https://doi.org/10.1016/j.bpobgyn.2013.09.002

O'Hara, M. W., & Swain, A. M. (1996). Rates and risk of postpartum depression—a meta-analysis. International Review of Psychiatry, 8(1), 37–54. https://doi.org/10.3109/09540269609037816

Ouzzani, M., Hammady, H., Fedorowicz, Z., & Elmagarmid, A. (2016). Rayyan—a web and mobile app for systematic reviews. Systematic Reviews, 5(210). https://doi.org/10.1186/s13643-016-0384-4

Paskulin, J. T. A., Drehmer, M., Olinto, M. T., Hoffmann, J. F., Pinheiro, A. P., Schmidt, M. I., & Nunes, M. A. (2017). Association between dietary patterns and mental disorders in pregnant women in southern Brazil. Revista Brasileira de Psiquiatria, 39(3), 208–215. https://doi.org/10.1590/1516-4446-2016-2016

Shu, J. E., Huang, H., Menezes, P. R., & Faisal-Cury, A. (2016). Prevalence and risk factors for cannabis use in low-income pregnant women in São Paulo, Brazil. Archives of Women's Mental Health, 19, 193–196. https://doi.org/10.1007/s00737-015-0534-z

Silva, B. P., Neves, P. A. R., Mazzaia, M. C., & Gabrielloni, M. C. (2020). Common mental disorders and perinatal depressive symptoms : An Integrative review. Revista Brasileira de Enfermagem, 73(Suppl 1), e20190823.

Silva, K. G. M., & Cavalcante Neto, J. L. (2015). Fatores associados ao transtorno mental comum e níveis de atividade física em gestantes [Factors associated with Common mental disorder and physical activity levels in pregnant women]. Revista Brasileira de Ciência e Movimento, 23(2), 113–122. https://doi.org/10.18511/0103-1716/rbcm.v23n2p113-122

Silva, M. M. J., Leite, E. P. R. C., Nogueira, D. A., & Clapis, M. J. (2015). Ansiedade e depressão na gravidez: Caracterização de gestantes que realizaram pré-natal em unidades públicas de saúde [Anxiety and depression in pregnancy: Characterization of pregnant women who received prenatal care in public health units]. Revista de Enfermagem UFPE On line, 9(Suppl. 7), 9027–9037.

Silva, M. M. J., Leite, E. P. R. C., Nogueira, D. A., & Clapis, M. J. (2016). Depression in pregnancy. Prevalence and associated factors. Investigacion y Educacion En Enfermeria, 34(2), 342–350. https://doi.org/10.17533/udea.iee.v34n2a14

Silva, M. M. J., Nogueira, D. A., Clapis, M. J., & Leite, E. P. R. C. (2017). Anxiety in pregnancy: Prevalence and associated factors. Revista Da Escola de Enfermagem Da USP, 51, e03253. https://doi.org/10.1590/s1980-220x2016048003253

Tabb, K. M., Huang, H., Menezes, P. R., Azevedo e Silva, G., Chan, Y.-F., & Faisal-Cury, A. (2015). Ethnic differences in tobacco use during pregnancy: Findings from a primary care sample in São Paulo, Brazil. Ethnicity & Health, 20(2), 209–217. https://doi.org/10.1080/13557858.2014.907390

World Health Organization. (2017). Depression and other common mental disorders: Global health estimates. https://apps.who.int/iris/handle/10665/254610.

Table 1. Search strategies modulated according to each of the information resources, 2021.

Database	Search strategy
CINAHL	(((MH "*Pregnancy*") *OR* TI *Pregnancy OR* AB *Pregnancy*) *OR* ((MH "*Depression, Postpartum*") *OR* TI ("*postpartum depression*" *OR* "*postnatal depression*" *OR* ppd) *OR* AB ("*postpartum depression*" *OR* "*postnatal depression*" *OR* ppd)) *AND* ("*common mental disorder*" *OR* "*common mental disorders*"))
Embase	("*common mental disorder*"/exp *OR* "*common mental disorder*" *OR* "*common mental disorders*") *AND* ("*postnatal depression*"/exp *OR* "*pregnancy*"/exp) *AND* [Embase]/lim
LILACS	tw: (("transtorno mental comum" *OR* "transtornos mentais comuns" *OR* "*common mental disorder*" *OR* "*common mental disorders*")) *AND* (mh: ("Gravidez" *OR* "Depressão Pós-Parto"))
PubMed/MEDLINE	(("*common mental disorder*" *OR* "*common mental disorders*")) *AND* ((("*Pregnancy*" [Mesh] *OR* "*Pregnancy*" [tiab])) *OR* ("*Depression, Postpartum*" [Mesh] *OR* "*Depression, Postpartum*" [tiab]))
PsycINFO	"*COMMON MENTAL DISORDER*" *OR Any Field*: "*COMMON MENTAL DISORDERS*" *AND* (*Any Field: PREGNANCY OR Any Field*: "*POSTPARTUM DEPRESSION*")
Scielo	((Transtornos mentais comuns) AND (Gavidez) OR (Depressão Pós-Parto))

Platform registration number *PROSPERO*: CRD42021249557

Search Strategies for *Common mental disorders in perinatality in Primary Health Care in Latin America*: doi: 10.13140/RG.2.2.12070.24640

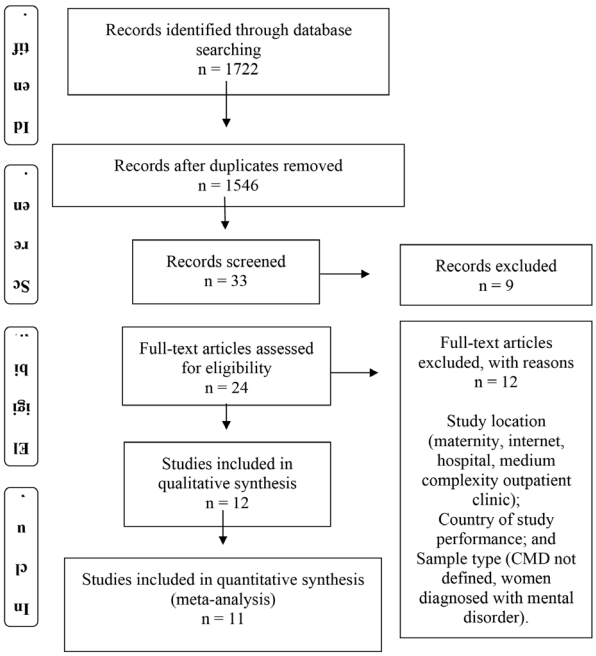

Figure 1. PRISMA flowchart of the inclusion process in the systematic review.

Table 2. Characterization of included studies according to authorship, study site, design, sample, assessed perinatal period, instrument and score, tracked symptom and occurrence.

Author, Year	Country and publication language	Design	Sample	Perinatal period	Screening instrument and score	Outcome measured	Frequency
Cardillo et al., (2016)	Brazil, English	Cross-sectional	72	0 to 4 months postpartum	EPDS ≥12 HAM−D≥25*	Depressive Anxiety	20.8% 17.3%*
Hassan et al., (2016)	Brazil, Portuguese	Cross-sectional	288	6 months postpartum	GHQ−12 ≥3 and ≥9	CMDs Depressive	39.9% 8.3%
Silva et al., 2015	Brazil, Portuguese	Cross-sectional	209	Pregnancy (all gestational trimesters)	HADS ≥9	Anxiety Depressive	26.8% 14.8%
Silva et al., (2016)	Brazil, English	Cross-sectional	209	Pregnancy (all gestational trimesters)	HADS−D ≥9	Depressive	14.8%
Silva et al., (2017)	Brazil, Portuguese	Cross-sectional	209	Pregnancy (all gestational trimesters)	HADS−A ≥9	Anxiety	28.6%
Lima et al., (2017)	Brazil, Portuguese	Cohort	272	20th, 28th and 36th gestational weeks	EPDS ≥13	Depressive (all gestation period) 20th week 28th week 36th week	7% 27.2% 21.7% 25.4%
MacLean et al., (2015)	Brazil, English	Cohort	270 (adolescent	Pregnancy (between 20 and 30 weeks) and postpartum (between 6 and 18 months)	SRQ−20 ≥8	CMDs	36%**

			s and adults)				
Fernandes Moll et al., (2019)	Brazil, English	Cross-sectional	66	2 weeks to 6 months postpartum	EPDS ≥12	Depressive	19.7%
Paskulin et al., (2017)	Brazil, English	Cohort	712	Pregnancy (16th and 36th weeks)	PRIME-MD/PHQ***	Major depression General anxiety	21.6% 19.8%
Shu et al., (2016)	Braziil, English	Cross-sectional	831 (adolescents and adults)	Pregnancy (between 20 and 30 weeks)	SRQ−20 ≥8	CMDs	32.5%
Silva e Cavalcante Neto, (2015)	Braziil, Portuguese	Cross-sectional	74	Pregnancy (between 12 and 34 weeks)	SRQ−20 ≥7	CMDs	61.4%
Tabb et al., (2015)	Braziil, English	Cross-sectional	811 (adolescents and adults)	Pregnancy (between 20 and 30 weeks)	SRQ−20 ≥8	CMDs	32%

Legend: EPDS – Edinburgh Postnatal Depression Scale, HAM-D – Hamilton Rating Scale for Depression, GHQ-12 – General Health Questionnaire, HADS – Hospital Anxiety and Depression Scale, HADS-D – Hospital Depression Subscale, HADS-A – Hospital Anxiety Subscale, SRQ-20 – Self-Report Questionnaire, PRIME-MD – Primary Care Evaluation of Mental Disorders.
*only evaluated the anxiety symptom in adolescents with positive depressive symptoms.
**screened during pregnancy only.
***diagnostic criteria according to the DSM-III-R.

Table 3. MMAT tool quality evaluation.

	Screening questions		Quantitative studies				
Authors, Year	S1. Are there clear research questions?	S2. Do the collected data address the research questions?	4.1. Is the sampling strategy relevant to address the research question?	4.2. Is the sample representative of the target population?	4.3. Are the measurements appropriate?	4.4. Is the risk of nonresponse bias low?	4.5. Is the statistical analysis appropriate to answer the research question?
Cardillo et al., (2016)	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes
Hassan et al., (2016)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Silva et al., (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Silva et al., (2016)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Silva et al., (2017)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fernandes Moll et al., (2019)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Paskulin et al., (2017)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shu et al., (2016)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Silva e Cavalcante Neto, (2015)	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes

	Screening questions		Non-randomized studies				
Authors, Year	S1. Are there clear research questions?	S2. Do the collected data address the research questions?	3.1. Are the participants representative of the target population?	3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?	3.3. Are there complete outcome data?	3.4. Are the confounders accounted for in the design and analysis?	3.5. During the study period, is the intervention administered (or exposure occurred) as intended?
Lima et al., (2017)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MacLean et al., (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tabb et al., (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 4. Meta-analyses of common mental disorders, depressive symptoms and anxiety symptoms in the perinatal period.

	Sub-groups	Study	Estimation Prevalence	95%CI Inf	95%CI Sup	Weight %
Period	Pregnancy	MacLean et al., (2015)	0.33	0.27	0.38	8.49
		Shu et al., (2016)	0.32	0.29	0.36	8.82
		Silva e Cavalcante Neto, (2015)	0.59	0.48	0.70	7.28
		Tabb et al., (2015)	0.32	0.29	0.36	8.82
		Silva et al., (2015)	0.15	0.11	0.20	8.61
		Silva et al., (2016)	0.15	0.11	0.20	8.61
		Silva et al., (2017)	0.27	0.21	0.33	8.42
		Lima et al., (2017)	0.39	0.33	0.45	8.46
	Subtotal (I^2=93.15%, p<0.001)		**0.31**	**0.24**	**0.38**	**67.50**
	Post-partum	Hassan et al., (2016)	0.40	0.34	0.46	8.35
		Hassan et al., (2016)	0.08	0.05	0.13	8.78
		Fernandes Moll et al., (2019)	0.20	0.12	0.31	7.66
		Cardillo et al., (2016)	0.21	0.13	0.32	7.71
	Subtotal (I^2=95.90%, p<0.001)		**0.22**	**0.06**	**0.38**	**32.50**
	Heterogeneity between groups: p=0.365					
	Overall (I^2=95.09%, p<0.001)		**0.28**	**0.22**	**0.34**	**100.00**
Mental Disorders	CMD	MacLean et al., (2015)	0.33	0.27	0.38	7.84
		Shu et al., (2016)	0.32	0.29	0.36	8.16
		Silva e Cavalcante Neto, (2015)	0.59	0.48	0.70	6.65
		Tabb et al., (2015)	0.32	0.29	0.36	8.16
		Hassan et al., (2016)	0.40	0.34	0.46	7.70
	Subtotal (I^2=84.25%, p<0.001)		**0.37**	**0.32**	**0.43**	**38.52**
	Depression	Silva et al., (2015)	0.27	0.21	0.33	7.77
		Silva et al., (2016)	0.15	0.11	0.20	7.96
		Lima et al., (2017)	0.39	0.33	0.45	7.80
		Hassan et al., (2016)	0.08	0.05	0.13	8.12
		Fernandes Moll et al., (2019)	0.20	0.12	0.31	7.03
		Cardillo et al., (2016)	0.21	0.13	0.32	7.08
	Subtotal (I^2=94.25%, p<0.001)		**0.21**	**0.12**	**0.31**	**45.75**
	Anxiety	Silva et al., (2015)	0.15	0.11	0.20	7.96
		Silva et al., (2017)	0.27	0.21	0.33	7.77
	Subtotal (I^2=0%, p<0.001)		**0.20**	**0.16**	**0.23**	**15.73**
	Heterogeneity between groups: p<0.001					
	Overall (I^2=95.09%, p<0.001)		**0.28**	**0.22**	**0.34**	**100.00**

Period and Mental Disorders	CMD Pregnancy	MacLean et al., (2015)	0.33	0.27	0.38	7.84
		Shu et al., (2016)	0.32	0.29	0.36	8.16
		Silva e Cavalcante Neto, (2015)	0.59	0.48	0.70	6.65
		Tabb et al., (2015)	0.32	0.29	0.36	8.16
	Subtotal (I^2=86.16%, p<0.001)		**0.37**	**0.30**	**0.43**	**30.82**
	Depression Pregnancy	Silva et al., (2015)	0.27	0.21	0.33	7.77
		Silva et al., (2016)	0.15	0.11	0.20	7.96
		Lima et al., (2017)	0.39	0.33	0.45	7.80
	Subtotal (I^2=95%, p<0.001)		**0.27**	**0.13**	**0.41**	**23.53**
	Anxiety Pregnancy	Silva et al., (2015)	0.15	0.11	0.20	7.96
		Silva et al., (2017)	0.27	0.21	0.33	7.77
	Subtotal (I^2=0%, p<0.001)		**0.20**	**0.16**	**0.23**	**15.73**
	CMD Post-partum	Hassan et al., (2016)	40.00	0.34	0.46	7.70
	Subtotal		**40.00**	**0.34**	**0.46**	**7.70**
	Depression Post-partum	Hassan et al., (2016)	0.08	0.05	0.13	8.12
		Fernandes Moll et al., (2019)	0.20	0.12	0.31	7.03
		Cardillo et al., (2016)	0.21	0.13	0.32	7.08
	Subtotal (I^2=0%, p<0.001)		**0.15**	**0.06**	**0.25**	**22.22**
	Overall (I^2=95.09%, p<0.001)		**0.28**	**0.22**	**0.34**	**100.00**