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The efficacy of psychological interventions on well-being during the perinatal period: A systematic review

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ABSTRACT

Although research has already shown the importance of promoting well-being during pregnancy and after birth, previous meta-analyses on the effectiveness of psychological interventions do not include wellbeing as a primary outcome measure, focusing instead on assessing the effectiveness in reducing symptoms. This study aimed at conducting a systematic review of the effects of psychological interventions on well-being during the perinatal period. A search was conducted in Psycinfo, PubMed, Web of Science (WOS) and Scopus for articles published from 2014 to 2024. A review of 16 randomized clinical trials revealed that most interventions were effective in both improving well-being and reducing clinical symptoms. Face-to-face, therapist-led, and group-based approaches showed better adherence. Positive changes in well-being were maintained over time, although the postpartum transition may have influenced the maintenance of results. This study highlights the importance of including well-being measures in clinical trials during the perinatal period and advocates for a shift toward promoting well-being alongside symptom management.

1. Introduction

Although having a baby is generally associated with positive experiences, it can also be a very stressful time [1]. Pregnancy and childbirth are events that involve significant physical and psychological changes that prepare individuals for parenthood [2,3]. These hormonal, social, familial and psychological changes lead to increased vulnerability to mental disorders, with depression being the most prevalent disorder [4]. Prenatal depression is a mood disorder that appears during pregnancy, while postpartum depression occurs from 4 weeks after childbirth and may last up to a year after childbirth [5]. The most common symptoms are dysphoria, emotional lability, guilt, irritability, sleep problems, feelings of worthlessness, difficulty concentrating, and suicidal thoughts [6].

The vulnerability of perinatal mental health has become even more apparent following the crisis caused by COVID-19. Currently, based on self-reported measures, the overall prevalence of perinatal depression is 26 %, with a higher incidence in the prenatal period [7]. Given this high prevalence, perinatal depression has become a public health problem, as the negative consequences affect not only the expectant parent but also the newborn [8]. Perinatal depressive symptoms are associated with difficulties in infant development, behavioral problems and poor cognitive functioning [9].

Rates of perinatal anxiety were also higher after the COVID-19 pandemic. Nowadays, one in three people during this stage shows anxiety symptoms (31 % antenatal and 31 % postnatal; [10]). Previous studies had shown that anxiety rates stood at 15 % for pregnant people and 20 % for postpartum people [11,12]. It is worth mentioning that antenatal anxiety puts pregnant people at risk of developing postpartum depression [13] and is associated with an increased risk of preeclampsia, miscarriage, low birth weight and preterm birth [14,15]. There is even an association between anxiety and depressive symptoms and suicide in the perinatal period [16], which is currently the leading cause of unnatural death (i.e., not caused by disease or natural processes) in the perinatal period [17].

Recent literature highlights some risk factors for perinatal mental health [18,19]. Most studies agree that one of the most robust predictors of perinatal depression is the presence of depressive symptoms prior to pregnancy [4]. Other central risk factors are the lack of social support [20] and high psychological stress [21]. Given the high prevalence of perinatal depression, and considering that affective symptoms during pregnancy are a significant risk factor for developing postpartum

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depression, it is evident that effective prevention programs, implemented prior to or during pregnancy, are essential for vulnerable individuals.

There is a wide range of interventions for the prevention and treatment of depressive and anxious symptoms in the perinatal period [22]. Although pharmacological treatments are commonly used, concerns have been raised about their safety during pregnancy and the postpartum period has been questioned [23]. Therefore, psychological interventions become particularly relevant during this period.

Several systematic reviews and meta-analyses have confirmed the effectiveness of psychological treatments in alleviating symptoms of depression, stress, and anxiety during pregnancy and after childbirth [24]. Cognitive Behavior Therapy (CBT) has been shown to be the most effective intervention [25]. In general terms, these psychological interventions have shown a moderate to large effect, with positive results also observed during the 6-month follow-up [24]. These efficacy studies mainly focus on symptom reduction. However, little is known about their effects on well-being variables [26]. Thus, in order to reduce the incidence or onset of the perinatal mental health problems, interventions should aim not only to reduce symptoms and risk factors but also to promote well-being and its protective factors [27].

Traditionally, research on well-being has distinguished different interrelated components [28]. Subjective well-being is defined as a composite of hedonic elements (i.e., positive and negative affect) and life satisfaction [29]. Complementary to this concept, psychological well-being, more akin to a concept of eudaimonic well-being, has been defined by dimensions that contribute to a good life (e.g., environmental mastery, personal growth, self-acceptance, self-compassion, autonomy, purpose in life, positive relationships; [30]). Around these two broad traditions, there are other variables related to well-being, such as quality of life, which provides information about the general functioning of people considering aspects such as their physical and psychological health [31].

Research has already shown the importance of nurturing well-being and promoting positive resources during the perinatal stage. Some studies suggest that individuals at this stage experience a decrease in positive emotions [32] and poor well-being, characterized by low self-esteem and life satisfaction [33]. On the other hand, perinatal positive affect has shown to be a protective factor against postpartum depression [34]. Positive affect is also associated with better feeding practices [35] and a reduced risk of preterm birth [36]. Therefore, cultivating positive psychological skills may help patients perceive that therapy is not only aimed at reducing symptoms but also at promoting well-being [37].

Despite the available evidence on the benefits of promoting well-being and positive resources, previous systematic reviews and meta-analyses of psychological interventions in the perinatal period [24,25] have focused on determining the effectiveness of interventions in reducing symptoms, without including well-being as a primary outcome measure. Therefore, the effect of the interventions available in this perinatal stage on well-being variables is still unknown.

The aim of the present study was to conduct a systematic review to assess the efficacy of psychological interventions on well-being dimensions during the perinatal stage. Specifically, this systematic review aims at: 1) examining the characteristics of the interventions; 2) exploring their effects on hedonic well-being, eudaimonic well-being, and quality of life; 3) analyzing the acceptability of the interventions (e.g., adherence, dropouts); and 4) exploring the effect of the interventions on well-being over time.

2. Methods

A systematic review of scientific literature was conducted. The protocol was registered in the International Prospective Register of Systematic Reviews (PROSPERO) under registration number: CRD42023433046. The methodology adhered to the guidelines outlined in the PRISMA Statement [38]. PRISMA checklist is provided in Supplementary Table 1.

2.1. Search strategy

A systematic literature search was conducted in the databases Psycinfo, Pubmed, Web of Science (WOS) and Scopus from 2014 to 2024. The initial search was carried out in May 2024. The keywords were 'prepartum' or 'pre-natal' or 'antenatal' or 'perinatal' or 'pregnant*' and 'interventions' or 'therapy' or 'psychotherapy' or 'care' or 'nurs' not 'pharmacological treatment' or 'psychopharmacological treatment' or 'pharmacological therapy' or 'psychopharmacological therapy' or pharmacology* or psychopharmacology* and 'wellbeing' or 'wellness' or "quality of life" or "satisfaction with life" or "positive emotions" or "emotions" or "mindfulness" or "gratitude" or "compassion" or "self-compassion" or "optimism". The search was restricted to people with the capacity to become pregnant, English-language scientific articles and clinical trials.

2.2. Selection of studies

After the initial search, a preliminary screening was conducted. Studies were included if: 1) they reported quantitative data from randomized clinical trials (RCT) of psychological interventions in healthy people who are pregnant or during the postpartum stage; and 2) they included measures of well-being, quality of life or positive resources. Exclusion criteria were: 1) clinical interventions aimed at directly influencing a physical health condition (e.g., interventions for HIV prevention in pregnancy, smoking cessation, or weight loss); 2) pharmacological, medical or family interventions (even if they measured well-being variables); 3) interventions aimed at people undergoing in vitro fertilization.

2.3. Data extraction

Data and quality analyses were extracted by two reviewers (A.D. and E.N.) independently. Disagreements were resolved by consensus. Data were classified according to: 1) patient characteristics: perinatal stage (i.e., pregnant, postpartum, or mixed), main symptoms (i.e., depression, anxiety or stress, mixed or without symptomatology); 2) intervention characteristics: aim of intervention (i.e., symptom reduction, improving well-being or both), type (i.e., preventive or treatment), delivery mode (i.e., group or individual intervention), application (i.e., online or face-to-face), duration, therapist role (i.e., self-administered or guided-therapy); and 3) design characteristics: model of intervention (i.e., CBT, mindfulness intervention, third generation therapy, combination of different models or others), type of comparison group, group size, measures of well-being, efficacy results and acceptability data.

To assess the quality of trials, the PEDro scale was used to determine whether randomized clinical trials have sufficient internal validity and statistical information to make the results interpretable and applicable. The criteria established according to the scale were: 1) eligibility criteria were specified; 2) subjects were randomly assigned to groups (in a crossover trial, subjects were randomly assigned to the order in which they received treatments); 3) allocation was concealed; 4) groups were similar at baseline with respect to key prognostic indicators; 5) there was blinding of all subjects; 6) there was blinding of all therapists who administered the therapy; 7) there was blinding of all assessors who measured at least one key outcome; 8) measures of at least one key outcome were available for more than 85 % of the subjects initially allocated to the groups; 9) all subjects for whom outcome measures were available received the treatment or control condition as allocated, or, if this was not the case, data for at least one key outcome were analyzed by intention to treat; 10) the results of statistical comparisons between groups were reported for at least one key outcome; 11) the study provided both point measures and measures of variability for at least one key outcome. Many of the interventions included in this study were self-

administered. In these cases, criterion 6 (i.e., there was blinding of all therapists who administered the therapy) was assessed. Criteria that were not clearly stated in the articles were given a score of 0.

3. Results

The study selection process is shown in Fig. 1. A comprehensive literature search identified 12,995 studies. Of these, 239 were randomized clinical trials involving individuals in the perinatal stage. In addition, 10 additional trials were identified through other sources (i.e., international expert and references from reviews). After reviewing the titles and abstracts, 249 articles were identified as potentially eligible for inclusion in the meta-analysis. After detailed examination of the full text articles, 16 studies were included.

3.1. Results of the quality assessment

The PEDro quality scores ranged from medium (37.5 % scoring 6) to high (6.25 % scoring 10). The most frequent scores were 9 (31.25 %) and 8 (18.75 %). Only one study achieved a score of 10. All trials provided variability and mean data, between-group comparisons, specified inclusion criteria, and pre-treatment comparison data. In addition, fifteen of the sixteen selected studies randomized participants to each group, although only four of these were blinded participants (Table 1).

Table 1
Summary of quality assessment of studies (PEDro Scale).

Study	1	2	3	4	5	6	7	8	9	10	11	Total
[39]	1	1	1	1	1	–	1	0	1	1	1	10
[40]	1	1	1	1	0	0	1	1	0	1	1	8
[41]	1	1	1	1	1	–	0	1	0	1	1	9
[42]	1	1	1	1	0	–	0	1	1	1	1	9
[43]	1	1	0	1	0	0	0	1	0	1	1	6
[44]	1	1	0	1	0	–	0	0	0	1	1	6
[45]	1	1	1	1	0	–	0	1	1	1	1	9
[46]	1	1	1	1	0	–	1	0	0	1	1	8
[33]	1	1	1	1	1	–	0	0	0	1	1	8
[47]	1	1	1	1	0	–	0	0	0	1	1	7
[48]	1	1	0	1	0	0	0	1	0	1	1	6
[49]	1	1	0	1	0	0	0	1	0	1	1	6
[50]	1	1	0	1	0	0	0	1	0	1	1	6
[51]	1	0	0	1	1	–	1	1	1	1	1	9
[52]	1	1	0	1	0	0	1	0	0	1	1	6
[53]	1	1	1	1	0	0	1	1	1	1	1	9

Note. Criteria: 1) Specified eligibility criteria; 2) Random allocation of subjects to groups; 3) Concealed allocation; 4) Groups similar at baselines on key prognostic indicators; 5) Blinding of all subjects; 6) blinding of all therapists administering treatment; 7) Blinding of all assessors measuring at least one key outcome; 8) Measurements of at least 85 % of subjects; 9) Intention to treat analysis; 10) Results of statistical comparisons between groups; 11) Point and variability measures are provided in the study.

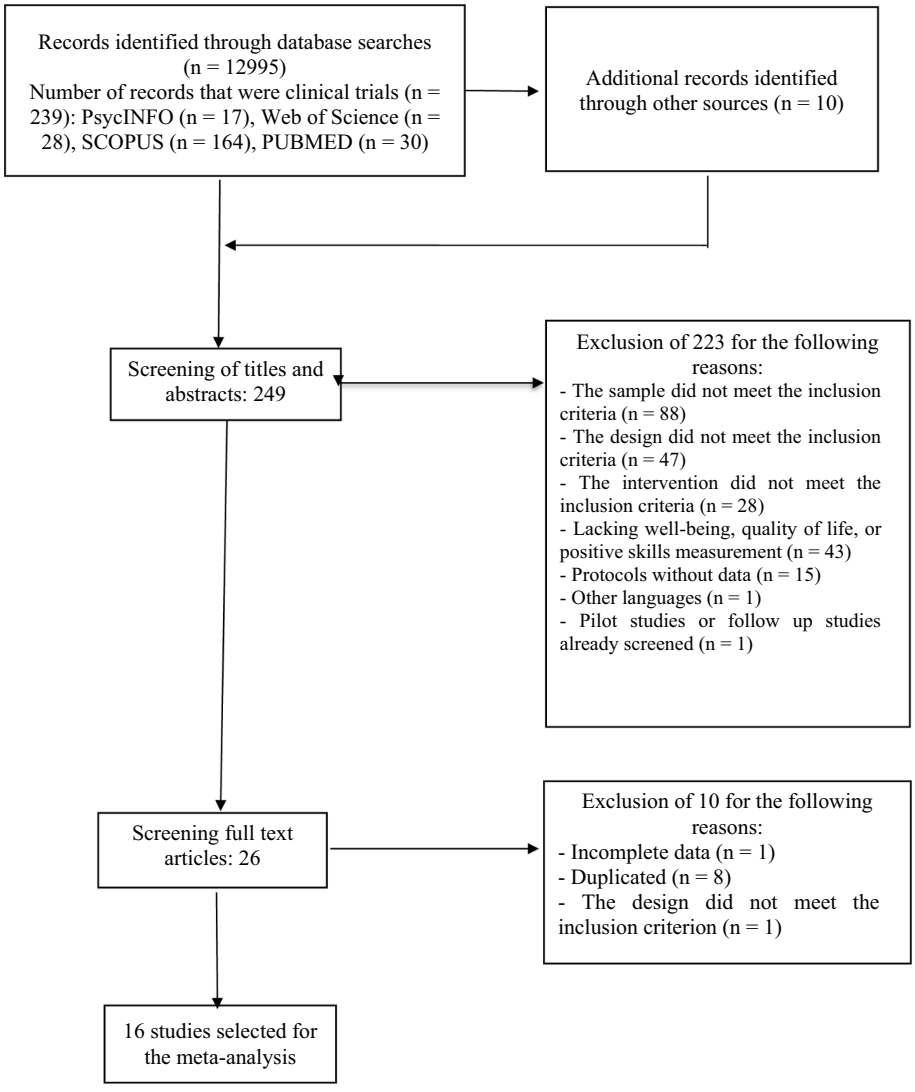

Fig. 1. Flow diagram of the systematic search and study selection.

3.2. Description of studies

The characteristics of the included studies are described in Table 2. The trials assessed 3057 individuals in the perinatal period, where 1581 received a psychological intervention and 1476 were in the comparison group (i.e., treatment as usual, CBT, psychoeducation and waiting list). Only one study focused exclusively on the postpartum period, with most aimed at pregnant people ($n = 11$) or mixed ($n = 4$). With regard to the main symptoms assessed, studies targeted individuals with depression ($n = 9$), stress ($n = 3$) anxiety (n = 1), cortisol levels (n = 1), and body shame (n = 1).

The characteristics of the interventions are described in Table 3. Most interventions were preventive (n = 11). Six studies (37.5 %) applied a third-generation therapy, three studies (18.75 %) used CBT,

Table 2
Description of the included studies.

Author	Aim	Perinatal stage of the sample	Sample	Intervention group	Comparation group	Symptoms assessed
[39]	To determine the efficacy of Be a Mum in reducing postpartum depressive symptoms.	Postpartum	194	Combination of different models (CBT + ACT) $N = 98$	Waiting-list control group $N = 96$	Depression
[40]	To determine the effectiveness of group CBT-based counseling on perceived stress (primary outcome), anxiety, depression, and quality of life in pregnant people with a history of primary infertility.	Pregnant	56	CBT N = 28	TAU $N = 28$	Stress
[41]	To evaluate the impact of a Mindfulness-Based Stress Reduction program (MBSP) on enhancing self-regulatory skills and preventing postpartum depression.	Pregnant, postpartum	314	Combination of different models (Mindfulness + Self-compassion) $N = 157$	Waiting-list control group N = 157	Depression
[42]	Two co-primary aims: (1) enhance or maintain subjective well-being during pregnancy and 6 months after birth and (2) prevent the onset or reduce symptoms of depression.	Pregnant, postpartum	1342	Third Generation Therapy $N = 678$	TAU $N = 664$	Depression
[43]	To evaluate the effectiveness of an online, self-guided mindfulness-based intervention (MBI) in addressing pregnancy distress.	Pregnant	219	Combination of different models (Mindfulness and CBT) $N = 109$	TAU $N = 110$	Depression
[44]	To compare the effects of CBT and Compassion-Focused Therapy on depression, anxiety, affect, self-compassion, and fears of compassion among pregnant individuals or those intending to conceive.	Pregnant, postpartum, trying to get pregnant	123	Compassionate mind training Third Generation Therapy $N = 61$	CBT $N = 62$	Depression
[45]	To evaluate the effect of a mobile-delivered, therapist-guided mindfulness-based intervention, "Thriving in Pregnancy - Cultivating the Four Immeasurables" (Thrive-Pregnancy), compared to a web-based perinatal education program on postpartum depression	Pregnant	75	Combination of different models (Mindfulness and CBT) $N = 38$	Psychoeducation $N = 37$	Depression
[46]	To test the efficacy and acceptability of the iCBT compared to a TAU control group.	Pregnant	87	CBT $N = 43$	TAU $N = 44$	Depression
[33]	To examine the effect of a novel gratitude- and mindfulness-based intervention on prenatal stress, cortisol levels, and well-being factors, compared to a TAU control group.	Pregnant	46	Third Generation Therapy $N = 32$ (body scan and reflection $n = 17$/ reflection and body scan $n = 15$)	TAU $N = 14$	Stress
[47]	To investigate whether a pilot self-compassion meditation program improves body image concerns (e.g., body shame, body dissatisfaction, and body appreciation) during pregnancy or postpartum.	Pregnant, postpartum	71	Third Generation Therapy $N = 35$	Waiting-list control group $N = 36$	Body shame
[48]	To assess two co-primary aims: (1) enhancing or maintaining subjective well-being during pregnancy and six months postpartum, and (2) preventing or reducing symptoms of depression.	Pregnant	40	Third Generation Therapy $N = 20$	TAU N = 20	Symptomatology was not assessed.
[49]	To assess the effectiveness of a CBT stress management intervention in reducing psychological stress and hair cortisol levels in low-risk pregnant individuals.	Pregnant	78	CBT N = 39	TAU $N = 39$	Cortisol levels
[50]	To evaluate the effect of Acceptance and Commitment Therapy (ACT) on anxiety and quality of life in pregnant people.	Pregnant	44	Third Generation Therapy $N = 22$	TAU N = 22	Anxiety
[51]	To evaluate the efficacy of a mindfulness-based intervention in reducing perceived stress, anxiety, depression, and affect among Chinese pregnant people with recurrent miscarriage.	Pregnant	158	Mindfulness intervention $N = 79$	TAU N = 79	Stress
[52]	To evaluate the effect of ACT on anxiety and quality of life in pregnant people.	Pregnant	172	Others (Musicotherapy) music group: $n = 64$ singing group: $n = 59$	TAU $N = 49$	Depression
[53]	To extend the effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) and contribute to the dissemination of evidence-based approaches for treating depression and anxiety in pregnant individuals.	Pregnant	38	Combination of different models (Mindfulness and CBT) N = 19	Waiting-list control group $N = 19$	Depression

Note. TAU = Treatment as usual.

Table 3
Characteristics of the interventions.

Author	Aim	Type	Delivery mode	Application of intervention	Model of intervention	Therapist role
[39]	Symptom reduction	Preventive	Individual	Online	Combination of different models (CBT + ATC)	Self-administered
[40]	Symptom reduction, improving well-being	Treatment	Group	Face-to-face	CBT	Guided-therapy
[41]	Symptom reduction	Preventive	Individual	Online	Combination of different models (Mindfulness + Self-compassion)	Self-administered
[42]	Symptom reduction, improving well-being	Preventive	Individual	Online	Third Generation Therapy	Self-administered
[43]	Symptom reduction, improving well-being	Treatment	Individual	Online	Combination of different models (Mindfulness and CBT)	Guided-therapy
[44]	Symptom reduction, improving well-being	Preventive	Individual	Online	Third Generation Therapy	Self-administered
[45]	Symptom reduction, improving well-being	Preventive	Group	Online	Combination of different models (Mindfulness and CBT)	Guided-therapy
[46]	Symptom reduction, improving well-being	Treatment	Individual	Online	CBT	Self-administered
[33]	Symptom reduction, improving well-being	Preventive	Individual	Online	Third Generation Therapy	Self-administered
[47]	Improving well-being	Preventive	Individual	Online	Third Generation Therapy	Self-administered
[48]	Improving well-being	Preventive	Group	Face-to-face	Third Generation Therapy	Guided-therapy
[49]	Symptom reduction	Preventive	Group	Face-to-face	CBT	Guided-therapy
[50]	Symptom reduction, improving well-being	Preventive	Group	Face-to-face	Third Generation Therapy	Guided-therapy
[51]	Symptom reduction, improving well-being	Preventive	Individual	Online	Mindfulness Intervention	Self-administered
[52]	Symptom reduction, improving well-being	Preventive	Group	Face-to-face	Others (Musicotherapy)	Guided-therapy
[53]	Symptom reduction, improving well-being	Treatment	Group	Face-to-face	Combination of different models (Mindfulness and CBT)	Guided-therapy

five (31.25 %) used a combination of different models (e.g., CBT and mindfulness), one (6.25 %) applied a mindfulness-based intervention, and one (6.25 %) applied musicotherapy. Two studies (12,5 %) aimed at increasing well-being, three studies (18,75 %) aimed at reducing symptoms and eleven studies (68.7 %) aimed at both increasing well-being and reducing symptoms. Nine interventions were individual, online and self-administered. The rest of the interventions ($n = 7$) were group interventions, led by a therapist and face-to-face. Duration of intervention ranged from 3 to 44 sessions.

Hedonic well-being, eudaimonic well-being and quality of life were assessed with different self-report measures (Table 4). All of them showed adequate psychometric properties. Of the 20 well-being measures included across all studies, five (25 %) focused on hedonic well-being variables such as positive affect, life satisfaction and subjective well-being. On the other hand, 60 % of the measures focused on eudaimonic well-being, including dimensions such as psychological well-being, self-compassion, self-efficacy, resilience and gratitude. Finally, 15 % of the studies analyzed general quality of life measures.

3.3. Efficacy in promoting well-being

The results on efficacy are presented in Table 5. Eleven studies (68.75 %) demonstrated that the intervention was effective in promoting well-being compared to the control group. Regarding hedonic well-being, Leng et al. [45] and Wang et al. [51] found a significant increase in positive affect in comparison to the control group. With regard to eudaimonic well-being, seven studies (43,75 %) found a significant enhancement in comparison to the control group for different dimensions such as self-compassion [39,41,43,45], self-efficacy [52] and resilience [49]. Moreover, Kelman et al. [44] found that third-generation therapy and CBT were equally effective in promoting self-compassion. No significant change was found regarding gratitude [33]. Regarding quality of life and general well-being, several studies found a significant increase in comparison to the control group [41,48,50,53].

Also, two other studies (12.5 %) reported significantly higher quality of life [40] and self-compassion [47] in the intervention group compared to the control group post-intervention. However, the interaction time x group was not analyzed.

The remaining studies [33,42,46] found an increase in well-being for both the intervention and TAU groups. This result indicates that the intervention was no more effective than TAU in promoting well-being. These three programs were individual, online and self-administered. Two of them used third-generation therapy [33,42] and one used CBT [46].

3.4. Efficacy in reducing clinical symptoms

Eight of the studies (50 %) showed that the intervention was effective in reducing clinical symptomatology in comparison to the control group. Regarding depression, five studies [39,41,44,45,53] found a significant decrease in depressive symptomatology for the intervention group in comparison to the control group. These studies used different interventions (i.e., mindfulness, third generation therapies and CBT). Regarding anxiety, stress and hair cortisol levels, the same trajectory was found. Three studies [49–51] found that interventions were effective both in reducing perceived anxiety, stress and hair cortisol in comparison to the control group.

Also, two other studies (12.5 %) found a significant reduction for the intervention group in symptoms such as stress [40] and body shame [47]. However, the interaction time x group was not analyzed.

In contrast, five studies (31.25 %) found that the interventions were ineffective in reducing the symptomatology. Three studies [33,42,43] found a significant reduction in depression and stress symptomatology for both groups, indicating that the intervention was no more effective than TAU in reducing symptoms. Loughnanm et al. [46] and Wulff et al. [52] did not find significant effects. Finally, one study did not assess symptomatology as its aim was only to increase well-being [48].

Table 4
Well-being measures used in the studies.

Study	Outcome Measures	Questionnaire/ Scale	Description
[39]	Self-compassion	SCS [54]	26-items with six subscales: self-kindness, self-judgment, common humanity, mindfulness, overidentification and isolation.
[40]	Quality of life in pregnancy	QOL-GRAV [55]	Nine items scale.
[41]	Self-compassion Well-being	WHO-5 [56] SCS [54]	WHO-5 = Five items scale. SCS = 26-items with six subscales: self-kindness, self-judgment, common humanity, mindfulness, overidentification and isolation.
[42]	Life satisfaction Positive affect	SWLS [57] PANAS [58].	Five items scale. 20 items measure, with 10 items assessing negative affect) and 10 items assessing positive affect.
[43]	Self-Compassion	SCS-SF [59].	12 item Self-Compassion Scale-Short Form.
[44]	Self-Compassion Self-reassurance	FSCRS [60]. SCS-SF [59].	FSCRS = Self-Reassurance subscale (eight items). SCS-SF = 12 item Self-Compassion Scale-Short Form.
[45]	Positive affect Self-compassion	BMSWB [61]. SCS-SF [59]	BMSWB = Positive Affect subscale (Eight items). SCS-SF = 12 item Self-Compassion Scale-Short Form.
[46]	Quality of life	WHOQOL-BREF [62]	Four domains: physical health, psychological health, social relationships and environment.
[33]	Life satisfaction Gratitude	SWLS [57] GDP29 [63]	Five-items scale. 18-item scale which assesses the grateful disposition during pregnancy.
[47]	Self-compassion	SCS [54]	26-items with six subscales: self-kindness, self-judgment, common humanity, mindfulness, overidentification and isolation.
[48]	Quality of life	SF-36 [64]	36-items scale with eight subscales: physical functioning, physical role functioning, emotional role functioning, vitality, mental health, social role functioning, bodily pain, and general health perceptions.
[49]	Resilience	CD-RISC [65]	10 items scale.
[50]	Quality of life	SF-36 [64]	36-items scale with eight subscales: physical functioning, physical role functioning, emotional role functioning, vitality, mental health, social role functioning, bodily pain, and general health perceptions.
[51]	Positive affect	PANAS-R [66].	18-item scale with two subscales: positive affect and negative affect.
[52]	Self-efficacy	ASKU [67]	Three-items scale.
[53]	Well-being	SPWB [30]	42-item scale that assesses six dimensions of psychological well-being: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance.

Note: ASKU = General Self-Efficacy Scale the General Self-Efficacy Scale; BMSWB = Body-Mind-Spirit Well-Being Inventory; CD-RISC = Connor Davidson Resilience Scale; FSCRS = Self Critizing/Attacking and Self-Reassurance Scale; PANAS-R = Positive and Negative Affect Scale; QOL-GRAV = Quality of life in pregnancy (Gravidarum); SCS = Self-Compassion Scale; SCS-SF = Self Compassion Scale-Short Form; SF-36 = Short Form-36 Health Survey; SPWB = Scales of Psychological Well-being; SWLS = Satisfaction with life Scale; WHO-5 = Well-Being Index World Health Organization Five; WHOQOL-BREF = The World Health Organization Quality of Life scale.

3.5. Acceptability of interventions

Adherence rates varied considerably between studies, ranging from 33 % to 100 %. Ways of measuring adherence were diverse, including attendance at sessions (e.g., [40]) or tasks completed (e.g., [33]). Notably, two studies reported 100 % attendance [40,48]. Both interventions were face-to-face, therapist-led and group-based.

Regarding dropout rates, most studies reported rates of less than 50 %, ranging from Leng et al. [45] that reported a dropout rate of 13.2 % to Carona et al., [39] that reported a dropout rate of 58.2 %. The studies with the highest dropout rates were preventive, online, self-administered, individual interventions.

Three studies (18,75 %) did not clearly mention the dropouts rate [33,42,43] and ten (62.50 %) did not report the session attendance rate [39–41,44,48–53].

3.6. Efficacy over time

Only nine studies (56.25 %) of the trials included follow-up measures and, when they did, measures varied from 42 days after the intervention to 1 year. In any case, RCTs including follow-up measures reported positive results in terms of the maintenance of the effects. Zemestani et al. [53] showed that psychological well-being remained significantly higher in the experimental group during the one-year follow-up. Guo et al. [41] also found that significant improvements in well-being were maintained for 12 months postpartum. Hulsbosch et al. [43] found that levels of self-compassion continued to improve at the eight-week follow-up, with a significant increase from Time 1 to Time 4. It is worth mentioning that the birth of the baby may alter the follow-up results of studies carried out during the pregnancy stage. For instance, Leng et al. [45] found that the positive effects on well-being declined after delivery, particularly with regard to self-compassion and positive affect.

4. Discussion

This systematic review aimed to assess the efficacy of psychological interventions on well-being dimensions during the perinatal stage. There are multiple systematic reviews and meta-analyses on the effectiveness of psychological interventions for addressing symptoms during the perinatal period [24,25]. Despite this extensive literature, only 16 RCT were found where well-being was assessed. Examining the characteristics of these interventions and their efficacy may provide a new perspective on studies in this area.

With regard to the first specific aim (i.e., examining the characteristics of the interventions), a wide diversity was found regarding the intervention approaches. Interventions included CBT, mindfulness intervention, third generation therapy, others or combination of different models (e.g., CBT and mindfulness). The duration of interventions and frequency of sessions also varied considerably, which emphasizes the need for further research to know the most efficient interventions. Most of the interventions were preventive, targeted at pregnant people, in an individual format, online and self-administered. More research is needed on group-based, therapist-delivered, face-to-face interventions targeting the postpartum stage and addressing symptomatology beyond depression. Also, although most interventions declared increasing well-being as a primary objective, not all of them did. It is important to explicitly declare this objective as an additional main objective, and not as a mere secondary goal. Previous meta-analyses have shown that interventions specifically designed to enhance well-being were more effective in improving the perception of living well, whereas those focused on alleviating symptoms were less effective in achieving this target [69]. Regarding well-being measures, it was found that more measures of eudaimonic than hedonic well-being were included in the studies. Considering the importance of hedonic well-being during this stage [34,36], it is essential that assessment and intervention protocols focus on both dimensions of well-being.

Table 5
Efficacy of the interventions.

Author	Intervention group	Efficacy results on positive variables	Efficacy results on symptomatology	Adherence / Dropouts	Well-being Follow-up
[39]	Combination of different models (CBT + Third wave CBT features)	Main effects: Self-compassion levels increased significantly over time in both groups. Interaction effects: The intervention group showed a significantly greater increase in self-compassion from T1 to T2 compared to the control group.	Main effects: Depressive symptoms decreased significantly in both groups over time. Interaction effects: The intervention group showed a significantly greater decrease compared to the control group.	58,2 % dropouts	
[40]	CBT	Student's *t*-test revealed that the counseling group had significantly higher quality of life scores than the control group post-intervention (*d* cohen = 1.8)	The total perceived stress score was significantly lower in the counseling group than in the control group after intervention. (*d* cohen =2.48).	100 % completed the program.	
[41]	Combination of different models (Mindfulness + Self-compassion)	Well-being Main effects: Compared with the control, the MBSP group experienced significant improvement in maternal well-being at 3 post-interventions. Interaction effects: not estimated. Self-compassion: Main effects: Compared with the control group, the MBSP group showed a significant increase in self-compassion scores Interaction effects: Repeated-measures analysis of variance between two consecutive time points showed that the MBSP group experienced significant improvement in self-compassion compared with the control group.	Main effects: In the MBSP group, the EPDS scores decreased at the end of 3 months postpartum. No change in the control group from baseline to 3 months postpartum. Interaction effect: The MBSP group had a significant decrease in EPDS scores and had much higher improvements over time compared with the control group.	8.28 % dropouts in the intervention group and 10.83 % in the control group.	The MBSP group showed significant improvements in maternal well-being and at both 3 months and 1 year postpartum, compared to the control group. In the MBSP group, the EPDS scores continued to decrease at 12 months postpartum
[42]	Third Generation Therapy (IPP)	Satisfaction with life: Main effects: satisfaction with life increased over time regardless of group. Interaction effect: No significant group × time interactions were observed for positive affect or life satisfaction. Positive affect: Main effects: non-significant. Interaction effects: non-significant.	Main effects: participants in the Mamma Mia group had significantly lower symptoms than the control group at post-intervention and 6 weeks postpartum. Interaction effects: There were no significant differences in depressive symptoms between the intervention group and control group over time. [68]	33 % completed all 44 sessions, 51 % completed 36+ sessions, and 6 % did not use the intervention. Dropout rates were higher in the intervention group.	There was no significant follow-up difference.
[43]	Combination of different models (Mindfulness and CBT)	Main effects: Self-compassion scores increased significantly between pre- and post-intervention assessments for the intervention group (Cohen's d = 0.2).	Main effects: Depression scores decreased significantly between baseline and post-intervention in both groups (Cohen's d = 0.18). Interaction effects: the time*group interaction effect was not significant. There was no difference in reduction of pregnancy groups, thus the online MBI did not decrease prenatal depression. Postpartum depression scores decreased slightly between post-intervention (T3) and eight-weeks-follow-up (T4) but this difference was not significant.	42 % of people in the intervention group completed at least four of the eight online MBI sessions, with a mean attendance of 3.7 (± 2.4) sessions	Self-compassion scores continued to improve at the eight-week follow-up (Cohen's d = 0.43), with a significant increase from T1 to T4.
[44]	Third Generation Therapy (compassionate mind training)	Self-compassion Main effects: Participants increased significantly in self-compassion over time. Interaction effects: No significant group × time interactions were observed, though CMT participants showed a trend toward greater improvements ($\eta^2 = 0.04$).	Time effects: there was a main effect for time, such that depression decreased over time. Interaction effects: Groups significantly differed over time on depression, with the CMT condition showing greater reductions.	31.72 % dropouts (do not returned for follow-up)	

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Table 5 (*continued*)

Author	Intervention group	Efficacy results on positive variables	Efficacy results on symptomatology	Adherence / Dropouts	Well-being Follow-up
		Self-reassurance: Main effects: There was a main effect of self-reassurance, indicating significant increases in time. There was no main effect of treatment. Interaction effects: No significant changes between group and time.			
[45]	Combination of different models (Mindfulness and CBT)	Self-compassion: Main effects: Thriving-Pregnancy program was associated with significantly greater improvement immediately after the intervention in self-compassion. Interaction effects: A significant group × time interaction was found for self-compassion (β = 0.8). Favoring the Thrive-Pregnancy program. Positive affect: Main effects: T- student shows that Thriving-Pregnancy program was associated with significantly greater improvement immediately after the intervention in positive affect. Interaction effects: A significant overall interaction between times by group across assessment time-point was found in positive affect (β = 3.6).	Main effects: Immediately after the intervention, people in the Thrive-Pregnancy group had significantly greater improvement in depression scores than did the CG 0.6, with a between-group effect size difference of −3.9. Interaction effects: There was a significant overall interaction between the times by Group (β = − 2.1). their depression symptom scores were improved at T1 but worsen again at T3, when the level of depression exceeded baseline values in the control group but remained improved in the Thrive-Pregnancy group.	Dropout rates were 13.2 % for the Thrive-Pregnancy group and 8.1 % for the control group. 75. People who participated in the sharing of meditation experiences and reflective questions for at least six weeks (80 % of the intervention) were considered to have completed the intervention.	Self-compassion and positive affect scores improved after the intervention in both groups, were maintained at 37 weeks but remained unchanged or decreased again at 4–6 weeks postpartum.
[46]	CBT	Main Effects: within-group improvements were observed in the psychological domain for both TAU (g > 0.64) and iCBT (g = 0.68). Interaction effects: No significant group × time interactions were found for quality of life domains.	Main effects: There were a small non-significant effects sizes favoring iCBT group at post assessment. Interaction effects: No significant group × time interactions were found for depression.	8 % of people who completed baseline were lost at post-treatment and 13 % At follow-up. 76 % adherence rate (completed all lessons of treatment)	Participants in the TAU group experienced moderate to large improvements in the psychological quality of life domain between pre- and post-treatment, with these gains maintained at follow-up (within-group g ≥ 0.64). Those in iCBT experienced moderate to large improvements only between pre- and follow-up (within-group g = 0.68).
[33]	Third Generation Therapy	Satisfaction with life: Main effects: A significant time effect was found for satisfaction with life, with increases over time across all groups (eta parthial squared = 0.19). Interaction effects: There was no significant interaction effect. Gratitude: Main effects: No changes were observed for gratitude levels. Interaction effects: No changes were observed for gratitude levels.	Main effects: A significant effect of time was observed (partial eta squared = 0.13). This indicates that the intervention group demonstrated reductions in prenatal stress from Time 1, to Time 2 and Time 3. Interaction effects: There was no significant interaction effect.	The average number of diary entries completed by participants was 7.88, with 21 participants providing six or more entries.	Main effects on life satisfaction are sustained over time (partial eta square = 0.19).
[47]	Third Generation Therapy	Main effects: People in the intervention group reported significantly greater improvements in self-compassion compared to the control group. Interaction effects: not analyzed.	Main effects: Regression analyses were used to examine the effect of the intervention on body shame, people in the intervention group reported significantly reduced body shame. Interaction effects: Not analyzed	39.44 % of people dropped out. 47 % listened a few times a week, 37 % daily, 11 % (listened rarely, and 5 % (listened more than once a day.	
[48]	Third Generation Therapy	Main effects: the results of the Friedman test showed a significant increase in mean score of QoL before and after the intervention among people in the experimental group. The analysis of data showed a significant decrease in the mean score of the	No measuremet	No dropouts	A significant difference in the mean quality of life score between the two groups was observed 42 days later the last intervention session. The intervention group showed greater levels of QOL.

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Table 5 (*continued*)

Author	Intervention group	Efficacy results on positive variables	Efficacy results on symptomatology	Adherence / Dropouts	Well-being Follow-up
		QoL in the control group. Interaction effect: Not analyzed			
[49]	CBT	Main effects: resilience scores improved significantly from pre- to post-treatment in CBT group, with higher scores after the intervention. Interaction effect: Resilience scores were not statistically significant.	Main effects: There were not statistically pre-post intervention changes in CG in hair cortisol levels. But for the CBTg, significant statistically changes were found between pre and post. Interaction effects: The ANOVA results showed a statistically significant group*time interaction in the primary outcome hair cortisol levels ($\eta 2p = 0.051$).	17.95 % dropouts in the intervention group and 20.51 % in the control group.	
[50]	Third Generation Therapy	Main effects: Total quality of life scores did not differ significantly over time. Interaction Effects: Group*Time interaction was observed, with the intervention group showing an initial increase followed by a decrease. In the control group, the mean score of total quality of life was constant during the time.	Main effects: anxiety was not significantly different between the three measurement times (before ACT, after ACT, and one month later). Interaction effects: Group*Time interaction was significant. In the control group, increased during the time, but in the intervention group, it first decreased and then increased. At both time points (after ACT and one month later), the mean score was lower in the intervention group than in the control group.	9.09 % dropouts in intervention group and 4.55 % in the control group.	A significant interaction between group and time was found ($p = 0.026$). In the control group, the total quality of life score remained constant, while in the intervention group, it initially increased and then decreased.
[51]	Mindfulness Intervention	Main effects: a significant time effect was found for positive affect with a medium effect size (partial $\eta 2 = 0.062$). Positive affect increased significantly after the intervention (partial $\eta 2 = 0.084$), while scores for the control group remained unchanged. Interaction effects: There was no significant group × time interaction for positive affect.	Main effects: Perceived stress decreased significantly over time in the intervention group (partial $\eta 2 = 0.129$), whereas no significant difference was observed in the control group (partial $\eta 2 < 0.001$) Interaction effects: A significant group*time interaction was observed for perceived stress with a medium effect size ($\eta 2 = 0.063$).	17.72 % dropouts in the intervention group and 16.46 % in the CG.	
[52]	Others (Musicotherapy)	Main effects: No significant main effects of time for self-efficacy. Within-subject *t*-tests for dependent samples showed a significant improvement over time only for the singing group ($d = 0.25$] but not for the music or he control group. Interaction effect: The interaction effect was significant ($d = 0.46$). Post-hoc comparisons between groups regarding the alternation were conducted that showed a significant difference between the control and the singing group but not between the others.	Main effects: No significant main effects. Interaction effect: No significant main effects.	15.12 % dropouts between pre and post	
[53]	Combination of different models (Mindfulness and CBT)	Main effects: A significant effect of time ($\eta p2 = 0.78$) was found. Interaction effects: There was a significant time × group interaction ($\eta p2 = 0.77$). Post hoc comparisons showed that the MBCT group had a significant increase in SPWB scores from baseline to post-treatment and SPWB scores remained significantly higher than those of the control group at follow-up.	Main effects: As depression indicated a significant effect of time ($\eta p2 = 0.60$) Interaction effects: There was a significant time × group interaction, ($\eta p2 = 0.68$) Post hoc comparisons showed that the MBCT group had a significant decrease in BDI-II scores from baseline to post-treatment and BDI-II scores remained significantly lower than those of the control group at follow-up.	10.53 % dropouts in the intervention group and 5.26 % woman in the control group Additionally, one participant from the intervention group dropped out at follow-up.	At follow-up, the MBCT group maintained significantly higher SPWB scores than the control group ($p < 0.0001$).

In relation to the second specific objective (i.e., exploring their effects on hedonic well-being, eudaimonic well-being, and quality of life), most of the interventions showed their efficacy in promoting well-being (including dimensions such as positive emotions, self-compassion, self-efficacy and resilience) and quality of life. On the other hand, only half of the studies were effective in reducing clinical symptomatology (i.e., depression, anxiety and stress). These results highlight the importance of independently targeting symptoms and well-being outcomes. There are enough theoretical and empirical reasons to assert that illness and health are relatively independent. In fact, the 'complete state of mental health model' [70] showed that different well-being measures (psychological, social and emotional) are independent of, although correlated with, measures of mental disorders. One implication of these findings is that both constructs require specific measurement methods and intervention strategies. Well-being-specific interventions are showing positive effects on this important outcome and are well-accepted by patients [71,72].

With regard to the third specific aim (i.e. analyzing the acceptability of the interventions), a large variability in adherence and dropout rates was observed. Face-to-face, therapist-led and group-based interventions showed better results in terms of adherence, whereas preventive, individual, online and self-administered interventions had higher dropout rates. This suggests that the modality and format of the intervention may significantly influence participants' engagement. However, literature is controversial. In fact, recent meta-analyses and systematic reviews found that online interventions are more effective and more accessible than traditional interventions for people in the perinatal stage [73].

With regard to the fourth specific aim (i.e., exploring the effect of the interventions on well-being over time), only half of the studies included follow-up measures. In any case, studies that reported follow-up measures showed that changes in well-being were maintained over time. These positive changes were maintained for several months or even a year after the intervention. However, effects were also found to diminish in some cases after childbirth, suggesting that the emotional and physical changes associated with this stage may influence the durability of the benefits.

This study has several limitations. First, the quality of the trials was moderate. Most of them used a compiler analysis rather than an intention-to-treat analysis. In addition, less than half of the trials blinded participants who were assigned to different groups. Second, clinical trials evaluated well-being in multiple ways. Well-being and quality of life are complex concepts that encompass several dimensions. A wide range of instruments has been included in this systematic review. Some questionnaires consider aspects of general well-being (e.g., SPWB), quality of life (WHOQOL-BREF) or specific well-being dimensions (e.g., PANAS, SCS). Given the distinct factors of each instrument, careful examination of what is actually being assessed is crucial due to the variability of questionnaires. Although these instruments are often used interchangeably, they correspond to different conceptual frameworks. Third, interventions aimed at directly influencing a physical health condition (e.g., interventions for HIV prevention in pregnancy, smoking cessation, or weight loss) were excluded. In the future, interventions targeting people with different physical or mental health conditions should continue to be evaluated, in order to facilitate the generalizability of these results. Finally, the included studies were heterogeneous in terms of patient characteristics, intervention characteristics and study design. While this represents a limitation, the review provides valuable insights into the gaps where further research is needed (e.g., group interventions, face-to-face, therapist-delivered and targeting postpartum stage).

Despite these limitations, this systematic review shed light on future research lines. The present study highlights the importance of considering well-being as a primary outcome in RCTs conducted in the perinatal period. This line is consistent with the concept of 'positive pregnancy experience', recently proposed by the Word Health Organization [74]. This concept encompasses not only disease management but also perinatal health and well-being promotion. This approach is supported by the field of positive psychology, which calls for broadening the focus on optimal functioning of individuals with evidence-based interventions [72,75]. In recent years, effective positive interventions have been developed for depression [76], psychosis [69], or bipolar disorder [77]. More research is needed to develop and evaluate psychological interventions aimed at promoting well-being in the perinatal stage. Some preliminary studies on positive interventions during pregnancy showed positive effects on well-being and were highly accepted [78]. Although more positive interventions in the perinatal period need to be evaluated, the results seem promising.

In the future, it will be essential to conduct more clinical trials to assess the effectiveness of these interventions in different dimensions of well-being and to ensure their accessibility, sustainability and acceptability. This work contributes to the strengthening of psychological interventions in the perinatal period and highlights the value of promoting well-being as a primary goal.

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CRediT authorship contribution statement

Elisa Nombela: Writing – original draft, Supervision, Methodology, Formal analysis. **Carlos Marchena:** Methodology, Investigation, Data curation. **Almudena Duque:** Writing – review & editing, Validation, Supervision, Conceptualization. **Covadonga Chaves:** Writing – review & editing, Supervision, Project administration, Conceptualization.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.genhosppsych.2025.01.006.

Data availability

Data sharing is not applicable to this article as no new data were created in this study.

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