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The effectiveness of interventions on improving body image for pregnant and postpartum women: a systematic review of randomized clinical trials

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Abstract

Background Body image dissatisfaction, leading to a variety of negative emotions and adverse pregnancy or birth outcomes. Studies on body image interventions for pregnant and postpartum women have been reported, yielding mixed results. Existing evidence lacks a comprehensive review of the effectiveness of body image interventions for pregnant and postpartum women.

Objective The aim of this study was to systematically review interventions which aimed at improving body image during pregnancy and postpartum in women of childbearing age, and further to explore their effectiveness.

Methods A comprehensive literature search was conducted using electronic databases, including PubMed, Embase, Web of Science, Cochrane Library, CINAHL, SinoMed, CNKI, and Wanfang Database, to retrieve relevant studies. Body image was reported employing descriptive analysis, whereas the Cochrane Handbook tool was used to evaluate the quality and potential bias of each included study.

Results Following established inclusion and exclusion criteria, 11 studies were identified from an initial 1,422 records for further analysis, involving 1290 participants. This systematic review grouped body image interventions into lifestyle interventions and psychological interventions based on their content. These interventions yielded more pronounced positive effects on improving body image in pregnant and postpartum women when compared to control groups. And, the statistical difference on psychological interventions is more significant on the whole.

Conclusions Our work offers a comprehensive overview of the effectiveness of body image interventions for pregnant and postpartum women. Psychological interventions are considered to be a suitable measure to improve body image for pregnant or postpartum women. Additional research and practical applications are recommended to enhance the mental health and well-being of perinatal women.

Trial registration PROSPERO registry: CRD42024531531.

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Keywords Body image, Pregnant women, Postpartum women, Mental health, Systematic review, Randomized clinical trials

Introduction

Body image can be defined as an individual's cognitive perceptions, emotional responses, and behavioral inclinations toward their own physique, serving as an important basis for self-concept [1]. Approximately 80 ~ 90% of women experience dissatisfaction with their bodies [2, 3], particularly during pregnancy and postpartum. In this period, women undergo rapid body changes, including the development of stretch marks, neck lines, melanin deposition, and weight fluctuations, as well as increased edema and morphological alterations [4, 5]. While some women may re-evaluate their body image through timely self-assessments and psychological adjustments, others struggle to adapt to rapid bodily changes, leading to dissatisfaction with their physical appearance [6, 7]. Over 50% of perinatal women expressed dissatisfaction with their body image [8]. Of these, 52% were pregnant and 56.2% were postpartum [8]. Dissatisfaction with body image diminishes during the early and middle stages of pregnancy but escalates in the late pregnancy and postpartum [9].

Dissatisfaction with body image in pregnant and postpartum women can trigger a range of negative emotions, including anxiety and depression, further resulting in maladaptive maternal roles and adverse pregnancy or birth outcomes linked to behavioral disorders. Existing evidence indicates that pregnant women with dysregulated body image are at a four-fold higher risk of perinatal anxiety and depression compared to healthy pregnant women [10], and they also experience more severe depressive symptoms after childbirth [11]. Pregnant women who struggle to accept their body image during pregnancy are more likely to perceive their fetus as an intruder, resulting in a diminished maternal-fetal relationship [12]. Additionally, they are less inclined to opt for breastfeeding and tend to breastfeed for a shorter duration [13, 14]. For pregnant and postpartum women, satisfaction with body image is closely linked to weight management [15]. Trying to lose weight during pregnancy and engaging in unhealthy eating patterns will increase the risk of adverse pregnancy or birth outcomes, including premature birth, low birth weight, birth defects, etc. [16]. There is a pressing need for interventions to tackle body image disorders among pregnant and postpartum women.

Body image interventions for pregnant and postpartum women have been reported, but with controversial results. A 5-week single-arm feasibility trial demonstrated that an application-based, multi-behavior guided image intervention significantly improved the Body Image in Pregnancy Scale scores for 58 participating pregnant women [17]. A quasi-experimental study involving 61 primiparous women revealed that cognitive behavioral therapy for body image significantly improved the total scores of the Multidimensional Body-Self Relationship Questionnaire [18]. However, there were no statistically significant differences between the two groups in terms of appearance orientation, physical fitness evaluation, physical fitness orientation, and subjective weight [18]. In a meta-analysis, only one study reported the impact of core training on postpartum women, and the results indicated no significant positive effect on the Multidimensional Body-Self Relationship Questionnaire [19]. Qualitative evidence supports positive changes in body image and self-awareness among mothers who engaged in a postpartum body image intervention through Facebook [20]. Overall, the effectiveness of body image interventions for pregnant and postpartum women still remains unclear. There is also a scarcity of systematic reviews focusing on body image interventions for pregnant and postpartum women.

Therefore, the aim of this study was to systematically review body image interventions for women of childbearing age during pregnancy and postpartum, and explore their effectiveness to establish evidence-based recommendations and decision-making basis for further research and clinical practice.

Methods

The systematic review was performed following the methods described in the Cochrane Handbook for Systematic Reviews of Interventions [21] and was reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines [22]. The protocol of this systematic review was prospectively registered on the PROSPERO (registration number: CRD42024531531).

Literature search strategy

Literature searches were conducted in PubMed, Embase, Web of Science, Cochrane Library, CINAHL, SinoMed, CNKI, and Wanfang Database, covering publications up to March 27, 2024. A comprehensive search strategy was developed using a combination of Medical Subject Headings terms and free-text terms, as detailed in Supplementary File 1. Upon finalizing the search

strategy, the search processes across above eight databases completed on March 27, 2024.

Eligibility criteria

The inclusion criteria for this systematic review included: (1) Population: Women of childbearing age during pregnancy or postpartum were included; (2) Intervention: Interventions aims to improve body image; (3) Controls: The absence of interventions served as the control, such as standard care or routine care; (4) Outcomes: Body image was the primary outcomes of interest; (5) Study design: Randomized controlled trials were included. Initially, duplicates were removed. Papers without original data, including protocols, conference abstracts, were excluded from our review. In cases of data duplication, the most comprehensive data report was included.

Study selection and data extraction

After automatically removing duplicates, two independent reviewers (MD.SHEN and RT.GAO) conducted initial screenings of titles and abstracts against predefined inclusion and exclusion criteria to identify potentially relevant studies. The same reviewers assessed the full texts of these shortlisted articles to confirm their eligibility for inclusion. This process also entailed examining the reference lists of these articles for any additional studies meeting the criteria. Data from the included studies were systematically extracted using a pre-designed data extraction form, capturing information such as the first author's name, publication year, country of origin, sample size, study population, interventions, controls, and measurements. Any disagreements between the reviewers were resolved through consultation with a third senior reviewer (XD.DING) to ensure consensus.

Quality appraisal

The methodological quality of each included study was assessed using the update bias risk tool mentioned in the Cochrane Intervention System Assessment Manual [21]. This manual incorporates five domains, which is randomization process, deviations from the intended interventions, missing outcomes, measurement of the outcome, and selection of reported results. The risk of each domain of prejudice was classified as "yes", "probably yes", "no", "probably no" and "no information". Following rating the five domains, RoB 2 generates an overall rating that classifies the risk of bias as "low," "high," or "some concerns". The assessment was independently carried out by two reviewers (MD.SHEN and RT.GAO), and any disagreements were resolved through consultation with a third senior reviewer (XD.DING), ensuring the integrity and accuracy of the quality assessment.

Data synthesis and analysis

Given the heterogeneity in the body image measurement tools between included studies, a meta-analysis was deemed challenging. Instead, a descriptive analysis was employed to systematically review the selected studies. The body image measurement tools and the effectiveness of body image interventions in each included study were extracted and provided using a pre-designed standardized form.

Results

Search results

The selection process for the systematic review is delineated in the PRISMA flow chart (Fig. 1). Initially, 1,422 records were identified. Of these, 281 duplicates (281/1,422, 19.76%) were removed, leaving 1,141 records (1,141/1,422, 80.24%) for title and abstract screening. Applying the predefined inclusion and exclusion criteria led to the exclusion of 1,127 records (1,127/1,141, 98.77%), leaving 14 records (14/1,141, 1.23%) for full-text review. Further scrutiny resulted in the exclusion of two non-randomized or non-controlled trials (2/14, 14.29%) and one studies (1/14, 7.14%) with overlapping data. Ultimately, 11 (11/14, 78.57%) randomized controlled trials were included in this systematic review [23–33]. Supplementary File 2 provides a summary of the reasons for exclusion at the full-text reading phase.

Study characteristics

These studies included in this systematic review were published between 2011 and 2023. These 11 studies identified originated from different geographic regions. Seven were from Asia [23, 25, 28, 29, 31–33], three from America [26, 27, 30], and one from Europe [24]. A total of 1290 participants were included in our study, with sample sizes ranged from 14 to 370 participants. Of these included studies, six studies (54.55%) involved pregnant participants [24, 25, 28, 29, 32, 33], three (27.27%) involved participants in the postpartum [26, 27, 31], and two (18.18%) included participants who were both pregnant and postpartum [23, 30]. Nearly one-third of these interventions are administered by nurses (3/11, 27.27%) [23, 25, 28]. These interventions can be grouped as lifestyle interventions (6/11, 54.55%) [23–28] and psychological interventions (5/11, 45.45%) [29–33], based on their content. Totally, 11 body image measurement tools were identified in these included studies, with the Multidimensional Body-Self Relations Questionnaire being the most frequently utilized (3/11, 27.27%) [27, 31, 33], followed by the Body Shape Questionnaire (2/11, 18.18%) [26, 30].

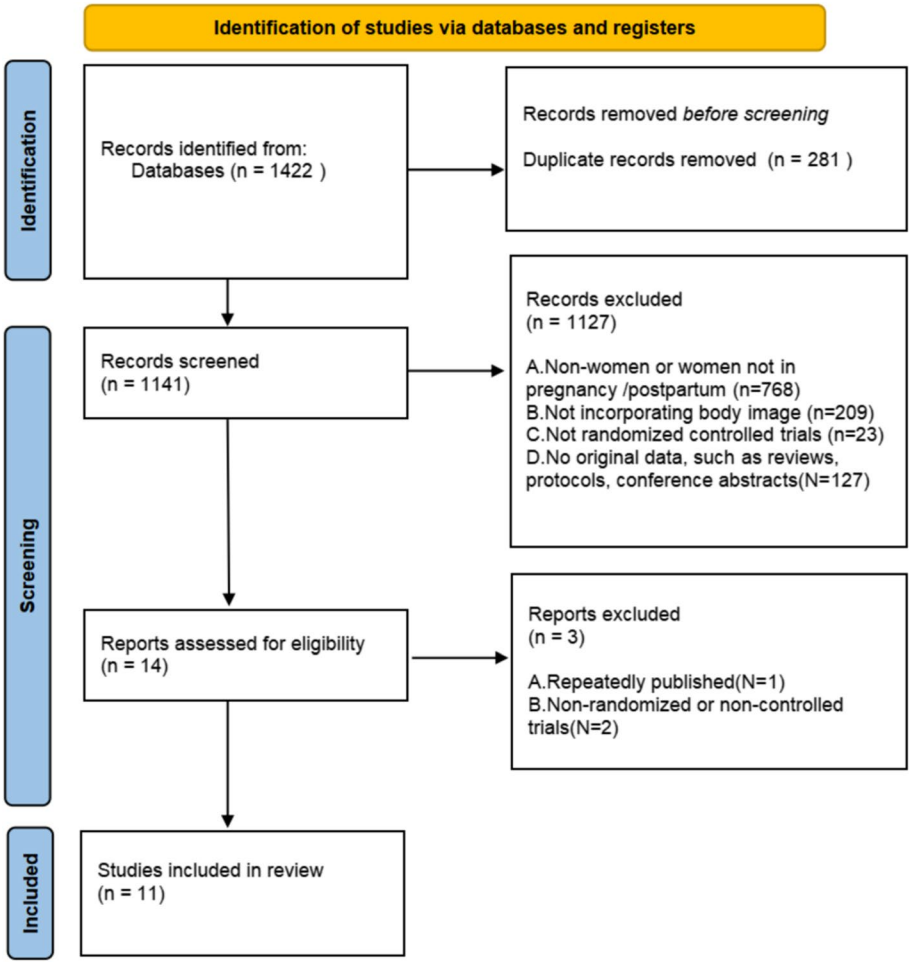

Fig. 1 Flow chart of included studies in the systematic review

Characteristics of the included studies are detailed in Table 1.

Risk of bias assessment

The summary of the bias risk of included studies is provided in Fig. 2. All included studies clearly expounded the generation of random sequence [23–33]. Six trials (54.55%) did not report allocation concealment [25, 26, 28–30, 32]. Two studies (18.18%) utilized per-protocol analysis but omitted reporting potential significant impacts of participants in the randomized group on the results [23, 29]. Among the selective reporting results, two studies (18.18%) performed multiple measurements or analyses [24, 29]. Three studies (27.27%) failed to report a pre-established protocol, leading to uncertainty regarding potential deviations from these established protocol [23, 25, 30]. Each study had a low risk of bias in terms of deviations from missing outcome data and measurement of the outcome. The included studies had an overall high risk of bias. Our review identified the randomization process and selection of the reported result as the primary contributors to a high risk of bias.

The effectiveness of interventions for improving body image

The systematic review comprised 11 randomized controlled trials, grouped into lifestyle intervention and psychological intervention based on the intervention content. A comprehensive analysis of the effectiveness of these interventions is provided in Table 2, detailing the impact and outcomes associated with each intervention.

The effectiveness of lifestyle interventions for improving body image

Our review encompassed six lifestyle interventions aimed at improving body image for pregnant and postpartum women [23–28]. Individual counseling on diet and physical activity by nurses significantly enhanced the body image for pregnant and postpartum women ($F = 3.61$, $p < 0.001$) [23]. In adherence to

Table 1 Characteristics of the included studies

Study ID	Year	Country	Sample Size		Population	Intervention			Control	Measurements
			Intervention Group	Control Group		Interventionist	Content	Frequency		
Huang et al.	2011	Taiwan	80	80	Pregnant and postpartum women	Nurse	Individualized dietary and physical activity education	30 ~ 40 min each time, six sessions	Routine obstetric educational programme	Attitude toward Body Image Scale; Health-Promoting Lifestyle Profile; Self-Rated Abilities for Health Practices Scale; Beck Depression Inventory; Interpersonal Support Evaluation List
Haakstad et al.	2016	Norway	52	53	Pregnant women	Highly qualified aerobics instructors	Supervised exercise	60 min each time, at least 2 times a week, for at least 12 weeks	Neither encouraged nor discouraged exercise	The WHO Quality of Life Brief Scale; The MOS item short from health SF-36
Ding et al.	2019	China	43	43	Pregnant women with gestational diabetes mellitus	Nurse	Individualized dietary and physical activity education	Twice	Routine health knowledge education	Body Image and Relationships Scale; The MOS item short from health SF-36; Self-rating Anxiety Scale; Self-rating depression scale
Bennion et al.	2020	USA	174	196	Postpartum women	Not reported	Internet-based lifestyle intervention	12 months	Standard care	Body Shape Questionnaire; Eating Behavior Inventory; The Three-Factor Eating Questionnaire; Self-Efficacy Sub-scale of Attitudes Questionnaire; Edinburgh Postnatal Depression Scale; Perceived Stress Scale

Table 1 (continued)

Study ID	Year	Country	Sample Size		Population	Intervention			Control	Measurements
			Intervention Group	Control Group		Interventionist	Content	Frequency		
Keshwani et al.	2021	Canada	7	7	Postpartum women with diastasis rectus abdominis	Physiotherapist	Exercise	Once a day, 12 weeks	Not receive intervention	Body Areas Satisfaction sub-scales of the Multidimensional Body-Self Relations Questionnaire; Ultrasound Imaging Assessment; Daniels and Worthingham's Procedure; Visual Analogue Scales; The Pelvic Floor Distress Inventory; Pelvic Floor Impact Questionnaire; Oswestry Disability Index; Inventory of Functional Status After Childbirth Questionnaire
Feng et al.	2021	China	35	35	Pregnant women with gestational diabetes mellitus	Nurse	Health education on diet, exercise and other related behavioral strategies	Twice	Standard care	Body Image Pregnancy Scale; Diabetes Knowledge Belief and Practice Scale; Diabetes Attitude Scale; Diabetes Self-Management Behavior Scale
Gholami et al.	2022	Iran	44	44	Pregnant women	Researcher	Adlerian Group Counseling about weight and body image	90 min, once a week, four times	Not receive intervention	Prenatal Distress Questionnaire; Quality of Prenatal Self-care Questionnaire

Table 1 (continued)

Study ID	Year	Country	Sample Size		Population	Intervention			Control	Measurements
			Intervention Group	Control Group		Interventionist	Content	Frequency		
Papini et al.	2022	USA	36	35	Pregnant and postpartum women	Not reported	Meditation practices about body image	20 min, once a day, three weeks	Not receive intervention	Body Shape Questionnaire; Body Shame sub-scale of the Objectified Body Consciousness Scale; Body Appreciation Scale; The Self-Compassion Scale; International Physical Activity Questionnaire- Short Form
Talebi et al.	2022	Iran	41	41	Postpartum women	Psychiatrist, clinical psychologist, and reproductive health specialist	Cognitive behavioral intervention about body image	60 min, eight times, two weeks	Routine health education	Multidimensional Body Self-relations Questionnaire; Female Genital Self-image Scale; Sexual Quality of Life-female Questionnaire; Sexual Satisfaction Scale for women
Cengizhan et al.	2023	Turkey	99	75	Pregnant women	Mindfulness coach	Mindfulness-based sexual counseling	40 ~ 60 min, twice a week, eight times	Not receive intervention	Body Image Concerns during Pregnancy Scale; Attitude Scale toward Sexuality during Pregnancy; Female Sexual Distress Scale
Zamiri-Miandoab et al.	2023	Iran	35	35	Pregnant women	Master's student of counseling in midwifery	Counseling with cognitive behavior about body image	60 ~ 90 min, once a week, eight times	Routine pregnancy care	Multidimensional Body Self-relations Questionnaire; The Rosenberg self-esteem scale; Exclusive Breastfeeding Questionnaire

Fig. 2 Risk of bias within studies

the guidelines of the American College of Obstetricians and Gynecologists, the provision of regular group exercise to pregnant women, did not yield significant impacts on the body image ($p=0.7$) [24]. Personalized health education on diet and physical activity significantly enhanced the body image for women with gestational diabetes ($t=14.267$, $p<0.05$) [25]. Postpartum women who received internet-based lifestyle intervention did not exhibit significant improvements in body image ($F=1.47$, $p=0.230$) [26]. No significant positive influence was observed on body image among postpartum women who received exercise therapy (ES=-0.4, $p>0.05$) [27]. Health education conducted by nurses on diet, exercise, and behavioral strategies yield significant impacts on body image of pregnant women ($t=12.993$, $p<0.001$) [28].

The effectiveness of psychological interventions for improving body image

Five psychological interventions to improve body image for pregnant and postpartum women were included in our review [29–33]. Pregnant women undergoing group counseling exhibited significantly improvements on body image ($p=0.0001$) [29]. Women who participated in self-meditation intervention during pregnancy and postpartum demonstrated notably improved body image (all, $p<0.05$) [30]. Internet-based cognitive behavioral therapy significantly improved postpartum women's body image (9.95 [7.78–12.12]; $p<0.001$) [31]. Psychological counseling that based on mindfulness therapy significantly improved body image among pregnant women ($t=0.312$, $p<0.001$) [32]. Pregnant women who received Cash-based cognitive behavioral counseling

Table 2 The results of comparison between interventions and controls for improving body image in pregnancy and postpartum

	Huang et al.	Haakstad et al.	Ding et al.	Bennion et al.	Keshwani et al.	Feng et al.	Gholami et al.	Papini et al.	Talebi et al.	Cengizhan et al.	Zamiri-Miandoab et al.
Attitude toward Body Image Scale	$F=3.61$, $p<0.001$										
WHO Quality of Life Brief Scale		$p=0.7$#									
Body Image and Relationships Scale			t = 14.267, $p<0.05$								
Body Shape Questionnaire				F = 1.47, $p=0.230$				β=−0.98, $p<0.001$			
Multidimensional Body-Self Relations Questionnaire					ES=-0.4, $p>0.05$#				9.95[7.78–12.12]; $p<0.001$		49.74[28.57–70.91]; $p<0.001$
Body Image Pregnancy Scale						t = 12.993, $p<0.001$					
Prenatal Distress Questionnaire							$p=0.0001$#				
Objectified Body Consciousness Scale								β=−0.71, $p=0.001$#			
Body Appreciation Scale								β = 0.31, $p=0.03$			
Female genital self-image scale									t = 0.34, $p=0.158$		
Body Image Concerns during Pregnancy Scale										t = 0.312, $p<0.001$	

ES Effect size

#: Related sub-scales or dimensions of body image

demonstrated significant improvements in body image (49.74 [28.57–70.91]; $p < 0.001$) [33].

Discussion

Our work comprehensively reviewed the effectiveness of body image interventions for pregnant and postpartum women. These interventions produced significantly positive effects on enhancing the body image of pregnant and postpartum women compared to the control groups. Psychological interventions are considered to be more effective in improving body image for pregnant and postpartum women. This systematic review offers valuable insights into the application of body image interventions in pregnant and postpartum women, and identifies areas for further research and clinical practice.

Within the studies encompassed in this systematic review, three studies measured the Multidimensional Body-Self Relations Questionnaire. The results showed that psychological intervention exhibited a statistically significant difference and a higher effect size when compared with the control group. Conversely, the comparison of lifestyle intervention with the control group yielded no significant difference. Additionally, two studies measured the Body Shape Questionnaire, demonstrating that psychological intervention significantly enhanced women's body image with statistical significance, whereas lifestyle intervention showed no significant effect on improving women's body image. Other included studies utilized different measurement tools, and no comparison of results across studies was compared. Overall, our findings suggests psychological interventions to improve body image for pregnant and postpartum women. Previous critical reviews have affirmed the positive impact of exercise and psychological interventions on the body image of women [34]. In our review, before 2022, lifestyle interventions focusing on diet, exercise, and related behavioral strategies, provided through health education or implementation, were the primary used interventions to improve body image for pregnant and postpartum women. Lifestyle interventions in the part of studies have demonstrated efficacy in enhancing the body image of pregnant and postpartum women. And following 2022, psychological interventions have been increasingly utilized to enhance the body image of women during pregnancy or postpartum, with a reported of significant effectiveness. Consistent with existing systematic reviews, psychological interventions have been shown to effectively improve body image in women [35–37]. Unlike lifestyle interventions, these psychological interventions specifically focus on the psychological well-being of women throughout pregnancy and postpartum. Body image disorders often stem from dysfunctional thought patterns and behaviors. Psychological interventions such as mindfulness and cognitive behavioral therapy can assist pregnant and postpartum women in reorganizing their cognition and accepting themselves, which is highly suitable [38]. Hence, our study recommends the use of psychological interventions to improve body image in pregnant or postpartum women.

The majority of lifestyle interventions reviewed in this review are provided by nurses to pregnant and postpartum women, whereas most psychological interventions are delivered by medical professionals. As outlined in the Fundamentals of Care Framework, healthcare providers (including nurses, health visitors and medical practitioners, etc.) are responsible for meeting patients' basic physical, psychological, and relational care needs [39]. While it is not within the primary scope of nurses to administer body image interventions for women during pregnancy and the postpartum, existing evidence indicates nurses have greater opportunities to participate in women's psychological adjustment during pregnancy and postpartum [40]. This involvement is crucial for enhancing perinatal women's awareness of mental health and delivering essential emotional support [41]. With proper training in skills like mindfulness and cognitive therapy, nurses can offer interventions with clear psychological and social content for pregnant or postpartum women, as there are existing nurse-led psychological interventions precedent for pregnant women [42]. The broader accessibility of nurse-led psychological interventions to improve body image in pregnant and postpartum women will facilitate the development, application, and dissemination of interventions for this demographic.

Concerning methodological quality, the omission of reporting allocation concealment was evident across the part of included studies, potentially biasing participant behavior and outcomes measurement [43]. Some studies also exhibited selective reporting bias in their results. While addressing issues such as blinding, attrition, and selective reporting bias in psychological research is challenging [44], it is crucial to encourage future studies to adhere to more rigorous research design and report results in accordance with reporting standards of randomized controlled trials. It will enhance the overall quality of evidence on body image interventions for pregnant and postpartum women. Despite variations in methodological quality, the majority of studies offered evidence of the effectiveness of body image interventions for pregnant and postpartum women, contributing to the advancement and implementation of such interventions.

Recommendations

Increase attention to this special group

Body image undergoes changes during various stages of a woman's life, encompassing menstruation, pregnancy,

breastfeeding, and the postpartum period [45]. Pregnant and postpartum women commonly experience dissatisfaction with their body image, yet fewer than a third of healthcare providers evaluate the body image of pregnant women during standard prenatal care [46]. Research primarily emphasizes health issues like anxiety, depression, and fear of childbirth during pregnancy, with comparatively limited focus on the body image of pregnant women. It is recommended that pertinent medical personnel devote adequate attention to the body image of this specific group.

Develop diversified strategies

The concept of body image is multidimensional and intricate, encompassing physiological, psychological, and societal aspects, and is influenced by social culture. According to sociocultural theory, the pressure to conform to thinness propagated by the media, peers, and family (external factors) impacts body image by internalizing the thin ideal and fostering social comparison (internal factors) [47]. The proliferation of the Internet and the extensive usage of social media has significantly influenced the psychological construct of pregnant and postpartum women through public aesthetics [48]. Future research should integrate and consider the female value orientation when developing intervention strategies, drawing from established effective methods like cognitive therapy, meditation, mindfulness, and self-compassion [49]. We suggest guiding women to adopt an accurate perspective on pregnancy and childbirth, while also recognizing the importance of media, peers, and family support for perinatal women.

Standardized measurement tools

The body image measurement tools utilized in these included studies exhibit significant heterogeneity, with the majority being universal measurement tools. Specific measurement tools for body image during pregnancy and postpartum are notably scarce to use. Future intervention studies focusing on female body image during pregnancy should utilize specific measurement tools, such as the Body Image Pregnancy Scale [50] and Body Image Concerns during Pregnancy Scale [32], to enhance the accumulation of evidence for evidence-based research. Furthermore, the deficiency of body image measurement tools for postpartum women underscores the necessity for the further development of such tools to broaden the scope of research.

To our knowledge, this is the first systematic review to explore the effectiveness of body image interventions for pregnant and postpartum women. It underscores the significance of psychological interventions targeting women's body image throughout pregnancy and the postpartum period, presenting a distinctive opportunity to enhance women's mental well-being in these critical stages. However, there are still limitations. Firstly, three included randomized controlled trials exhibited a high risk of bias, raising concerns about potential bias. Secondly, there is a scarcity of research on body image interventions for pregnant and postpartum women, and the heterogeneous body image measurement tools among published articles hinder the ability to conduct a quantitative meta-analysis. The descriptive analysis utilized in this study maybe offer explanation of the effectiveness of body image interventions.

Conclusions

This systematic review offers a comprehensive overview of the effectiveness of body image interventions for pregnant and postpartum women. Our findings indicated that these interventions can significantly improve the body image of pregnant and postpartum women. Among them, psychological interventions are considered to be a suitable measure to improve body image for pregnant and postpartum women. These findings can provide valuable references for healthcare providers to design and implement these interventions in clinical practice, and also offer guidance for exploring more scientific and effective strategies for body image interventions. Future body image interventions should increase attention to pregnant and postpartum women, develop diverse strategies, and standardized body image measurement tools. Further research and clinical practice can enhance women's self-concept during pregnancy and postpartum, as well as improve social and spousal support systems to promote women's physical and mental health during this period.

Supplementary Information

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Supplementary Material 1: Retrieval strategy and results.

Supplementary Material 2: Papers excluded for full-text and the reasons.

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Authors' contributions

Mei-di Shen: Conceptualization, Methodology, Formal analysis, Writing – original draft. Rui-tong Gao: Methodology, Formal analysis. Si-bing CHEN: Writing – review & editing. Zhong-hang Xu: Writing – review & editing, Supervision. Xiang-dong DING: Project administration, Writing – review & editing, Supervision.

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Availability of data and materials
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Declarations

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Not applicable.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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References

1. CASH T F PT. Body image:a handbook of theory,research,and clinical practice. New York: Guilford Press; 2002. 2002(48).
2. Garrusi B, Etminan NV. The relationship of body image with depression and self-esteem in pregnant women. J Health Dev. 2013;2(2):117–27.
3. Runfola CD, et al. Body dissatisfaction in women across the lifespan: results of the UNC-SELF and gender and body image (GABI) studies. Eur Eat Disord Rev. 2013;21(1):52–9.
4. Kazemi F, Nahidi F, Kariman N. Exploring factors behind pregnant women's quality of life in Iran: a qualitative study. Electron Physician. 2017;9(12):5991–6001.
5. Fuller-Tyszkiewicz M, et al. A network analysis comparison of central determinants of body dissatisfaction among pregnant and non-pregnant women. Body Image. 2020;32:111–20.
6. Watson B, et al. A qualitative exploration of body image experiences of women progressing through pregnancy. Women Birth. 2016;29(1):72–9.
7. Shloim N, et al. Relationship between body mass index and women's body image, self-esteem and eating behaviours in pregnancy: a cross-cultural study. J Health Psychol. 2015;20(4):413–26.
8. Vanderkruik R, et al. Body dissatisfaction and disordered eating in the perinatal period: an underrecognized high-risk timeframe and the opportunity to intervene. Arch Womens Ment Health. 2022;25(4):739–51.
9. Chan CY, et al. Associations of body dissatisfaction with anxiety and depression in the pregnancy and postpartum periods: a longitudinal study. J Affect Disord. 2020;263:582–92.
10. Riquin E, et al. A key for perinatal depression early diagnosis: the body dissatisfaction. J Affect Disord. 2019;245:340–7.
11. Hartley E, et al. The associations of Weight Status and Body attitudes with depressive and anxiety symptoms across the First Year Postpartum. Womens Health Issues. 2018;28(6):530–8.
12. Schmied V, Lupton D. The externality of the inside: body images of pregnancy. Nurs Inq. 2001;8(1):32–40.
13. Brown A, Rance J, Warren L. Body image concerns during pregnancy are associated with a shorter breast feeding duration. Midwifery. 2015;31(1):80–9.
14. Hauff LE, Demerath EW. Body image concerns and reduced breastfeeding duration in primiparous overweight and obese women. Am J Hum Biol. 2012;24(3):339–49.
15. Lai BP, Tang CS, Tse WK. Prevalence and psychosocial correlates of disordered eating among Chinese pregnant women in Hong Kong. Eat Disord. 2005;13(2):171–86.
16. Milembamane MM, et al. Maternal eating disorders and adverse birth outcomes: a systematic review and Meta-analysis. Can J Diet Pract Res. 2024;85(1):45–53.
17. Giacobbi P Jr., et al. Feasibility and acceptability of guided imagery to sequentially address multiple Health behaviors during pregnancy. J Midwifery Womens Health. 2021;66(5):664–70.
18. Navidian A, Moudi Z, Esmaealzade M. The effectiveness of group cognitive behavioral therapy based on cash's eight-step model in body image of primiparous women. Iran J Psychiatry Behav Sci. 2017;11(2):e7236.
19. Huang D, et al. Efficacy of core training in the treatment of diastasis recti abdominis in postpartum women: a meta-analysis. Chin J Evidence-Based Med. 2023;23(9):1026–32.
20. Wallis K, et al. The body confident mums challenge: a feasibility trial and qualitative evaluation of a body acceptance program delivered to mothers using Facebook. BMC Public Health. 2021;21(1):1052.
21. Cumpston M et al. Updated guidance for trusted systematic reviews: a new edition of the Cochrane Handbook for Systematic Reviews of Interventions. Cochrane Database Syst Rev, 2019. 10(10): p. Ed000142.
22. Page MJ, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021;372:n71.
23. Huang TT, Yeh CY, Tsai YC. A diet and physical activity intervention for preventing weight retention among Taiwanese childbearing women: a randomised controlled trial. Midwifery. 2011;27(2):257–64.
24. Haakstad LAH, Torset B, Bø K. What is the effect of regular group exercise on maternal psychological outcomes and common pregnancy complaints? An assessor blinded RCT. Midwifery. 2016;32:81–6.
25. Ding j-l, Jiang P-h. Effects of personalized follow-up based on case management on quality of life and body image in patients with gestational diabetes mellitus. Western Traditional Chin Med. 2019;32(7):64–8.
26. Bennion KA, et al. Impact of an internet-based lifestyle intervention on behavioral and psychosocial factors during Postpartum Weight loss. Obesity. 2020;28(10):1860–7.
27. Keshwani N, Mathur S, McLean L. The impact of exercise therapy and abdominal binding in the management of diastasis recti abdominis in the early post-partum period: a pilot randomized controlled trial. Physiother Theory Pract. 2021;37(9):1018–33.
28. Feng M-h. The impact of nurse-patient interactive standard care on the improvement of knowledge, belief, behavior and body image of patients with gestational diabetes mellitus. Prim Med Forum. 2021;25(33):4809–11.
29. Gholami A, et al. The effectiveness of Adlerian Group Counseling Approach on Mother's distress and self-care during pregnancy: a Randomized Controlled Trial. J Holist Nurs Midwifery. 2022;32(4):254–64.
30. Papini NM, et al. Self-compassion and body image in pregnancy and postpartum: a randomized pilot trial of a brief self-compassion meditation intervention. Body Image. 2022;43:264–74.
31. Talebi E, et al. Improving body image and sexual life among postpartum women: a single-blind-randomized controlled trial to evaluate a social network-based cognitive-behavioral intervention. Obstet Gynecol Sci. 2022;65(6):502–12.
32. Cengizhan S, Uçar T. The Effect of Mindfulness-based sexual counseling on sexual distress, attitude toward sexuality, and body image concerns in pregnant women: a Randomized Controlled Trial. J Midwifery Womens Health. 2023;68(5):611–8.
33. Zamiri-Miandoab N, et al. The effect of counseling with cognitive behavior approach on self-esteem and body image in lactating mothers: randomized clinical trial. BMC Psychol. 2023;11(1):401.
34. Chan NC, Chow KM. A critical review: effects of exercise and psychosocial interventions on the body image of breast cancer survivors. Nurs Open. 2023;10(4):1954–65.
35. Zhao W, Chong YY, Chien WT. Effectiveness of cognitive-based interventions for improving body image of patients having breast cancer: a systematic review and meta-analysis. Asia Pac J Oncol Nurs. 2023;10(4):100213.
36. Anne Thamar Louis L. Body image interventions within breast cancer care: a systematic review and concept analysis. J Psychosoc Oncol. 2024;42(3):427–47.
37. Pehlivan MJ, et al. The effectiveness of psychological interventions for reducing poor body image in endometriosis, PCOS and other gynaecological conditions: a systematic review and meta-analysis. Health Psychol Rev. 2024;18(2):341–68.

38. Cash TF, Hrabosky JI. The effects of psychoeducation and self-monitoring in a cognitive-behavioral program for body-image improvement. Eat Disord. 2003;11(4):255–70.
39. Kitson AL. The fundamentals of Care Framework as a point-of-care nursing theory. Nurs Res. 2018;67(2):99–107.
40. Peddie B. The nurse's role in the promotion of mental health in obstetrics. N Z Nurs J. 1978;71(2):14–6.
41. Fletcher A, Murphy M, Leahy-Warren P. Midwives' experiences of caring for women's emotional and mental well-being during pregnancy. J Clin Nurs. 2021;30(9–10):1403–16.
42. Raghuveer P, et al. Effectiveness of a brief psychological intervention delivered by nurse for depression in pregnancy: study protocol for a Multicentric Randomized Controlled Trial from India. Indian J Psychol Med. 2020;42(6 Suppl):S23–30.
43. Guest E, et al. The effectiveness of interventions aiming to promote positive body image in adults: a systematic review. Body Image. 2019;30:10–25.
44. Guest E, et al. A systematic review of interventions aiming to promote positive body image in children and adolescents. Body Image. 2022;42:58–74.
45. Boscaglia N, Skouteris H, Wertheim EH. Changes in body image satisfaction during pregnancy: a comparison of high exercising and low exercising women. Aust N Z J Obstet Gynaecol. 2003;43(1):41–5.
46. Leddy MA, et al. Eating disorders and obstetric-gynecologic care. J Womens Health (Larchmt). 2009;18(9):1395–401.
47. Lovering ME, et al. Exploring the tripartite influence model of body dissatisfaction in postpartum women. Body Image. 2018;24:44–54.
48. Miller MN, Pumariega AJ. Culture and eating disorders: a historical and cross-cultural review. Psychiatry. 2001;64(2):93–110.
49. Mahon C, Seekis V. Systematic Review of Digital Interventions for Adolescent and young adult women's body image. Front Glob Womens Health. 2022;3:832805.
50. Watson B, et al. Development and validation of a tailored measure of body image for pregnant women. Psychol Assess. 2017;29(11):1363–75.

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