NICOLAUS COPERNICUS UNIVERSITY IN TORUŃ

Quality in Sport. eISSN 2450-3118.

Journal Home Page
https://apcz.umk.pl/QS/index

CZERNIC-GOŁAWSKA, Klaudia, FALANA, Joanna, KOZŁOWSKA, Jana, ORŁOWSKA, Maria, KWIATKOWSKA, Anna, WIELOGÓRSKA, Aleksandra, TROJNAR, Karolina, PRZEPIÓRA, Agnieszka, ŻMIGRODZKA, Anna, SANOCKA, Maria, and KAMIŃSKA, Agnieszka. Physical Activity During Pregnancy and Its Impact on Postpartum Depression Risk: A Narrative Review. Quality in Sport. 2026;54:70404. eISSN 2450-3118. https://doi.org/10.12775/QS.2026.54.70404

The journal has been awarded 20 points in the parametric evaluation by the Ministry of Higher Education and Science of Poland. This is according to the Annex to the announcement of the Minister of Higher Education and Science dated 05.01.2024, No. 32553. The journal has a Unique Identifier: 201398. Scientific disciplines assigned: Economics and Finance (Field of Social Sciences); Management and Quality Sciences (Field of Social Sciences).
Punkty Ministerialne z 2019 - aktualny rok 20 punktów. Załącznik do komunikatu Ministra Szkolnictwa Wyższego i Nauki z dnia 05.01.2024 Lp. 32553. Posiada Unikatowy Identyfikator Czasopisma: 201398. Przypisane dyscypliny naukowe: Ekonomia i finanse (Dziedzina nauk społecznych); Nauki o zarządzaniu i jakości (Dziedzina nauk społecznych).
The authors declare that there is no conflict of interest regarding the publication of this paper.
Received: 30.03.2026. Revised: 02.04.2026. Accepted: 08.04.2026. Published: 10.04.2026.

Physical Activity During Pregnancy and Its Impact on Postpartum Depression Risk: A Narrative Review

Klaudia Czernic-Goławska

ORCID: https://orcid.org/0009-0009-7485-7246

E-mail: klaudiagolawska21@gmail.com

Independent Public Central Clinical Hospital in Warsaw, Banacha 1a, 02-097 Warsaw, Poland

Joanna Falana
ORCID: https://orcid.org/0009-0001-0110-9505
E-mail: joanna.falana99@gmail.com
Independent Public Central Clinical Hospital in Warsaw, Banacha 1a, 02-097 Warsaw, Poland

Jana Kozłowska
ORCID: https://orcid.org/0009-0008-5278-2864
E-mail: jana.kozlowska1@gmail.com
Independent Public Specialist Western Hospital of St. John Paul II, Daleka 11, 05-825 Grodzisk Mazowiecki, Poland

Maria Orłowska
ORCID: https://orcid.org/0009-0004-1009-2815
E-mail: m.orlowska.koszarek@gmail.com
LUX MED Sp. z o.o., Szturmowa 2, 02-678 Warsaw, Poland

Anna Kwiatkowska
ORCID: https://orcid.org/0009-0008-1334-6517
E-mail: annazycka23@gmail.com
District Medical Center in Grójec, Ks. Piotra Skargi 10, 05-600 Grójec, Poland

Aleksandra Wielogórska
ORCID: https://orcid.org/0009-0006-6582-6569
E-mail: ola.wielogorska@gmail.com
District Medical Center in Grójec, Ks. Piotra Skargi 10, 05-600 Grójec, Poland

Karolina Trojnar
ORCID: https://orcid.org/0009-0003-5633-603X
E-mail: karolina.trojnar0@gmail.com
Independent Public Health Care Facility in Garwolin, Lubelska 50, 08-400 Garwolin, Poland

Agnieszka Przepióra
ORCID: https://orcid.org/0009-0002-6368-537X
E-mail: przepioraagnieszka7@gmail.com
Independent Public Complex of Health Care Facilities in Kozienice, General Władysław Sikorski Avenue 10, 26-900 Kozienice, Poland

Anna Żmigrodzka
ORCID: https://orcid.org/0009-0005-0179-8960
E-mail: zmigrodzka.ania@gmail.com
Independent Public Health Care Facility in Garwolin, Lubelska 50, 08-400 Garwolin, Poland

Maria Sanocka
ORCID: https://orcid.org/0009-0000-9428-2464
E-mail: sanocka.maria@gmail.com
County Hospital GAJDA-MED Limited Liability Company, Teofila Kwiatkowskiego 19, 06-102 Pułtusk, Poland

Agnieszka Kamińska
ORCID: https://orcid.org/0009-0002-3391-504X
E-mail: agakami24@gmail.com
Independent Public Health Care Facility in Garwolin, Lubelska 50, 08-400 Garwolin, Poland

Corresponding Author: Klaudia Czernic-Goławska, klaudiagolawska21@gmail.com

ABSTRACT

Background. Pregnancy and the early postpartum period involve physiological and psychosocial changes that may increase vulnerability to depressive symptoms after childbirth. Safe and accessible preventive strategies, including physical activity, are therefore of growing interest.

Aim. The aim of this narrative review was to summarize current evidence on the relationship between physical activity during pregnancy and the risk of postpartum depression.

Material and methods. A structured search of PubMed, Scopus, and Google Scholar was conducted. Studies on pregnant women, prenatal physical activity, and postpartum depressive

symptoms assessed with validated instruments, especially the Edinburgh Postnatal Depression Scale, were included.

Results. Available evidence suggests that women who remain physically active during pregnancy tend to report fewer postpartum depressive symptoms. Better outcomes were most often observed with regular moderate-intensity exercise, programs lasting at least 12 weeks, and activity levels meeting current recommendations. Aerobic exercise, yoga, mind-body exercise, and relaxation-oriented interventions appear particularly promising.

Conclusions. Prenatal physical activity may be an accessible and clinically relevant component of postpartum depression prevention. Further studies are needed to clarify the most effective dose, modality, and implementation strategy.

Keywords: physical activity, pregnancy, postpartum depression, exercise, maternal mental health

Content

1. Introduction

Postpartum depression is one of the important mental health challenges that may appear after childbirth. In recent years, growing attention has been paid not only to its treatment, but also to factors that may help reduce its occurrence. Among these, physical activity is often discussed as a potentially beneficial and modifiable element of prevention. Available review evidence suggests that women who stay active during pregnancy, the puerperium, or the postnatal period are less likely to report postnatal depressive symptoms than women with low activity levels, although the effect may vary depending on the form, intensity, and duration of exercise [1].

The biological background of perinatal depressive symptoms is still not explained in a fully consistent way. One of the mechanisms considered in the literature is the regulation of cortisol across pregnancy and the postpartum period. Existing review findings indicate that disturbances in this area may be associated with perinatal depression, but the published results are not uniform and do not support one clear physiological model. This suggests that postpartum depression should be interpreted as a condition influenced by both behavioral factors that can potentially be modified and by more complex biological processes [2].

Physical activity has attracted growing attention in this context because it represents a modifiable behavior that is relatively inexpensive, broadly accessible, and potentially beneficial for both physical and mental health. Reviews on exercise during pregnancy indicate that, in women without contraindications, moderate activity is generally considered safe and may support maternal health in several ways, including lowering the risk of excessive gestational weight gain, gestational diabetes, preeclampsia, selected delivery complications, and poorer postpartum well-being [3,4].

Earlier syntheses already suggested that physical activity during pregnancy may be linked to improved postpartum mood outcomes. A systematic review and meta-analysis found lower postpartum depression scores among women who remained active during pregnancy [5], while another review concluded that physical activity during pregnancy and the postnatal period may decrease the likelihood of postnatal depressive symptoms [1]. More recent work has moved beyond the simple contrast between active and inactive women by examining dose, duration, modality, and the role of everyday movement patterns.

This newer literature suggests that the mental health relevance of movement begins before delivery. Higher levels of physical activity during pregnancy have been associated with lower odds of prenatal depression and anxiety, reduced stress, and better quality of life, whereas pre-pregnancy activity did not show the same pattern [6]. This is particularly important because depressive symptoms occurring during pregnancy are among the strongest predictors of

postpartum depression. In addition, intervention-based evidence indicates that physical activity may reduce both the risk and severity of perinatal depression, especially when exercise programs are maintained over time and reach sufficient weekly volume [7].

Another important shift in the field concerns the type of activity performed. Recent comparative reviews suggest that different forms of prenatal exercise may not produce equivalent effects. Aerobic exercise, yoga, mind-body approaches, and relaxation-oriented programs have all been identified as potentially beneficial, but some evidence suggests that certain modalities may offer additional advantages by combining movement with breathing regulation, stress reduction, or improved body awareness [8,9]. This line of inquiry has been extended by newer network meta-analytic evidence indicating that prenatal exercise may contribute not only to lower prenatal depression and anxiety, but also to reduced postpartum depressive risk, with some combined formats ranking especially highly [10].

Primary studies broadly support these conclusions. Women achieving at least 150 minutes of moderate-to-vigorous physical activity per week during pregnancy were found to have a lower risk of postpartum depressive symptoms [11]. In longitudinal research, lower step counts, lower moderate-to-vigorous activity, and greater sedentary time were associated with less favorable depressive symptom trajectories from pregnancy into the postpartum period [12]. Similarly, lower total, light, and moderate activity levels during pregnancy, including household/care and occupational activity, were linked to higher odds of postpartum depressive symptoms [13]. Among intervention studies, the strongest recent direct support comes from a randomized controlled trial showing that regular antenatal aerobic exercise significantly reduced postpartum depressive risk in women with low-risk singleton pregnancies [14].

Current research also suggests that physical activity should not be understood only in terms of formal exercise sessions. Lifestyle-related movement may be easier to sustain than structured training programs [15], and trimester-specific adaptation appears important when planning activity during pregnancy [16]. Environmental context may matter as well, since greener surroundings have been associated with lower postpartum depression risk, with physical activity representing one plausible explanatory pathway [17]. In parallel, newer reviews have placed exercise within broader prevention models [18], while digitally delivered prenatal yoga illustrates how more accessible, remotely supported interventions may be developed for women at elevated risk [19].

Overall, the available evidence suggests that prenatal physical activity should be considered a meaningful topic in postpartum depression prevention rather than a secondary lifestyle issue.

Research Objective. The objective of this narrative review was to summarize current evidence on the relationship between physical activity during pregnancy and the risk of postpartum depression.

Research Problems.

1. Is physical activity during pregnancy associated with a lower risk of postpartum depressive symptoms?
2. Which dose and duration of physical activity appear most beneficial?
3. Which exercise modalities appear most promising in the prevention of postpartum depression?
4. What is the role of sedentary behavior and everyday movement in postpartum mood outcomes?
5. How can physical activity be realistically implemented in prenatal care?

Research Hypotheses. Regular physical activity during pregnancy, especially when performed consistently and at moderate intensity, is associated with a lower risk of postpartum depressive symptoms, while insufficient activity and sedentary behavior are associated with less favorable postpartum mood outcomes.

2. Research materials and methods

2.1. Participants

Not applicable. This study was based exclusively on published scientific literature and did not involve direct recruitment of human participants.

2.2. Literature search and eligibility criteria

This study was designed as a narrative review based on a structured literature search. The search was conducted in PubMed, Scopus, and Google Scholar and was last updated on 27 March 2026. Search terms combined concepts related to pregnancy, exercise, physical activity, postpartum depression, and perinatal depression, including “physical activity,” “exercise,” “pregnancy,” “prenatal exercise,” “antenatal exercise,” “postpartum depression,” “postnatal depression,” and “perinatal depression.” These terms were combined as appropriate to identify publications addressing prenatal physical activity and postpartum mental health outcomes.

The review focused mainly on studies published between 2016 and 2026. Eligible publications included observational studies involving pregnant women, randomized and non-randomized physical activity interventions conducted during pregnancy, and evidence syntheses examining

postpartum depressive symptoms or postpartum depression. Preference was given to studies using validated mental health measures, especially the Edinburgh Postnatal Depression Scale. Titles, abstracts, and, where necessary, full texts were assessed in relation to the review objective and research problems. Publications were retained when they addressed prenatal physical activity or exercise and reported findings relevant to postpartum depressive symptoms, postpartum depression risk, or closely related perinatal mental health outcomes. Animal studies, papers unrelated to pregnancy, publications not focused on physical activity, and articles without relevant postpartum mental health outcomes were excluded from the narrative synthesis.

2.3. Data collection and narrative synthesis

The selected publications were analyzed qualitatively. Particular attention was paid to study design, exercise dose, adherence, activity intensity, intervention duration, exercise modality, sedentary behavior, and practical implications for prenatal care. Because the included literature was heterogeneous in design, exposure assessment, intervention characteristics, and timing of outcome measurement, the findings were synthesized narratively rather than pooled in a new meta-analysis.

2.3.1. Statistical Software

Not applicable. No original statistical analysis of participant-level data was performed in this review.

2.3.2. Statistical Methods

No new pooled statistical calculations were performed. The study was based on descriptive and interpretive synthesis of published evidence. Comparisons across studies were made in relation to exercise dose, intervention duration, modality, sedentary behavior, feasibility of implementation in prenatal care, and the consistency of findings across different study designs.

3. Research results

The evidence identified in this narrative review consistently suggests that prenatal physical activity may be associated with a lower risk of postpartum depressive symptoms, although the magnitude and consistency of this effect vary across study designs and intervention formats. The key studies included in the present synthesis and their practical implications are summarized in Table 1.

Table 1. Selected studies on prenatal physical activity and postpartum depressive symptoms

Ref.	Study design	Main physical activity exposure/intervention	Main mental health finding	Practical interpretation
[5]	Systematic review and meta-analysis	Prenatal physical activity, mixed types	Lower postpartum depression scores among active women	Supports the general preventive link between antenatal activity and postpartum mood
[11]	Cohort study	≥150 min/week MVPA during pregnancy	Lower risk of postpartum depressive symptoms	Provides a practical weekly activity threshold relevant to counseling
[12]	Longitudinal study	Steps, MVPA, sedentary time	Lower activity and more sedentary time linked to worse prenatal/postpartum symptom trajectories	Monitoring daily movement may matter, not only organized exercise
[7]	Systematic review and meta-analysis	Structured interventions during pregnancy	Better outcomes in programs lasting at least 12 weeks and reaching ≥450 MET-min/week	Dose and duration should be considered when designing prenatal programs
[8]	Meta-analysis	Yoga, aerobic, combined exercise	Several modalities appear beneficial; modality matters	Exercise prescription can be individualized

				rather than limited to one type
[9]	Network meta-analysis	Relaxation, mind-body, aerobic, aquatic interventions	Relaxation and mind-body exercise ranked highly	Interventions combining movement and stress regulation may be especially useful
[13]	Observational study	Total and domain-specific physical activity	Lower total, light, and moderate activity associated with higher odds of postpartum symptoms	Daily household and occupational movement may also carry protective value
[18]	Scoping review	Pregnancy-initiated prevention programs	Exercise was promising but not uniformly effective without sufficient support and adherence	Physical activity may work best when embedded in broader prenatal prevention
[14]	Randomized controlled trial	Aerobic exercise, 3 sessions/week during pregnancy	Reduced postpartum depressive risk without higher obstetric or neonatal risk	Strong direct support for antenatal exercise as preventive care
[10]	Systematic review and network meta-analysis	Comparative prenatal exercise modalities	Some combined and pregnancy-specific formats ranked highly	Future programs should consider modality, not only activity quantity

Source: author's own elaboration based on cited studies.

3.1. Dose and adherence

A recurring observation across the reviewed studies is that the relationship between physical activity and postpartum mental health is not explained simply by whether exercise is present or absent. More informative factors appear to be the amount of activity performed, the regularity with which it is maintained, and the extent to which a given form of movement can realistically be continued throughout pregnancy.

Several studies suggest that more favorable postpartum mood outcomes are linked to sustained activity levels that approximate current prenatal exercise recommendations. In particular, women who accumulated at least 150 minutes of moderate-to-vigorous physical activity per week during pregnancy were less likely to report postpartum depressive symptoms [11]. Similar conclusions were drawn from evidence syntheses showing stronger effects in interventions maintained for at least 12 weeks and reaching approximately 450 MET-minutes weekly [7,20]. Taken together, these findings indicate that consistency and sufficient volume may be more important than occasional or poorly sustained activity.

Adherence is equally important. In a scoping review of pregnancy-initiated postpartum depression prevention programs, exercise interventions were promising but less consistently effective than some psychoeducational or mindfulness-based approaches [18]. This suggests that the issue may not be exercise as such, but rather the way it is prescribed, supported, and maintained. A theoretically effective intervention may fail in practice if intensity is too low, duration too short, or participation too difficult to sustain.

This point is reinforced by newer narrative work. Lifestyle-related physical activity may be easier to implement than structured exercise because it can be integrated into routine daily life [15]. Exercise feasibility may also change across pregnancy as symptoms, fatigue, body mechanics, and obstetric considerations evolve [16]. Together, these findings suggest that the preventive effect of physical activity may depend not only on dose, but also on whether the program is realistically maintainable.

3.2. Exercise modalities

The growing comparative literature suggests that the type of exercise may influence mental health outcomes. Aerobic exercise remains the best-supported modality from randomized intervention studies. Regular aerobic exercise performed three times per week during pregnancy significantly reduced postpartum depressive risk in women with low-risk singleton pregnancies, without increasing adverse maternal or neonatal outcomes [14]. This provides strong support for aerobic training as a clinically realistic prenatal prevention strategy.

At the same time, newer evidence suggests that aerobic exercise is not necessarily the only or universally best option. Favorable effects have been reported for yoga, aerobic exercise, and combined exercise modalities in the prevention and treatment of perinatal depression [8]. Network meta-analysis ranked relaxation therapy and mind-body exercise highly among physical activity-related interventions for perinatal depression, followed by traditional aerobic exercise and aquatic sports [9].

The newest network meta-analysis adds further nuance. Prenatal exercise may prevent prenatal depression, prenatal anxiety, and postpartum depression, while some combined forms appear particularly promising [10]. In that ranking, maternal gymnastics plus yoga showed strong preventive potential for prenatal depression and anxiety, while water-based aerobic exercise combined with resistance training appeared promising for postpartum depression prevention [10]. Although such rankings should be interpreted cautiously, they suggest that interventions integrating movement with breathing, relaxation, or pregnancy-specific body awareness may offer additional value beyond energy expenditure alone.

Postpartum evidence points in a similar direction. Exercise-based interventions such as pram walking, yoga, and supervised mixed exercise showed favorable comparative results among women with postpartum depression [21]. Although those findings concern symptom reduction after delivery rather than prevention during pregnancy, they support the broader plausibility of movement-based mental health interventions across the perinatal continuum.

The literature also shows where the field is heading. A pilot randomized trial protocol described virtually delivered prenatal yoga for women with a history of depression [19]. Even though this is a protocol rather than a completed efficacy trial, it indicates a meaningful shift toward accessible, digitally delivered, higher-risk prevention strategies.

3.3. Sedentary behavior and everyday movement

An important shift in recent literature is the recognition that the absence of movement may be meaningful in its own right. The discussion is no longer limited to formal exercise programs, because several studies suggest that low daily activity and sedentary behavior are associated with worse postpartum mood outcomes.

Lower step counts, less moderate-to-vigorous physical activity, and more sedentary time during pregnancy were associated with more depressive symptoms across the prenatal and postpartum period [12]. These findings are important because they show continuity: movement patterns during pregnancy were associated not only with concurrent well-being, but also with symptoms after childbirth.

A broader perspective emerges from research on total and domain-specific physical activity. Lower total activity, lower light- and moderate-intensity activity, and lower household/care and occupational activity were associated with higher odds of postpartum depressive symptoms [13]. This suggests that everyday movement may matter alongside organized exercise sessions. For many pregnant women, particularly those who do not participate in structured programs, daily functional activity may therefore represent a realistic target for prevention.

This broader perspective fits well with the argument that lifestyle-related physical activity may be more achievable in routine practice than formal exercise [15]. From a preventive care perspective, this is highly relevant: if structured exercise is difficult to maintain, encouraging regular walking, reducing prolonged sitting, and supporting safe daily movement may still be meaningful.

The environmental context may also play a role. Greater exposure to street-view-based green space and tree coverage was associated with lower postpartum depression risk, with physical activity representing a plausible mediating pathway [17].

3.4. Implementation in prenatal care

The literature now provides enough evidence to move from general encouragement toward more practical implementation. One recurring conclusion is that physical activity should not be presented to pregnant women as an optional lifestyle enhancement only, but as a potentially important component of preventive prenatal care.

Implementation, however, must be realistic. Women differ in baseline fitness, obstetric history, symptoms, work patterns, social support, and confidence about what is safe during pregnancy. Exercise should be adapted across trimesters [16], while lifestyle-related activity may often be more sustainable than highly structured exercise [15]. These insights support an individualized approach: some women may benefit most from supervised aerobic sessions, others from yoga, walking, or reducing sedentary time.

The prevention literature also suggests that exercise may work best when not delivered in isolation. Pregnancy-initiated postpartum depression prevention programs often combined behavioral, psychoeducational, or mindfulness-oriented components, and exercise alone did not always show consistent superiority [18]. This supports a model in which physical activity is embedded in broader prenatal support, including reassurance, education, adherence support, and, when appropriate, mental health screening.

The role of newer delivery models may become increasingly important. Virtually delivered prenatal yoga may expand access for women with a history of depression [19], while structured aerobic training has been shown to be implementable safely in low-risk pregnancies [14].

Together, these studies suggest that implementation should be pragmatic, tailored, and compatible with routine obstetric care rather than dependent on one narrow exercise format.

4. Discussion

The evidence reviewed in this paper supports the view that physical activity during pregnancy may play a meaningful role in reducing postpartum depressive symptoms. What is particularly notable is that the association is visible across different levels of evidence, from cohort studies and randomized trials to systematic reviews and meta-analyses. At the same time, the newer literature suggests that the relationship should not be simplified to the statement that exercise helps. A more accurate interpretation is that the protective effect of prenatal activity seems to depend on dose, continuity, activity type, and the practical conditions under which it is performed.

One of the clearest developments in recent research is the growing importance of exercise quantity and sustainability. Several studies suggest that sporadic movement is less informative than regular participation maintained over time. Findings pointing to benefits at or above commonly recommended weekly activity levels, together with evidence favoring programs lasting at least 12 weeks, indicate that duration and consistency are likely to be clinically relevant rather than secondary details [7,11,20]. This shifts attention from isolated exercise recommendations toward the design of interventions that women can realistically maintain throughout pregnancy.

Another important observation concerns the diversity of exercise modalities. Aerobic exercise remains the most directly supported approach, especially in light of intervention-based evidence showing reduced postpartum depressive risk after structured antenatal training [14]. However, more recent comparative analyses indicate that movement practices integrating physical activity with breathing, relaxation, or emotional regulation may also be highly valuable [8–10]. This suggests that the effect of prenatal activity may not rely solely on energy expenditure, but also on mechanisms such as stress reduction, improved self-regulation, perceived competence, and bodily comfort during pregnancy.

The role of sedentary behavior deserves equal attention. A consistent pattern across recent observational studies is that lower activity levels and greater time spent sedentary are linked to less favorable depressive symptom trajectories [12,13]. This is clinically important because it broadens the preventive perspective. It implies that the goal is not only to encourage formal exercise sessions, but also to reduce prolonged inactivity and support regular daily movement.

For many women, especially those who are not willing or able to participate in structured programs, this may represent the most realistic preventive target.

The reviewed literature also suggests that implementation in prenatal care should be individualized rather than standardized. Pregnancy is not a uniform physiological condition, and the feasibility of different exercise strategies may vary according to trimester, symptom burden, previous activity habits, medical status, and psychosocial circumstances [15,16]. In this context, activity counseling should not be limited to general encouragement. More benefit is likely when recommendations are adapted to women's actual capacity, daily routine, and level of confidence regarding safe exercise.

Another point emerging from the literature is that physical activity may be most effective when embedded in a broader framework of support. Reviews of prevention programs indicate that exercise alone does not always outperform interventions that combine psychoeducation, mindfulness, behavioral strategies, or structured follow-up [18]. This does not weaken the role of exercise; rather, it suggests that physical activity may be one component of a stronger preventive model, especially when the goal is to support adherence and sustained behavioral change. In practical terms, prenatal care may benefit more from integrated guidance than from isolated exercise advice.

At the same time, the available intervention studies do not justify an overly simplified conclusion that any exercise program will automatically prevent postpartum depression. Their results vary depending on factors such as participant characteristics, adherence, program structure, and the way support is delivered [22]. Evidence from postpartum-focused reviews likewise suggests that physical activity may be beneficial, but its effectiveness is strongly influenced by accessibility, continuity, and the broader context in which women are expected to remain active [23]. This supports a more cautious interpretation: physical activity is promising, but its preventive value depends on how it is implemented.

A wider body of review-level evidence also supports the plausibility of this interpretation. Beyond the perinatal field, overviews of systematic reviews have shown that physical activity can contribute to reductions in depression, anxiety, and general psychological distress [24]. More specifically, review-of-reviews evidence concerning pregnancy indicates that exercise may have a favorable association with postpartum depression outcomes [25]. Although these findings do not resolve all questions about the most effective prenatal exercise model, they strengthen the rationale for treating movement as a relevant component of maternal mental ,health promotion.

The current review has several limitations. First, the included studies differ substantially in methodology, including exercise dose, activity measurement, intervention format, timing of outcome assessment, and diagnostic threshold for depressive symptoms. Second, some studies rely on self-reported activity, whereas others use objective measures, which complicates direct comparison. Third, the literature often discusses prevention and treatment in overlapping ways, even though these are not identical research questions. Finally, some of the newest publications reflect research direction rather than completed efficacy data, as in the case of protocol-based work on virtually delivered prenatal yoga [19].

Despite these limitations, the overall direction of findings remains relatively consistent. The evidence does not suggest that physical activity is a complete substitute for clinical treatment in women with established postpartum depression. It does, however, support the idea that prenatal activity may function as a realistic and meaningful preventive component within routine maternal care. From a public health perspective, this is important because activity-based strategies are comparatively accessible, scalable, and compatible with broader health promotion during pregnancy.

5. Conclusions

Physical activity during pregnancy appears to be a relevant and accessible strategy for lowering the risk of postpartum depressive symptoms.

The most convincing evidence concerns regular activity maintained over time, particularly when exercise reaches moderate intensity and is performed in sufficient weekly volume [7,11,20].

Although aerobic exercise has the strongest direct support from intervention studies, current literature indicates that yoga, mind-body exercise, relaxation-oriented approaches, and selected combined modalities may also offer meaningful benefits [8–10,21].

Recent findings further suggest that postpartum mental health is influenced not only by participation in structured exercise, but also by broader movement patterns during pregnancy. Low activity level, prolonged sedentary time, and insufficient daily movement are associated with less favorable mood outcomes after childbirth [12,13].

From a clinical standpoint, physical activity may be viewed not only as a general health recommendation, but also as a practical element that can be incorporated into preventive prenatal care. Future research should focus on clearer dose reporting, better adherence monitoring, trimester-specific exercise adaptation, and implementation models that can be integrated into real-world obstetric practice [15,16,18–20].

6. Disclosure

Supplementary Materials: None.

Author Contributions:

Conceptualization: Klaudia Czernic-Goławska, Agnieszka Przepióra, Aleksandra Wielogórska, Maria Orłowska;

Methodology: Agnieszka Kamińska, Jana Kozłowska, Maria Sanocka;

Formal analysis: Agnieszka Przepióra, Anna Żmigrodzka, Jana Kozłowska;

Investigation: Karolina Trojnar, Joanna Falana, Anna Kwiatkowska;

Resources: Anna Żmigrodzka, Joanna Falana, Maria Orłowska;

Writing – original draft preparation: Klaudia Czernic-Goławska, Karolina Trojnar, Anna Kwiatkowska, Maria Sanocka;

Writing – review and editing: Klaudia Czernic-Goławska, Agnieszka Kamińska, Anna Kwiatkowska, Maria Sanocka;

Visualization: Jana Kozłowska, Aleksandra Wielogórska, Maria Orłowska;

Supervision: Joanna Falana, Aleksandra Wielogórska, Agnieszka Przepióra;

Project administration: Karolina Trojnar, Anna Żmigrodzka, Agnieszka Kamińska.

All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: No new data were created or analyzed in this study. All information discussed in this review derives from published studies cited in the manuscript.

Acknowledgments: None.

Conflicts of Interest: The authors declare no conflict of interest.

Declaration of the use of generative AI and AI-assisted technologies in the writing process: In preparing this work, the authors used ChatGPT for the purpose of language refinement, structural editing, and bibliographic style checking. After using this tool, the authors reviewed and edited the content as needed and accept full responsibility for the substantive content of the publication.

References

1. Kołomańska-Bogucka D, Mazur-Biały AI. Physical activity and the occurrence of postnatal depression: A systematic review. Medicina (Kaunas). 2019;55(9):560. https://doi.org/10.3390/medicina55090560
2. Seth S, Lewis AJ, Galbally M. Perinatal maternal depression and cortisol function in pregnancy and the postpartum period: A systematic literature review. BMC Pregnancy Childbirth. 2016;16:124. https://doi.org/10.1186/s12884-016-0915-y
3. DiPietro L, Evenson KR, Bloodgood B, et al. Benefits of physical activity during pregnancy and postpartum: An umbrella review. Med Sci Sports Exerc. 2019;51(6):1292-1302. https://doi.org/10.1249/MSS.0000000000001941
4. Gallo-Galán LM, Gallo-Vallejo MA, Gallo-Vallejo JL. Physical exercise and pregnancy. Evidence based medicine (EBM). Semergen. 2022;48(6):423-430. https://doi.org/10.1016/j.semerg.2022.02.008
5. Nakamura A, van der Waerden J, Melchior M, Bolze C, El-Khoury F, Pryor L. Physical activity during pregnancy and postpartum depression: Systematic review and meta-analysis. J Affect Disord. 2019;246:29-41. https://doi.org/10.1016/j.jad.2018.12.009
6. Cai C, Busch S, Wang R, Sivak A, Davenport MH. Physical activity before and during pregnancy and maternal mental health: A systematic review and meta-analysis of observational studies. J Affect Disord. 2022;309:393-403. https://doi.org/10.1016/j.jad.2022.04.143
7. He L, Soh KL, Huang F, et al. The impact of physical activity intervention on perinatal depression: A systematic review and meta-analysis. J Affect Disord. 2023;321:304-319. https://doi.org/10.1016/j.jad.2022.10.026
8. Ji M, Li R, Xu Y. Meta-analysis of the effect of different exercise modalities in the prevention and treatment of perinatal depression. J Affect Disord. 2024;350:442-451. https://doi.org/10.1016/j.jad.2024.01.076
9. Shuai Y, Wu J, Li C, Li D. Effect of different physical activity interventions on perinatal depression: A systematic review and network meta-analysis. BMC Public Health. 2024;24(1):2076. https://doi.org/10.1186/s12889-024-19564-w
10. Dong J, Chi J, Lei EFC. Effects of prenatal exercise on prenatal and postpartum depression and anxiety symptoms: A systematic review and network meta-analysis. J Affect Disord. 2026;393(Pt B):120438. https://doi.org/10.1016/j.jad.2025.120438

11. Shakeel N, Richardsen KR, Martinsen EW, Eberhard-Gran M, Slinning K, Jenum AK. Physical activity in pregnancy and postpartum depressive symptoms in a multiethnic cohort. J Affect Disord. 2018;236:93-100. https://doi.org/10.1016/j.jad.2018.04.081
12. Baran J, Kalandyk-Osinko K, Baran R. Does prenatal physical activity affect the occurrence of postnatal anxiety and depression? Longitudinal study. Int J Environ Res Public Health. 2022;19(4):2284. https://doi.org/10.3390/ijerph19042284
13. Rovcanin M, Tomic A, Sipetic Grujicic S, et al. The impact of physical activity on the development of postpartum depression. Depress Anxiety. 2024;2024:6539734. https://doi.org/10.1155/2024/6539734
14. Saccone G, Buonomo G, Ammendola A, et al. Exercise in pregnancy and risk of postpartum depression. BJOG. 2026;133(2):211-217. https://doi.org/10.1111/1471-0528.70010
15. Opara J, Mehlich K, Szczygieł J. Recommendations for lifestyle physical activity and exercise during the perinatal period: A narrative review. Healthcare (Basel). 2026;14(1):122. https://doi.org/10.3390/healthcare14010122
16. Drobni Z, Sobel G, Balla D, et al. Physical activity during pregnancy and the postpartum period: Recreational and competitive sport. Orv Hetil. 2025;166(52):2055-2063. https://doi.org/10.1556/650.2025.33438
17, Sun Y, Molitor J, Benmarhnia T, et al. Association between urban green space and postpartum depression, and the role of physical activity: A retrospective cohort study in Southern California. Lancet Reg Health Am. 2023;21:100462. https://doi.org/10.1016/j.lana.2023.100462
18. Nguyen NT, Pengpid S. Proactive approaches to preventing postpartum depression in non-depressive pregnant women: A comprehensive scoping review. Front Glob Womens Health. 2025;6:1497740. https://doi.org/10.3389/fgwh.2025.1497740
19. Loree AM, Santarossa S, Coyne P, et al. Virtually-delivered prenatal yoga to prevent postpartum depression (PRYD) in women with a history of depression: Protocol for an exploratory pilot randomized controlled trial. Contemp Clin Trials. 2025;156:108032. https://doi.org/10.1016/j.cct.2025.108032
20. Fuenzalida P, Droppelmann G, Mahecha S, Feijoo F. Impact of exercise dose-response on maternal mental health and perinatal depression prevention: A systematic review and meta-analysis. Int J Public Health. 2025;70:1608940. https://doi.org/10.3389/ijph.2025.1608940

21. Wang J, Carru C, Sedda S, Fiori PL, Li Z, Chen Z. Comparative impact of exercise-based interventions for postpartum depression: A Bayesian network meta-analysis. Int J Gynaecol Obstet. 2024;165(1):67-75. https://doi.org/10.1002/ijgo.15091
22. Lewis BA, Schuver K, Dunsiger S, et al. Randomized trial examining the effect of exercise and wellness interventions on preventing postpartum depression and perceived stress. BMC Pregnancy Childbirth. 2021;21(1):785. https://doi.org/10.1186/s12884-021-04257-8
23. Fotso MN, Gonzalez NA, Sanivarapu RR, et al. Association of physical activity with the prevention and treatment of depression during the postpartum period: A narrative review. Cureus. 2023;15(8):e44453. https://doi.org/10.7759/cureus.44453
24. Singh B, Olds T, Curtis R, et al. Effectiveness of physical activity interventions for improving depression, anxiety and distress: An overview of systematic reviews. Br J Sports Med. 2023;57(18):1203-1209. https://doi.org/10.1136/bjsports-2022-106195
25. Marconcin P, Peralta M, Gouveia ÉR, Ferrari G, Carraça E, Ihle A, Marques A. Effects of exercise during pregnancy on postpartum depression: A systematic review of meta-analyses. Biology (Basel). 2021;10(12):1331. https://doi.org/10.3390/biology10121331