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Experiences of healthcare professionals providing physical activity advice to pregnant and postpartum women: a systematic review of qualitative evidence

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ABSTRACT

Objective

To synthesise global qualitative evidence on healthcare professionals' (HCPs) experiences, barriers, and enablers in delivering physical activity (PA) advice to pregnant and postpartum women.

Design

Systematic review of qualitative, mixed-methods and multi-method studies, using thematic synthesis. Study quality was assessed using the NICE critical appraisal checklist.

Data sources

Three electronic databases were searched up to 31 July 2024.

Eligibility criteria for selecting studies

Studies published after 2010 with a qualitative component exploring HCPs' perspectives on providing PA advice in maternity care. Only qualitative data were extracted and synthesised.

Results

Twenty-six studies from ten countries were included, involving midwives, obstetricians, physiotherapists, and other HCPs (sample sizes: 7-192), with experience ranging from 0.5 to 41 years. All studies were qualitative, with four using a multi-method study design. Eighteen studies focused on pregnancy, three on postpartum, and five on both. Seven themes and 24 subthemes were identified. These included HCPs' attitudes toward PA, variability in advice provision, and systemic and individual level barriers (e.g., time constraints, lack of training, limited confidence). Proposed solutions included formal PA education, institutional support, and improved resources. Fifteen studies were rated high quality and 11 moderate.

Conclusion

Most studies were from high-income countries, limiting generalisability to low-resource settings. The evidence base was predominantly focused on pregnancy, with limited data on postpartum PA advice. Across settings, HCPs face persistent barriers to delivering effective PA advice. Addressing these challenges through structured training and systemic support is essential to empower HCPs and promote maternal PA engagement.

Registration

PROSPERO ID: CRD42023483377

Keywords: Postpartum Period; Maternal Heath; Midwifery; Exercise; Delivery of Health Care; Health Promotion; Counselling.

WHAT IS ALREADY KNOWN ON THIS TOPIC

Physical activity (PA) during pregnancy and postpartum improves maternal health, yet advice from healthcare professionals (HCPs) is inconsistent, with both systemic and

individual barriers reported. Most research has focused on pregnancy rather than postpartum care, with limited qualitative synthesis across diverse HCP roles and settings.

WHAT THIS STUDY ADDS

This review synthesises qualitative evidence from ten countries and multiple HCP roles, identifying persistent systemic and personal barriers, including unconscious bias and inequities in advice provision. It also highlights practical solutions such as structured training, multidisciplinary collaboration, and improved resources tailored to both HCPs and women.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

Findings underscore the need for formal education, institutional support, and inclusive strategies to standardise PA advice in maternity care, informing future guidelines and quality improvement initiatives.

INTRODUCTION

Physical activity (PA) during pregnancy and the postpartum period is well recognised for its health benefits. For women without contraindications to PA, engaging in regular moderate-intensity PA is considered safe, and is associated with improved maternal or foetal outcomes [1, 2]. Maternal benefits include enhanced cardiovascular fitness, reduced risk of preeclampsia and gestational diabetes, as well as reducing symptoms of depression, aiding weight management, and not adversely affecting breastfeeding or injury risk [3-7].

The United Kingdom (UK) Chief Medical Officers (CMO) have provided PA recommendations for pregnant and postpartum women (defined as women up to 12 months postpartum) since 2017 and 2019 respectively [8]. Women without contraindications should aim for at least 150 minutes of moderate-intensity activity weekly. Muscle strengthening activities are recommended twice weekly, and postpartum pelvic floor exercises are also encouraged. Similar guidelines have been developed by the World Health Organisation (WHO) in 2020 [9] and exist globally, including in the United States (US), Canada, Spain, Brazil, and Australia [10].

Although specific guidelines exist, many pregnant and postpartum women do not meet PA recommendations and miss out on associated benefits [11, 12]. Barriers to PA include fatigue, safety concerns, childcare, cultural norms, time constraints, low confidence, and limited access to resources [13, 14]. However, while other forms of PA decline, walking time remains consistent during pregnancy and postpartum, suggesting walking may be a sustainable and preferred form of activity [15].

Pregnancy and postpartum offer opportunities for lasting lifestyle change due to increased motivation, often driven by a desire to support the baby's health, and regular HCP contact [16]. HCPs involved in the care of pregnant and postpartum women include, but are not limited to, midwives, obstetricians, general practitioners (GPs), physiotherapists, nurses, and health visitors [17, 18].

Promoting PA to patients may involve advice giving, a one-way impartment of guidance and recommendations, but may also involve counselling, a two-way conversation with opportunity to identify and tackle issues [19]. Currently, advice-giving dominates PA discussions, with both patients and HCPs reporting that PA advice during the perinatal period is limited [20-24]. Studies show women often find PA discussions minimal, inconsistent, and ineffective, and express a desire for more support [20-23]. From the HCP perspective, a scoping review of 13 studies found that while HCPs recognise their role in promoting PA, both advice and counselling are limited, especially postpartum [25, 26].

Despite challenges, PA guidance from HCPs improves uptake and behaviour change [20]. PA counselling has also been shown to significantly increase PA levels during pregnancy; for example, a 2020 service evaluation found that motivational interviewing by HCPs led to increased PA in women with GDM [27].

While interest in PA during the perinatal period is increasing, our comprehensive literature search did not identify any systematic reviews synthesising qualitative evidence across HCPs regarding provision of advice to both pregnant and postpartum women. Qualitative research provides in depth insights into the attitudes, beliefs, and contextual factors influencing HCPs' practices, which are difficult to capture through quantitative methods. This approach allows for a deeper understanding of HCPs' experiences. Moreover, although studies have started to include postpartum women, research regarding PA advice for this group is still lacking. A recent qualitative review by Talbot et al. (2024) [28] also highlighted that midwives often feel reluctant to initiate behaviour change conversations, underscoring the need for further exploration of barriers and facilitators to PA advice provision across maternity care. A review is therefore needed to help identify common barriers and proposed solutions across the evidence base, providing a comprehensive understanding to inform policy and guidelines. Insights can help ensure recommendations are practical, evidence-based, and aligned with real-world HCPs' experiences. Given the diversity of HCP roles in maternity care, each with unique interactions and challenges, a synthesis can support more inclusive and effective strategies across healthcare settings.

Therefore, this review aimed to assess and synthesise current qualitative evidence on HCPs' provision of PA advice to pregnant and postpartum women, identifying gaps and evaluating current practices, challenges, and solutions.

METHODS

Study Design

We conducted a systematic review, selected due to the focused nature of the research questions and the aim to synthesise findings to inform clinical and policy decision making. A scoping review was considered but deemed too broad for our objectives.

We focused on qualitative, mixed-methods, and multi-method studies that included a qualitative component. In line with established definitions [29], we distinguished between mixed-methods (which integrate qualitative and quantitative data through a unified analytic framework) and multi-method studies (which use both data types but analyse them separately). Only the qualitative data were extracted and synthesised.

Reporting was informed by the "Enhancing transparency in reporting the synthesis of qualitative research" (ENTREQ) statement [30] and PRISMA 2020 guidelines for systematic reviews [31]. The review protocol was prospectively registered with the International Prospective Register of Systematic Reviews (PROSPERO) [32] in December 2023 (ID: CRD42023483377, https://www.crd.york.ac.uk/PROSPERO/view/CRD42023483377).

Eligibility criteria, information sources and search strategy

The inclusion criteria were defined by the Population, Context, Outcome (PCO) framework [33]. The population was any HCP involved in the care of pregnant and postpartum women (from any country); the context was the provision of any form of PA advice/promotion to pregnant and postpartum women, in any healthcare setting; and the outcomes were HCPs' knowledge, views, experiences, barriers and solutions regarding providing PA advice. Additional inclusion criteria were that all studies were required to be qualitative in design (including multi-methods studies with a qualitative component), published in English, and conducted from 2010 onwards. The 2010 cutoff was chosen to capture early shifts in awareness and practice, even before formal guidelines. A similar approach was used by Yang et al. [34], who included only studies published from 2010 onwards in their review of clinical PA guidelines in pregnancy. We excluded quantitative-only studies, other systematic reviews, and conference proceedings.

A search strategy (online supplementary material 1) was developed using key PCO concepts and synonyms. Truncated terms broadened the search. Three databases (MEDLINE, PubMed, Maternity and Infant Care Database (MIDIRS)) were searched independently by MM and ND up to 31 July 2024. These databases were selected for their relevance to maternity care and health behaviour research. Results were exported to EndNote V20, de-duplicated automatically and manually. Grey literature was not included in this review.

Study selection process

The study selection process is summarised in a PRISMA flowchart (see Figure 1) [31]. The screening process involved two stages. First, titles and abstracts screening were divided equally between two reviewers (MM and ND), and were reviewed against the inclusion criteria, with any irrelevant reports excluded. In the second stage, MM and ND independently screened full texts, documenting reasons for exclusion. Discrepancies were resolved through discussion or consultation with the principal investigator (CN). At the full text screening stage, we did not contact authors of primary studies to clarify eligibility. A list of full-text reports excluded after eligibility assessment, along with reasons for exclusion, is provided in the online supplementary material 2. No automated or semi-automated tools (e.g. machine learning-based screening) were used in the study selection process.

Data collection process and risk of bias assessment

The data extraction form collected data regarding the methodology (study design, country, sample size, type of analysis) and participant characteristics (demographic details, type of HCP, setting of work, patient population the HCP provides care to). From the results sections of included studies, we extracted all text relevant to the research questions, including HCPs' views, experiences, perceived barriers, and proposed solutions related to PA advice provision. Data extraction was divided between two reviewers (MM and ND), with each extracting data from half of the studies. Discrepancies or uncertainties were discussed with the principal investigator (CN). Studies were quality assessed in line with the National Institute for Health and Care Excellence (NICE) critical appraisal checklist for qualitative research [35]. This tool was chosen over others due to its development and use in healthcare research specifically [35]. The checklist includes 14 questions assessing the appropriateness of the theoretical approach, study design, data collection, trustworthiness, data analysis, and the richness and reliability of the findings, with a grading system of '++' representing high quality; '+' representing moderate quality; and '-' representing low quality. Two authors (MM and ND) independently assessed quality, resolving differences by consensus. No studies were excluded based on quality.

Synthesis methods

The results sections from each included study were copied into Microsoft Word to be analysed. Inductive thematic analysis was informed by methods outlined by Thomas et al. [36] and performed collaboratively to allow discussion[36]. This involved three stages: (1) line-by-line interpretation of text and data within the results section, with any text relevant to the review research questions assigned a code, and a descriptive label; (2) grouping codes into descriptive subthemes; and (3) generating analytical themes that interpreted and extended beyond the original study findings. When studies examined other health behaviours (e.g. nutrition), only data explicitly related to PA and attributable to HCPs were coded.

Microsoft Excel was used as a codebook to compile a list of codes throughout the process. Two authors (MM and ND) coded half the studies each, then swapped to apply the critical friend approach [37], encouraging reflexivity and discussion. As inter-rater reliability is increasingly debated in qualitative research, this approach provided a more reflective and collaborative alternative for enhancing rigour [37]. This process yielded 329 codes, revealing eight themes and 43 subthemes, which fell to seven themes and 24 subthemes after discussion with co-authors CN and DV. Themes, subthemes, and relevant data are summarised in tables. A sample of the codes used, along with a description of the coding process, is provided in the online supplementary material 3.

Equity, diversity, and inclusion statement

The search included studies from diverse countries and healthcare settings, limited only by English language. Included studies represented a range of healthcare roles and contexts, though most were from high income countries. Our multidisciplinary author team comprised six women and one man, spanning junior, mid-career, and senior researchers. Disciplines represented included medicine (two final year medical students, one consultant and one registrar in sport and exercise medicine), midwifery, public health, and nutrition and physical activity research, including perinatal health. Team members represented diverse ethnic and cultural backgrounds, including British, Danish, Indian, South African, and Sri Lankan heritage.

RESULTS

Study selection

Out of 10,894 records (title and abstract) identified, 5,261 duplicates and two retracted records were removed. After screening 5,631 titles and abstracts, 236 full-text reports were

assessed. Of these, 208 were excluded for reasons such as irrelevance to HCPs' perspectives, lack of qualitative data, or insufficient findings. Ultimately, 26 studies were included represented by 26 reports (see Figure 1).

Study characteristics

The studies involved a variety of HCPs from ten countries, mostly in the global north (UK, US, Sweden, Australia, Finland, France, and Canada), with sample sizes of seven to 192 participants (table 1). Of the 26 studies, 17 had national public health PA guidelines for pregnant women in place at the time data collection took place, while only six had guidelines for postpartum women at the time of data collection. Twenty-three studies were purely qualitative, with three using a multi-method study design with qualitative components. Most studies used semi-structured interviews (*k*=21), some used questionnaires including free-text sections (*k*=3), and some used focus groups (alone (*k*=2), or alongside semi-structured interviews (*k*=2)). Fifteen (58%) studies were rated high quality, and 11 (42%) moderate. For further characteristics of study methodologies, including sampling method and analysis approach, see online supplementary material 4.

257 ***Table 1. Study settings, key methodologies and quality appraisal***

Identification		Setting			Methodology			Quality appraisal
ID	**Reference**	**Country**	**Pregnancy PA guidelines***	**Postpartum PA guidelines***	**Study design**	**Sample size**	**Qualitative data collection method(s)**	**Grade of quality**
1	Cheyney et al., 2010 [38]	US	Yes	No	Qualitative	24	Interview	Moderate quality (+)
2	Christenson et al., 2020 [39]	Sweden	Yes	Yes	Multi-method (survey + free-text)	274	Questionnaire including free-text question	High quality (++)
3	Davenport et al., 2023 [40]	US	Yes	No	Qualitative descriptive	11	Semi-structured interviews	High quality (++)
4	De Vivo and Mills, 2019 [24]	UK	No	No	Qualitative	10	Semi-structured interview	High quality (++)
5	Duthie et al., 2013 [41]	US	Yes	No	Qualitative	7	Semi-structured interview	High quality (++)
6	Guthrie et al., 2020 [42]	Australia	Yes	No	Qualitative	66	Focus groups	High quality (++)
7	Issakainen et al., 2020 [43]	Finland	No	No	Qualitative	11	Group interview	Moderate quality (+)
8	Kilpatrick et al., 2024 [44]	Australia	Yes	No	Qualitative descriptive	14	Semi-structured interview	Moderate quality (+)
9	Knight-Agarwal et al., 2023 [45]	Australia	Yes	No	Qualitative	11	Semi-structured interview	Moderate quality (+)
10	Lindqvist et al., 2014 [46]	Sweden	Yes	Yes	Qualitative	41	Focus group discussions	High quality (++)
11	Lucas et al., 2020 [47]	England and Wales	Yes	No	Qualitative	17	Semi-structured interview	Moderate quality (+)
12	McLellan et al., 2019 [48]	Scotland	No	No	Multi-method (TDF framework: interviews + survey free-text)	11	Semi-structured interview and questionnaire including free-text question	High quality (++)
		UK	No	No	Multi-method (TDF framework: interviews + survey free-text)	505 (61 free-text comments)	Questionnaire including free-text question	High quality (++)
13	McParlin et al., 2017 [49]	UK	No	No	Multi-method (TDF framework: interviews + survey free-text)	192 (at least 110 free-text comment)	Questionnaire including free-text question	Moderate quality (+)
14	Mitra et al., 2024 [50]	UK	Yes	Yes	Qualitative	10	Semi-structured interview	Moderate quality (+)

15	Nagpal et al., 2021 [51]	US	Yes	No	Qualitative descriptive	9	Semi-structured interview	Moderate quality (+)
16	Olander et al., 2019 [52]	Sweden	Yes	Yes	Qualitative	16	Semi-structured interview	High quality (++)
17	Pennington et al., 2017 [53]	Australia	No	No	Qualitative	18	Semi-structured interview	Moderate quality (+)
18	Peralta et al., 2022 [54]	Australia	Yes	No	Qualitative	10 (2 HCPs, 8 non-HCPs)	Semi-structured interview (constructivist approach)	High quality (++)
19	Pico et al., 2024 [55]	Mexico	Yes	Yes	Qualitative	12	Semi-structured interview	High quality (++)
20	Schuft et al., 2023 [56]	France	Yes	Yes	Qualitative	37	Semi-directive interview	High quality (++)
21	Sinha et al., 2022 [57]	US	Yes	No	Qualitative	30	Focus groups and semi-structured interview	Moderate quality (+)
22	Talbot et al., 2018 [58]	UK	No	No	Qualitative	18	Semi-structured interview	High quality (++)
23	Tinius et al., 2021 [59]	US	Yes	No	Qualitative	11	Focus groups and semi-structured interview	High quality (++)
24	van der Pligt et al., 2011 [60]	Australia	No	No	Qualitative descriptive	28	Semi-structured interview	High quality (++)
25	Whitaker et al., 2016 [61]	US	Yes	No	Qualitative	11	Semi-structured interview	Moderate quality (+)
26	Willcox et al., 2012 [62]	Australia	No	No	Qualitative descriptive	15	Semi-structured interview	High quality (++)

**National public health PA guidelines in place at the time of study data collection. CMO, Chief Medical Officer; HCP, healthcare practitioner; GP, general practitioner; PA, physical activity; TDF, Theoretical Domains Framework; UK, United Kingdom; US, United States.*

Participant characteristics

Fourteen studies focused on a single HCP type, while twelve included multiple roles (table 2). Eighteen (69%) studies focused on advice for pregnant women, three (12%) on postpartum, and five (19%) on both. Settings varied widely, including hospitals, community clinics, and private practices. Years of work experience were reported in 20 studies, with a wide range of experience levels described. Gender was reported in 23 studies, all showing a female majority. Ten studies included participant age, and only three reported HCPs' own physical activity levels (see Supplementary material 4 table 1 for additional study characteristics).

269 ***Table 2. Key characteristics of healthcare professionals in included studies***

Identification		Participant characteristics			
ID	**Reference**	**Type of HCP**	**Work experience (years)**	**Setting of work**	**Patient group(s)**
1	Cheyney et al., 2010 [38]	Obstetrics and gynaecology physicians (n=8), certified nurse midwives (n=7), direct entry midwifes (n=9)	Range: 1 to 30	Community, birth centres, hospital	Pregnant
2	Christenson et al., 2020 [39]	Midwives (n = 205), obstetricians (n = 69)	Mean ± SD: 14.8 ± 10.0. Range: 5 to 41	Antenatal clinics	Pregnant
3	Davenport et al., 2023 [40]	Physicians (n=3), physiotherapists (n=8)	NR	Healthcare for elite level athletes	Pregnant and postpartum
4	De Vivo and Mills, 2019 [24]	Community midwifes (n=10)	Mean ± SD: 16.5 ± 11.55). Range: 5 to 37	Community	Pregnant
5	Duthie et al., 2013 [41]	Obstetrician (n=7)	Range: 2 to 20	Antenatal and postnatal clinics	Pregnant and postpartum
6	Guthrie et al., 2020 [42]	Midwives, student midwives and Indigenous Health workers	NR	Tertiary hospital, maternity outpatient department	Pregnant
7	Issakainen et al., 2020 [43]	Public Health nurses (n = 11)	Mean: 14. Range: 0.5 to 30	Antenatal clinics	Pregnant with GDM
8	Kilpatrick et al., 2024 [44]	Obstetricians (n=5), midwives (n=9)	Midwives mean: 15. Range: 2 to 38. Obstetricians mean: 10. Range: 5 to 18	Antenatal clinic, public hospital, referral centre for high-risk pregnancies	Pregnant
9	Knight-Agarwal et al., 2023 [45]	Midwives (n=3), midwife/gynaecological nurse (n=1), obstetrician/gynaecologist (n=1)	>20 (n=2), <20 (n=3)	GP practice and hospital	Pregnant
10	Lindqvist et al., 2014 [46]	Midwives (n=41)	Range: 2 to 35	Antenatal clinics	Pregnant
11	Lucas et al., 2020 [47]	Family nurses (n=6), midwives (n=5), health visitors (n=6)	Family nurses' range:1 to 10. Midwives' range:1.5 to 9. Health visitors range:4 to 16	NR	Pregnant and postpartum women < 20 years
12	McLellan et al., 2019 [48]	Midwives (n=10), senior Charge Midwife (n=1)	Mean: 22. Range: 3 to 31	Community	Pregnant
		Midwifes (n=47), student midwives (n=14)	Mean: 17. Range: 1 month to 40 years	NR	Pregnant
13	McParlin et al., 2017 [49]	Midwives (n=192)	<2: n= 17, 3-5: n=22, 5-10: n=32, >10: n=121	Tertiary referral centre, district general hospital, community (each from a different Trust)	Obese pregnant
14	Mitra et al., 2024 [50]	Midwives (n=10)	Median ± IQR: 14.5 ± 16.25. Range: 1 to 35	Community, secondary, combination, leadership, corporate	Pregnant and postpartum

15	Nagpal et al., 2021 [51]	Obstetricians (n=8, including 3 residents in their second year of residency training), nurse practitioner /certified midwife (n=1)	Mean ± SD: 11.0 ± 8.0	NR	Pregnant
16	Olander et al., 2019 [52]	Midwives (n=16)	Mean: 20. Range: 2 to 34. Mean experience as antenatal midwife: 12 years. Range: 1.5 to 33	Antenatal clinics	Pregnant
17	Pennington et al., 2017 [53]	GPs (n=18)	"The majority of GP interviewees had more than 5 years working experience as a GP"	Intrapartum care, shared-care, non-obstetric care	Postpartum women after GDM
18	Peralta et al., 2022 [54]	Women's health physiotherapist (n=2)	NR	Clinical, not-for-profit organisations, small businesses	Postpartum
19	Pico et al., 2024 [55]	Family medicine physicians (n=4), gynaecologists (n=2), family medicine nurses (n=2), nutritionist (n=1), social workers (n=2), health promoter (n=1)	Range: 3 to 25	Antenatal clinics	Pregnant
20	Schuft et al., 2023 [56]	Midwives (n=20), gynaecologists (n=10), obstetricians (n=7)	Mean since graduation: 23. Range: 3-39	Public hospitals, public maternal and child protection centres, private practice sector	Pregnant
21	Sinha et al., 2022 [57]	Physicians (n=11), nurses (n=5), nurse practitioners (n=7), physician assistants (n=3), and registered dietitians (n=4)	0-9 (n=18), >10 (n=12)	OB/Gyn, family practice, internal medicine	Postpartum women after GDM
22	Talbot et al., 2018 [58]	GPs (n=18)	NR	Primary Care	Postnatal
23	Tinius et al., 2021 [59]	Obstetrician/MD (n=7), Certified Midwife (n=2), Postpartum Nurse (n=1), (Women's Health Physical Therapist (n=1)	NR	NR	Pregnant and postpartum
24	van der Pligt et al., 2011 [60]	GPs (n=28)	NR	Antenatal clinics	Pregnant
25	Whitaker et al., 2016 [61]	Attending physicians (n=5), nurse practitioners (n=1), and residents (n=5)	<3 (n=5), 3–10 (n=1), 10–20 (n=2), >20 (n=3)	Antenatal clinics	Pregnant
26	Willcox et al., 2012 [62]	Midwives (n=15)	Average: 21. Range: 3 – 37	Hospital antenatal clinics, community outreach clinics, midwifery continuity clinics, shared care (joint GP and antenatal clinic), perinatal clinic, family birthing unit	Pregnant

CMO, Chief Medical Officer; HCP, healthcare practitioner; GDM, gestational diabetes mellitus; GP, general practitioner; n, number; NR, not reported; SD, standard deviation; UK, United Kingdom; US, United States.

Synthesis results

Themes and subthemes

Thematic analysis revealed seven main themes and 24 subthemes (see Figure 2). For clarity, these are grouped into four overarching categories: (1) HCPs' views on PA; (2) variable provision of PA advice; (3) barriers to PA advice (including inequalities, extrinsic, and intrinsic barriers); and (4) solutions to improve PA advice (at both systemic and individual level). Each theme is supported by illustrative quotes and summarised in tables. Quotes taken directly from participants (rather than authors' comments) are italicised, placed in quotation marks, and accompanied by study ID, HCP role (if available), and country in brackets.

Healthcare professionals' views on physical activity

HCPs' views on PA are summarised by four subthemes (table 3). Views were overall positive, with HCPs appreciating the importance and benefits of PA for pregnant and postpartum women. Pregnancy was considered a good time to provide PA advice as motivation to adopt healthy lifestyle behaviours may increase. Views on postpartum PA advice provision were less clear, with varying attitudes. Providing PA advice during pregnancy and the postpartum period was considered within a HCP's role, though some participants highlighted that women are also responsible for their own health.

Table 3. Subthemes for 'HCPs' views on PA'

Subtheme	Example data
HCPs appreciate the value of PA during pregnancy and the postpartum period	*"I think it's something that's valuable for pregnant women, and it's something that we should be promoting to everybody."* [14, midwife, UK] *"I think probably for mental health reasons, it's probably the most beneficial. Certainly, we'd want folks to prioritize physical activity during pregnancy such that they can have a healthy gestational weight gain. As you know, kind of appropriate for their weight when they begin pregnancy. But I think that we all know that physical activity is really important for mental health as well."* [15, obstetrician, US] Most healthcare providers suggest that moving early and often will facilitate an improved recovery after delivery. [23, France]
Pregnancy is a good time for providing PA advice	Midwives see pregnancy as a time that is "*ripe for change*." [1, midwife, US] The encounters were often considered as golden opportunities to promote lifestyle changes and to increase physical activity for most pregnant women. [10, midwife, Sweden] *"A lot of people want to kind of be a bit healthier once they're pregnant because it's not just prioritizing themself anymore, they're kind of thinking about the baby and themselves as a mum… And so, I do think kind of just that point of coming from a health professional, at a time when you really*

	do wanna sort of like look after yourself, is gonna be a bit more poignant." [14, midwife, UK]
Uncertainty on the postpartum period as a time for PA advice	*"I think it is just like how recently they've had a baby that it's just not appropriate."* [14, midwife, UK] Another obstetrician described how it is easy to motivate pregnant women to be active, but motivation decreases during the postpartum period, suggesting an important opportunity to make an impact on lifestyles during this critical time period. [23, obstetrician, US]
The role of the HCP	*"I also feel strongly that a GP should, erm, should be an advocate of a healthy lifestyle, so you should be the right weight for your height, you shouldn't smoke, you shouldn't drink too much alcohol, you should exercise regularly."* [22, GP, UK] *"Sometimes it's the women's perception, because they've got to take responsibility themselves at some point, but they seem to think the midwife will do it all."* [4, midwife, UK]

HCP, healthcare practitioner; GP, general practitioner; PA, physical activity.

Variable provision of physical activity advice

The provision of PA advice varied significantly and is reflected by four subthemes (table 4). Some HCPs were confident in providing a consistent level of PA advice. However, there was an overall lack of PA advice. In pregnancy, PA was sometimes not discussed or was limited to a 'tick-box' activity. Postpartum PA advice was also limited, even more so than in pregnancy, and often focused solely on pelvic floor exercises. This variety also translated to the type of advice given, with inconsistencies between HCPs, with some HCPs recommending only 'gentle' exercise, and others 'unlimited' range of activities.

Table 4: Subthemes for 'Variable provision of PA advice'

Subtheme	Example data
Successful provision of PA advice	*"I would make sure that I discussed it with everybody, as just sort of part of discharge home from hospital, and ongoing care of themselves."* [14, midwife, UK] *"I find it very easy because I am confident and competent in the subject I'm discussing."* [13, midwife, UK]
Overall lack of PA advice in pregnancy	*"Umm, so I think it's more on, I don't know if it is from area or individual midwives, but there is overall a lack and when I talk to the girls in the unit about, umm, their bookings, umm, I think everyone seems to focus on a different area. Umm, my work before was screening so I do screening, but no one seems to focus really on exercise."* [4, midwife, UK] *"In the case of a normal pregnancy for a woman who is in good health with established exercise activities and a normal context of life - as a working woman and who has normal weight. In that case I don't speak of exercise."* [23, gynaecologist, France]
Overall lack of postpartum PA advice	Consistent with their patients, healthcare providers admitted that they seldom provided exercise education during or after pregnancy as part of routine care. [23, France] Many midwives noted that postpartum PA discussions focused mainly, or occasionally solely, on pelvic floor exercises. [14, midwife, UK]

Inconsistent approach to PA advice	It appears that midwives are pushing different agendas depending on their area of interest or speciality. [4, midwife, UK] These excerpts show the extent of variety between discourses surrounding safe or appropriate exercise, with perceptions of appropriate exercise ranging in spectrum from only 'gentle' activities to an unlimited range of sport and exercise activities. [20, France]

PA, physical activity UK, United Kingdom.

Barriers to physical activity advice provision

Barriers were grouped into three main themes, inequalities, extrinsic, and intrinsic, each with associated subthemes. These are summarised in Table 5, which presents the full thematic structure.

Inequalities in physical activity advice

Provision of PA advice varied across patient groups, creating inequalities in care. Though some patient groups, such as obese, sedentary, those who delivered by caesarean section were targeted to receive PA advice, other groups were conversely neglected. This included women with complex health issues and women perceived to be in 'good shape'. Additionally, the provision of advice to younger, socioeconomically disadvantaged, and migrant women, was noted to be limited due to preconceived ideas held by the HCPs. These assumptions included beliefs that such women were less interested in PA, unlikely to adhere to recommendations, or culturally disengaged from being active.

Extrinsic barriers

Three subthemes were found regarding extrinsic barriers HCPs face, which related to workplace, environmental, and cultural factors. Time constraints were common, with PA often deprioritised in consultations. Many HCPs reported receiving no formal training on PA, relying instead on self-directed learning, which contributed to limited knowledge and confidence, particularly when advising women with specific conditions (obesity, GDM). Awareness of existing PA guidelines for pregnancy and the postpartum period was low, even in studies conducted after guideline publication, and available resources were often seen as vague or insufficient.

Intrinsic barriers

Three subthemes emerged reflecting personal barriers an individual HCP may face. Many HCPs expressed concerns that providing PA advice may affect rapport because these conversations can be sensitive. Additionally, some felt their own body image or personal PA level affected their provision of PA advice. From the patient perspective, barriers included

limited understanding of PA benefits, safety concerns, cultural expectations, and financial difficulties.

339 ***Table 5: Barriers to physical activity advice provision***

Main theme: Inequalities in PA provision	
Subtheme	Example data
Targeted groups	*"The issue is especially important for overweight, obese and diabetic patients. They need to be encouraged to be active (...) If they are obese."* [20, midwife, France] *"The people who are going to be couch potatoes and don't have a job, I tell them they need to get up and walk every day. They are the ones at higher risk."* [1, obstetrician, US]
Neglected groups	Support around maintaining a healthy diet, being physically active, or achieving healthy weight gain was typically prioritised less or not at all by clinicians for women with complex health or psychosocial issues. [8, Australia] *"The people whom you can see are already thin and in good shape, I don't necessarily say anything about (exercise)."* [20, gynaecologist, France] *"Women who have had a Caesarean section are given a very basic leaflet about exercises to do after they've had a section. But I don't think they get any sort of leaflet around exercises to do postnatally if they've had a normal birth."* [14, midwife, UK]
Preconceived ideas affecting provision	Other healthcare professionals across the professions put less emphasis on to moving because of a perceived lack of interest from young women, "*It's a very rare question I get asked by teenagers about fitness and activity."* [11, midwife, UK] *"We have the same profile of low socioeconomic women who will eat poorly, who won't move, who will already be overweight before (pregnancy). It'll be the disadvantaged socioeconomic backgrounds that are… not the right profiles for sport."* [20, gynaecologist, France] Migrant and marginalized women are as such often depicted as 'mothers' situated in domestic spaces, culturally immune to the reception of public health messages regarding exercise. [20, France]
Main theme: Extrinsic barriers	
Subtheme	Example data
Time constraints	''*Because of the time limitations other aspects of care do take priority."* [13, midwife, UK] The participants negatively viewed their working conditions; for example, they had less time to fulfil their commitments and less time to provide satisfactory counselling. [10, midwife, Sweden] *"There's not that much time antenatally there's not, probably even less postnatally."* [14, midwife, UK]

Lack of training and knowledge	The lack of knowledge in this area also resulted in a lack of confidence meaning that only basic advice could be provided to pregnant women. [4, midwife, UK] One midwife (not working in a specialist role) explained, her study was largely 'self-directed' and more about informal knowledge. [11, midwife, UK] Overall, none of the clinicians interviewed recalled having undertaken pre-clinical or professional development training around nutrition in pregnancy, nor physical activity, weight, or behaviour change strategies. [8, Australia] *"I don't really have enough knowledge to give advice to obese pregnant women at any time."* [13, midwife, UK]
Resource limitations	*"To be completely honest with you, I wouldn't know what or where they were . . . I tend not to read guidelines."* [9, obstetrician gynaecologist, Australia] In contrast to the dietary guidelines, guidelines for PA were described by the HCPs as limited, unspecific, or non-existent. This was expressed as a barrier to the promotion of PA. [9, Mexico] A problem frequently cited by midwives was lack of resources, including time, leaflets and referral pathways. [13, midwife, UK]
Main theme: Intrinsic barriers	
Subtheme	Example data
Concerns over rapport	Concerns were also raised about causing offence, or harming their relationship with the woman. [13, midwife, UK] When it comes to advising pregnant women regarding physical activity, midwives also fear not giving the right information, disappointing, upsetting, or potentially offending pregnant women. [4, midwife, UK]
Impact of HCP body habitus	*"So no, and I don't do any exercise either so I don't want to be giving this information to other people when I don't do it myself."* [6, Australia] *"Because I'm quite petite myself, I'd have to be careful that wasn't intimidating the patient who maybe had a raised BMI. Because you know I've had comments made you know you're not pregnant and you've probably got quick metabolism, and I look at cookie and put on 5 pounds."* [14, midwife, UK]
Impact of a woman's background	*".....there's a feeling that exercise during pregnancy may be harmful, particularly in early pregnancy, and to encourage them to keep exercising, I think, is also helpful."* [24, GP, Australia] *"A lot of them don't really have the time or money to formally exercise."* [25, doctor (unspecified), US]

340 *BMI, body mass index; GP, general practitioner; HCP, healthcare practitioner; PA, physical activity, UK, United Kingdom; US, United States.*

Solutions to improve physical activity advice

Solutions proposed by HCPs were grouped into two main themes: those requiring systemic change and those implementable at the individual HCP level. These are summarised in Table 6, which outlines all associated subthemes.

Solutions to be implemented at a systemic level

Four subthemes were identified. The need for training was discussed and suggested at both an undergraduate level and a postgraduate level (mandatory training, study days). Taking a multidisciplinary approach was also discussed, with suggestions including joint clinics, improved referral pathways, exercise specialist involvement, and allocating PA clinical champions. Improvements in resources were suggested, including more specific guidance (e.g. sample exercise plans) and better dissemination. Enhancing service accessibility through free, subsidised, or home-based programmes, was also proposed to reduce barriers for women.

Solutions to be implemented at an individual level

Three subthemes emerged. HCPs highlighted the importance of personalised advice tailored to women's circumstances. Integrating PA discussions into mental health conversations was seen as a practical entry point. Taking a positive and sensitive communication style was commonly recommended to protect the HCP-patient relationship, and PA was encouraged to be discussed consistently throughout pregnancy.

362 ***Table 6: Solutions to improve physical activity advice***

Main Theme: Solutions to be implemented at a systemic level	
Subtheme	**Example data**
Need for training	Having identified lack of knowledge and training as a potential barrier in providing effective exercise advice and guidance, midwives suggested that training could be facilitated through one of their mandatory study days or as an optional online Continuous Professional Development (CPD) activity. [4, midwife, UK] *"If student midwives are having a lecture on gestational diabetes, maybe incorporating how physical activity can really support with gestational diabetes symptoms."* [14, midwife, UK]
Need for a multidisciplinary approach	*"We need that collaboration between women's health, pelvic health, physios, and exercise professionals. It's starting to happen, but it could be better, definitely could be better."* [18, physiotherapist, Australia] *"I think what would be really interesting would be to allocate a champion for each area. So if we had a obstetrician who was a champion for physical activity and then if we had a physio who then worked, and we brought together like a collaborative working group, then if we had a fitness expert and then we had say a few members from the community midwives team, a member from the antenatal clinic where they all have the physical activity at their kind of priority, then that information could be, that could be a collaborative working group."* [14, midwife, UK]
Improving resources for HCPs	*"Can we give more concrete advice, like actual meal plans, like you know and a suggested exercise regime and a suggested, affordable, meal plan?."* [6, Australia] *"I think if I had an easily accessible document or repertoire of just like body weight activities and physical, like physical activities that I was familiar with that I could say, hey, here's a list of things that you can do that don't take a bunch of extra time or equipment that you can do at your home. I think that that would be beneficial if I had something like that."* [15, obstetrician, US]
Improving accessibility for women	A common thread among all the suggested resources were that they should be low cost, accessible at home. [15, obstetrician, US] *"And for lots of ladies that's quite good, rather than from what I've seen in the past, umm, they start off and they will fizzle out after a while, but if they've got, knowing that perhaps they can get free children's places or, umm, I don't know, whatever vouchers to use, umm, that will keep them going more."* [4, midwife, UK]
Main theme: Solutions to be implemented at an individual level	
Subtheme	Example data
Personalised advice	*"What I try to do is tell them that when you are going to your normal routine things incorporate the newer things into it. So like if you are going to shop at the mall, maybe instead of parking as close as you can, park as far away as you can, and little things, like or maybe take stairs instead of using the elevator."* [23, US]

	"Mental health probably is another trigger for speaking about exercise." [14, midwife, UK]
Positive and sensitive approach	*"I try to normalize it all for them: "I know it's really hard, and you're right, you can't do it all yourself. You need lots of support to be healthy and well in this pregnancy."* [1, midwife, US] *"Advice does have to be given to obese women but the way its communicated to them needs to be sensitive and individualised, otherwise they are going to feel 'victimised' about their weight/ physical activity."* [13, midwife, UK]
Timing of advice	Midwives also suggested PA could be discussed further along the pregnancy journey, with one midwife also suggesting postpartum PA advice be incorporated into antenatal care. [14, midwife, UK] *"I, I think there should be preconception clinics, ideally, and that's where you start the lifestyle change prior to the pregnancy, you know, and umm, talk to women about exercise then."* [4, midwife, UK]

363 *HCP, healthcare practitioner; PA, physical activity; UK, United Kingdom; US, United States.*

DISCUSSION

This systematic review aimed to synthesise current qualitative evidence regarding HCP provision of PA advice to pregnant and postpartum women from around the world, including current practice, challenges, and solutions. To our knowledge, this is the first review to explore this topic across both pregnant and postpartum populations and across diverse HCP roles. Findings highlighted delivery of PA advice remains a common challenge across HCPs, regardless of the country or healthcare setting, but there are practical opportunities for improvement.

Healthcare professionals' views and current practice

In most countries, HCPs recognised the significant role of PA in supporting a healthy pregnancy, birth, and postpartum recovery. Most held positive attitudes toward promoting PA during pregnancy and viewed it as part of their professional responsibility. This aligns with findings from Okafor et al. (2021), whose scoping review highlighted that while HCPs acknowledge their role in promoting PA, actual advice provision was often limited [25].

However, uncertainty remains around the role of HCPs in providing PA advice to postpartum women. One UK study found some midwives felt it was unsuitable to discuss PA soon after delivery [50]. In contrast, other studies, including UK and US HCPs, viewed the postpartum period as a key opportunity to encourage PA, citing reduced motivation but increased opportunity (e.g. pram-walking) [58, 59]. This uncertainty may be compounded by limited contact after birth, with most UK care pathways involving discharge at 10 days and a single GP appointment at 6-8 weeks, leaving a gap during a critical recovery period. The limited number of studies focused on the postpartum period in this review reflects a broader gap in the literature, making it difficult to draw firm conclusions.

Positive experiences of providing PA advice were reported by HCPs in the US, UK, Finland, and Sweden, demonstrating that successful provision of PA, as perceived by the HCPs, is possible. These findings are supported by studies of pregnant and postpartum women, who described positive experiences when advice was offered [4, 20]. Despite this, the overall lack of PA advice shows missed opportunities. When PA advice was provided, it was often brief, lacking depth, or treated like a 'tick-box' exercise. Additionally, advice varied between different HCPs roles, in terms of type and intensity of activities, creating inconsistencies in care. These findings echo reports from pregnant [20, 21] and postpartum women [22, 23] that PA advice is often unclear, inconsistent, or absent, underscoring the need for standardised, evidence-based training across HCP roles.

The inequalities that exist in provision of PA guidance were not an expected finding, especially in the context of the assumptions made by HCPs. This is particularly concerning, as marginalised groups, such as women from lower socioeconomic backgrounds or immigrant communities, are at greater risk of poor pregnancy outcomes and may benefit most from PA support [63]. Additionally, assumptions were made based on a woman's body habitus, with some HCPs stating they were less likely to give advice to women who were perceived to be in 'good shape'. These findings highlight the need for training that addresses unconscious bias and promotes inclusive, equitable care. Educational providers must consider these factors to prevent further disparities in healthcare provision.

Barriers

Systemic barriers

Time constraints were the most frequently cited barrier across all HCP roles and countries, often accompanied with the undercurrent that other topics had to be prioritised over PA. A lack of formal education and training led many HCPs to rely on personal experience or 'common sense' rather than evidence-based guidance, contributing to inconsistent advice. These findings echo Hopkinson et al. (2018), who found limited access to PA-related CPD among UK midwives [64].

This review also revealed knowledge gaps in advising specific groups, such as women with obesity or GDM, despite HCPs expressing a strong desire to support these higher-risk populations [65], highlighting a missed opportunity. Awareness of national PA guidelines was low, and even when known, resources were often described as vague or inaccessible. These issues seemed grounded in a broader lack of institutional support, with short appointments, increasing workloads, and limited resources making it difficult to prioritise PA in consultations [24, 43, 59]. Notably, 20 of the included studies were conducted in countries without postpartum-specific PA guidelines, which although not explicitly mentioned as a barrier by HCPs, demonstrates a gap in resources available for this population. Even with improved dissemination, the resources provided to HCPs may need improvement to allow for successful implementation.

Personal barriers

Some HCPs reported that their own inactivity or higher body mass index (BMI) affected their ability to provide PA advice, though this was disputed by others [46]. This aligns with Bright et al. (2021), who found that less active HCPs were less confident in delivering PA advice [66]. They also found provision may be limited by concerns of offending patients, a consistent subtheme in this review. A recent qualitative review of 22 studies similarly found

that although midwives recognised the importance of discussing health behaviour change, such conversations were often de-prioritised due to concerns about affecting the midwife–woman relationship [28]. Although providing PA advice can be a difficult subject, with risks of upsetting or offending a patient, the widespread concerns demonstrate that HCPs may not feel adequately equipped to navigate these conversations, underscoring the need for training in sensitive, patient-centred communication. Importantly, while the risk of causing discomfort may make initiating the topic seem daunting, the health risks of inactivity are far greater. HCPs need reassurance and practical strategies to approach these conversations confidently, such as asking permission to discuss PA and using frameworks like Moving Medicine [67] to make the task easier and less intrusive.

Solutions

Education and training

Education was the most frequently proposed solution to improve PA advice provision, with suggestions including incorporation in undergraduate curricula, offering mandatory or optional continuing professional development (CPD) opportunities, and embedding PA education throughout professional development. Taylor et al. (2024) demonstrated that the 'This Mum Moves' initiative significantly enhanced midwives' and health visitors' confidence and practice in delivering PA guidance [68]. Similarly, Malta et al. (2016) found that targeted educational interventions improved HCPs' knowledge and counselling practices regarding diet and PA in pregnancy [69]. Beyond knowledge, there is also a distinct need to equip HCPs with the practical skills to deliver PA advice and counselling effectively. This includes navigating sensitive conversations about weight, body image, and perceived inactivity. Training should also address unconscious bias, ensuring HCPs provide inclusive and equitable care. These findings suggest that educational providers must consider both content and delivery methods to support HCPs in offering consistent, evidence-based advice.

Extended postpartum contact

Short appointment times and early discharge limit opportunities for lifestyle discussions, as highlighted by studies reporting time constraints as a major barrier to PA advice provision. Introducing additional follow-up points, such as at 4-6 months postpartum, could provide opportunities for tailored PA advice and support, particularly as motivation and physical readiness may evolve over time. This aligns with the American College of Obstetricians and Gynecologists (ACOG) recommendations for ongoing postpartum care, and consensus guidelines advocating gradual progression to PA targets during the first year postpartum [70, 71].

Communication and behaviour change techniques

Effective communication emerged as a critical component of successful PA advice and counselling. Many HCPs reported difficulty initiating conversations about PA due to fears of offending patients or damaging rapport. This is not unique to PA; similar challenges exist when discussing smoking, alcohol, or nutrition [72, 73]. Training in patient-centred communication, including motivational interviewing and behaviour change techniques, was highlighted as a potential solution and could improve confidence and consistency across all lifestyle interventions. One study explicitly referenced motivational interviewing, and another alluded to its use as technique to engage women in conversations about PA in PA counselling [27, 52]. While delivering advice alone does not necessarily create behaviour change, integrating motivational interviewing and behaviour change theory could allow more effective two-way conversations. These findings support early and ongoing training in motivational interviewing for HCPs. Although time constraints may limit feasibility in routine care, involving other trained professionals, such as exercise physiologists, may offer a realistic way to deliver this support.

Practical tools and resources

Several studies identified a lack of accessible, practical resources, as well as patient safety concerns as a barrier to effective PA advice. HCPs may feel better prepared when equipped with tools like the ‘Get Active Questionnaire for Pregnancy (71) and Postpartum (72)’, which have been designed to identify pregnant and postpartum women who may have contraindications and would benefit from consultation and/or further assessment, but also reduce barriers to PA engagement in women without those contraindications. Increasing awareness and use of such tools may boost both HCPs’ and patients’ confidence in engaging with PA.

Promoting accessible physical activity

Walking was consistently suggested as a safe, free, and accessible form of PA suitable for most pregnant and postpartum women [24, 41, 44, 56, 58]. It can be easily integrated into daily routines and sustained postpartum. This is supported by findings from Pereira et al. [15], who found, in a large cohort of 1442 women, that walking levels remained stable postpartum, even as overall PA declined, suggesting it is a sustainable behaviour. This provides rationale for HCPs to promote walking throughout pregnancy; it should be an achievable goal for most women. Walking can be done individually, or socially, supporting both physical and mental wellbeing. Educational resources could use walking as a core example, helping HCPs offer realistic, evidence-based advice. Promoting walking may serve

as a gateway to broader PA engagement, particularly when supported by community initiatives and peer encouragement.

Importantly, evidence suggests that even modest engagement in walking can confer substantial health benefits. For example, as little as 10 minutes of moderate-intensity walking per day has been associated with a 25% reduction in preeclampsia risk, and 15 minutes per day with similar reductions in gestational hypertension and excessive gestational weight gain [7, 74]. These findings underscore the importance of promoting achievable goals alongside guideline-based recommendations.

However, while walking provides a practical entry point, national and international guidelines also recommend undertaking muscle-strengthening activities on at least two days per week to optimise health [8, 9]. These guidelines list a range of activities that can count towards this recommendation, including stair climbing, carrying shopping, lifting and carrying children, gardening, and resistance exercises using bodyweight or equipment. Despite these recommendations, a recent systematic review by Silva-Jose et al. (2022) found that most pregnant women across diverse geographic regions do not meet recommended PA levels, highlighting a global concern [12]. This shows a significant gap in engagement and reinforces the need for HCPs to promote a wider range of activities, tailored to individual needs and circumstances.

Future directions

The findings of this review highlight a clear need for change. While it identified the barriers faced by HCPs, it also brought forward practical solutions, including changes at an individual level and a call for institutional support.

There is scope for quality improvement projects (QIPs) and clinical audits. For example, tracking PA discussions followed by educational sessions for employees on what advice to give and tips on how to deliver it, could improve the quality of care provided and reinforce the need for institutional support. This approach may also improve PA advice for postpartum women.

Future research should explore how digital records influence these conversations, particularly given concerns about the 'tick box' approach in healthcare [75]. Since PA often requires a personalised, motivational interviewing type of conversation, understanding how electronic systems support or hinder this is crucial. Similarly, investigating how technology, such as apps and step counters, can assist in promoting PA could provide valuable insights.

Additionally, intervention-based studies could assess the effectiveness of techniques like motivational interviewing compared to generalised advice.

As the evidence base grows, subgroup analyses could help determine whether findings differ based on profession or country, enabling more targeted strategies for improvement. Research should also examine the ethnic and cultural diversity of patient samples to ensure that PA advice is inclusive and effective across different populations. Understanding how cultural factors shape both the delivery and reception of PA advice will help tailor strategies to better meet the needs of diverse populations.

Notably, this review unexpectedly found that HCP assumptions about certain patient groups may influence whether and how PA is promoted. This has implications for equitable care and merits formal investigation. Studies examining the provision of PA advice in relation to sociodemographic factors could provide important insights into the scope and impact of such disparities. Focus groups with marginalised women would provide valuable perspectives into their experiences of PA advice provision and counselling, and whether they feel adequately supported. This area is gaining attention, for example, the UK's 'Moving Mums Initiative', has highlighted the need for culturally sensitive approaches to PA promotion during and after pregnancy [76].

With the rationale for education established by this review, and the demonstrated success of existing education-based interventions [68], institutional support through a standardised curriculum, at both undergraduate and postgraduate levels is warranted. As the role of HCPs in postpartum PA advice provision and counselling remains unclear, future research should seek to explore this from both HCP and patient perspectives.

Co-produced resources, developed with input from midwives, doctors, physiotherapists, exercise physiologists, sports rehabilitators, and patients, could help standardise PA advice. Several studies mentioned online resources or providing initiatives for women to get involved with PA [24, 50, 54]. Embedding PA prompts into health records or providing simple checklists could support consistent messaging and improve patient engagement.

These recommendations align with a broader shift in healthcare toward preventative and lifestyle-focused approaches. Lifestyle medicine has historically received less emphasis than other areas of clinical care, despite its potential to improve population health outcomes. The growing prioritisation of prevention in many countries, including the UK's upcoming NHS ten-

year plan [77], reflects a timely opportunity to embed PA promotion into routine maternity care.

Finally, broader initiatives that signpost HCPs to supportive resources may help reach a wider audience. Examples from the UK include Sport England's 'Active Mums Start with You – This Girl Can' campaign [78], the Active Pregnancy Foundation's [79] 'This Mum Moves', and Moving Medicine's [67] guidance on discussing PA in pregnancy and postpartum. These offer promising models that could be adapted globally. Future initiatives could also explore the use of audio-visual tools (e.g. short videos or interactive infographics) and AI-based platforms (e.g. personalised digital assistants) to support dissemination, enhance accessibility, and improve education for both HCPs and women. These tools may offer scalable, and culturally adaptable ways to promote PA during and after pregnancy.

Strengths and limitations

The use of a qualitative approach allowed for a rich, in-depth analysis of HCPs' experiences in providing PA advice, appreciating the complex factors, which may be missed in quantitative analyses. A key strength was the diversity of included studies, spanning ten countries. Themes showing similarities internationally demonstrate continuity in the role of HCPs in providing PA advice to pregnant and postpartum women. Despite varying guidelines, the lack of PA advice remains an issue, indicating that PA during pregnancy and postpartum is not a current priority in standard antenatal care.

The review also included a wide range of HCP roles, not just midwives, but also obstetricians, nurses, health visitors, physiotherapists, and GPs, allowing for broader insights and more inclusive recommendations. This breadth strengthens the relevance of proposed solutions. Notably, this is the first review to synthesise qualitative evidence on PA advice provision across both pregnancy and postpartum populations, highlighting both shared and distinct challenges. The literature search was updated six months after the initial search, adding three new studies, illustrating the contemporary nature of the research topic.

As with any qualitative synthesis, subjectivity in data interpretation is a limitation. As both coders were female medical students with an interest in PA, data interpretation may reflect that. However, to enhance the reliability of results, much of the process was performed independently, with any disagreements discussed with senior authors [36]. Additionally, the review relied on the interpretations of original study authors, though this was mitigated by using direct quotes where possible.

While our search strategy focused on databases most relevant to maternity and health behaviour research, we acknowledge the omission of broader databases such as Scopus and Web of Science, as well as grey literature. This may have excluded potentially relevant

studies and is a limitation of our review. Future reviews may benefit from including these sources to enhance comprehensiveness.

Another limitation was the exclusion of data where PA was not explicitly mentioned. Though quotes or comments made regarding 'lifestyle changes', may imply inclusion of PA, data were not there to support that. This is especially important to consider as when lifestyle changes are discussed, PA is often less emphasised than nutrition, smoking, and alcohol use [21].

Finally, while the review included studies from a range of high-income countries (UK, US, Sweden, Australia, Finland, France, and Canada), no studies from low-income countries were identified. This limits the generalisability of findings, as healthcare systems, resources, and cultural norms may differ significantly in other contexts. Future research should aim to include perspectives from low- and middle-income countries to ensure global relevance and equity in PA advice provision.

Conclusions

This review underscores the need to improve PA advice for pregnant and postpartum women. Despite the inclusion of studies from 2010 to 2024, and established PA guidelines in most countries, no clear improvement in PA advice provision was observed over time. While there is growing evidence on PA advice during pregnancy, major gaps remain regarding postpartum provision, which is underexplored in the current literature.

The review identifies practical solutions to support HCPs. However, formal education and institutional support are essential to ensure the effective implementation of these solutions. These findings reinforce the case for integrating PA education into training for all HCPs involved in maternal care.

Equipping HCPs with the skills, knowledge, and resources to deliver effective advice and counselling, not only for PA, but also for other lifestyle behaviours, should be a priority in maternity care.

ETHICS STATEMENT

Ethical approval was not required for this study as it is a systematic review of previously published literature.

AUTHOR CONTRIBUTIONS

MM and ND conducted the literature search, screening, data extraction, and thematic analysis. CN conceptualised the study and supervised the review process together with DV.

DV and CN contributed to interpretation of findings and manuscript editing. LE, JR, and MDV provided clinical and methodological input and reviewed the manuscript. MM, ND and CN drafted the original manuscript. All authors reviewed and approved the final version.

PATIENT AND PUBLIC INVOLVEMENT

Patients and members of the public were not involved in this review. However, the topic is directly relevant to maternal health and may inform future co-produced interventions.

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COMPETING INTERESTS

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

DATA AVAILABILITY STATEMENT

All data extracted from included studies and used in the synthesis are available in the manuscript tables and supplementary material.
The full results sections from included studies were extracted into working documents for qualitative analysis. A description of the coding process is provided in the online supplementary material 3. All included studies are fully referenced enabling readers to independently access the original results sections if desired. No analytic code was generated or used.

REFERENCES

1. Charlesworth S, Foulds HJA, Burr JF, Bredin SSD. Evidence-based risk assessment and recommendations for physical activity clearance: pregnancy. Appl Physiol Nutr Metab. 2011;36(S1):S33-S48.

2. Dipietro L, Evenson KR, Bloodgood B, Sprow K, Troiano RP, Piercy KL, et al. Benefits of Physical Activity during Pregnancy and Postpartum: An Umbrella Review. Med Sci Sports Exerc. 2019;51(6):1292-302.

3. Liu X, Wang S, Wang G. Prevalence and Risk Factors of Postpartum Depression in Women: A Systematic Review and Meta-analysis. J Clin Nurs. 2022;31(19-20):2665-77.

4. Saligheh M, Hackett D, Boyce P, Cobley S. Can exercise or physical activity help improve postnatal depression and weight loss? A systematic review. Arch Womens Ment Health. 2017;20(5):595-611.

5. Jones PAT, Moolyk A, Ruchat S-M, Ali MU, Fleming K, Meyer S, et al. Impact of postpartum physical activity on cardiometabolic health, breastfeeding, injury and infant growth and development: a systematic review and meta-analysis. Br J Sports Med. 2024:bjsports-2024-108483.

6. Gascoigne EL, Webster CM, Honart AW, Wang P, Smith-Ryan A, Manuck TA. Physical activity and pregnancy outcomes: an expert review. Am J Obstet Gynecol. 2023;5(1):100758.

7. Ruchat SM, Mottola MF, Skow RJ, Nagpal TS, Meah VL, James M, et al. Effectiveness of exercise interventions in the prevention of excessive gestational weight gain and postpartum weight retention: a systematic review and meta-analysis. Br J Sports Med. 2018;52(21):1347-56.

8. Department of Health and Social Care. UK Chief Medical Officers' Physical Activity Guidelines 2019 2019 [Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832868/uk-chief-medical-officers-physical-activity-guidelines.pdf.

9. WHO Guidelines on Physical Activity and Sedentary Behaviour. 1st ed. Geneva: World Health Organization; 2020.

10. Hayman M, Brown WJ, Brinson A, Budzynski-Seymour E, Bruce T, Evenson KR. Public health guidelines for physical activity during pregnancy from around the world: a scoping review. Br J Sports Med. 2023;57(14):940.

11. Shelton SL, Lee S-YS. Women's Self-Reported Factors That Influence Their Postpartum Exercise Levels. Nurs Women's Health. 2018;22(2):148-57.

12. Silva-Jose C, Sánchez-Polán M, Barakat R, Gil-Ares J, Refoyo I. Level of Physical Activity in Pregnant Populations from Different Geographic Regions: A Systematic Review. J Clin Med. 2022;11(15):4638.

13. Harrison AL, Taylor NF, Shields N, Frawley HC. Attitudes, barriers and enablers to physical activity in pregnant women: a systematic review. J Physiother. 2018;64(1):24-32.

14. Saligheh M, McNamara B, Rooney R. Perceived barriers and enablers of physical activity in postpartum women: a qualitative approach. BMC Pregnancy Childbirth. 2016;16(1):131.

15. Pereira MA, Rifas-Shiman SL, Kleinman KP, Rich-Edwards JW, Peterson KE, Gillman MW. Predictors of change in physical activity during and after pregnancy: Project Viva. Am J Prev Med. 2007;32(4):312-9.

16. Langley-Evans SC, Pearce J, Ellis S. Overweight, obesity and excessive weight gain in pregnancy as risk factors for adverse pregnancy outcomes: A narrative review. J Hum Nutr Diet. 2022;35(2):250-64.

17. NHS. Antenatal support: meet the team 2020 [Available from: https://www.nhs.uk/pregnancy/your-pregnancy-care/antenatal-support-meet-the-team/.

18. NHS. Your 6-week postnatal check 2022 [Available from: https://www.nhs.uk/conditions/baby/support-and-services/your-6-week-postnatal-check/.

19. Sutton J, Stewart W. Learning to Counsel: Develop the Skills, Insight and Knowledge to Counsel Others: How To Books; 2008.

20. Grenier LN, Atkinson SA, Mottola MF, Wahoush O, Thabane L, Xie F, et al. Be Healthy in Pregnancy: Exploring factors that impact pregnant women's nutrition and exercise behaviours. Matern Child Nutr. 2021;17(1):e13068.

21. Ferrari RM, Siega-Riz AM, Evenson KR, Moos M-K, Carrier KS. A qualitative study of women's perceptions of provider advice about diet and physical activity during pregnancy. Patient Educ Couns. 2013;91(3):372-7.

22. Findley A, Smith DM, Hesketh K, Keyworth C. Exploring womens' experiences and decision making about physical activity during pregnancy and following birth: a qualitative study. BMC Pregnancy Childbirth. 2020;20(1):54.

23. Shum KW, Ang MQ, Shorey S. Perceptions of physical activity during pregnancy among women: A descriptive qualitative study. Midwifery. 2022;107:103264.

24. De Vivo M, Mills H. "They turn to you first for everything": insights into midwives' perspectives of providing physical activity advice and guidance to pregnant women. BMC Pregnancy Childbirth. 2019;19(1):462.

25. Okafor UB, Goon DT. Physical Activity Advice and Counselling by Healthcare Providers: A Scoping Review. Healthcare [Internet]. 2021; 9(5).

26. Haakstad LAH, Mjønerud JMF, Dalhaug EM. MAMMA MIA! Norwegian Midwives' Practices and Views About Gestational Weight Gain, Physical Activity, and Nutrition. Front Psychol. 2020;11:1463.

27. Smith R, Ridout A, Livingstone A, Wango N, Kenworthy Y, Barlett K, et al. Motivational interviewing to increase physical activity in women with gestational diabetes. Br J Midwifery. 2021;29(10):550-6.

28. Talbot H, Peters S, Furber C, Smith DM. Midwives' experiences of discussing health behaviour change within routine maternity care: A qualitative systematic review and meta-synthesis. Women Birth. 2024;37(2):303-16.

29. Shorten A, Smith J. Mixed methods research: expanding the evidence base. Evid Based Nurs. 2017;20(3):74-5.

30. Tong A, Flemming K, McInnes E, Oliver S, Craig J. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. BMC Med Res Methodol. 2012;12(1):181.

31. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021;372:n71.

32. National Institute for Health Research. PROSPERO: International prospective register of systematic reviews 2025 [Available from: https://www.crd.york.ac.uk/prospero/

33. Riesenberg LA, Justice EM. Conducting a successful systematic review of the literature, part 1. Nursing. 2014;44(4):13-7.

34. Yang X, Li H, Zhao Q, Han R, Xiang Z, Gao L. Clinical Practice Guidelines That Address Physical Activity and Exercise During Pregnancy: A Systematic Review. J Midwifery Womens Health. 2022;67(1):53-68.

35. Excellence NIfHaC. Methods for the development of NICE public health guidance (third edition). Appendix H Quality appraisal checklist – qualitative studies. UK2012.

36. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC Med Res Methodol. 2008;8(1):45.

37. Smith B, McGannon K. Developing rigor in qualitative research: problems and opportunities within sport and exercise psychology. Int Rev Sport Exerc Psychol. 2017;11(1):101–21.

38. Cheyney M, and Moreno-Black G. Nutritional Counseling in Midwifery and Obstetric Practice. ECOL FOOD NUTR. 2010;49(1):1-29.

39. Christenson A, Torgerson J, Hemmingsson E. Attitudes and beliefs in Swedish midwives and obstetricians towards obesity and gestational weight management. BMC Pregnancy Childbirth. 2020;20(1):755.

40. Davenport MH, Ray L, Nesdoly A, Thornton JS, Khurana R, McHugh T-LF. Filling the evidence void: exploration of coach and healthcare provider experiences working with pregnant and postpartum elite athletes – a qualitative study. Br J Sports Med. 2023;57(24):1559-65.

41. Duthie EA, Drew EM, Flynn KE. Patient-provider communication about gestational weight gain among nulliparous women: a qualitative study of the views of obstetricians and first-time pregnant women. BMC Pregnancy Childbirth. 2013;13(1):231.

42. Guthrie TM, de Jersey SJ, New K, Gallegos D. Midwife readiness to provide woman-centred weight gain support: Exploring perspectives across models of care. Women Birth. 2020;33(6):e567-e73.

43. Issakainen M, Schwab U, Lamminpää R. Qualitative study on public health nurses' experience and assessment of nutritional and physical activity counseling of women with gestational diabetes. Eur J Midwifery. 2020;4(September):1-7.

44. Kilpatrick ML, Venn AJ, Barnden KR, Newett K, Harrison CL, Skouteris H, et al. Health System and Individual Barriers to Supporting Healthy Gestational Weight Gain and Nutrition: A Qualitative Study of the Experiences of Midwives and Obstetricians in Publicly Funded Antenatal Care in Tasmania, Australia. Nutrients. 2024;16(9).

45. Knight-Agarwal C, Michelle M, Bridget C, Sophie C, and Takito MY. Different experiences of weight management and physical activity during pregnancy - a qualitative study of women and healthcare professionals in Australia. Int J Qual Stud Health Well-being. 2023;18(1):2202973.

46. Lindqvist M, Mogren I, Eurenius E, et al. 'An on-going individual adjustment': a qualitative study of midwives' experiences counselling pregnant women on physical activity in Sweden. BMC Pregnancy Childbirth. 2014;14(343).

47. Lucas G, Olander EK, Salmon D. Healthcare professionals' views on supporting young mothers with eating and moving during and after pregnancy: An interview study using the COM-B framework. Health & social care in the community. 2020;28(1):69-80.

48. McLellan JM, O'Carroll RE, Cheyne H, Dombrowski SU. Investigating midwives' barriers and facilitators to multiple health promotion practice behaviours: a qualitative study using the theoretical domains framework. Implement Sci. 2019;14(1):64.

49. McParlin C, Bell R, Robson SC, Muirhead CR, Araújo-Soares V. What helps or hinders midwives to implement physical activity guidelines for obese pregnant women? A questionnaire survey using the Theoretical Domains Framework. Midwifery. 2017;49:110-6.

50. Mitra M, Marino K, Vishnubala D, Pringle A, Nykjaer C. UK midwives delivering physical activity advice; what are the challenges and possible solutions? Front Sports Act Living. 2024;6:1369534.

51. Nagpal TS, Maples JM, Duchette C, Altizer EA, Tinius R. Physical Activity during Pregnancy may Mitigate Adverse Outcomes Resulting from COVID-19 and Distancing Regulations: Perspectives of Prenatal Healthcare Providers in the Southern Region of the United States. Int J Exerc Sci. 2021;14(3):1138-50.

52. Olander EK, Berg F, Berg M, Dencker A. Offering weight management support to pregnant women with high body mass index: A qualitative study with midwives. Sex Reprod Healthc. 2019;20:81-6.

53. Pennington AVR, O'Reilly SL, Young D, Dunbar JA. Improving follow-up care for women with a history of gestational diabetes: perspectives of GPs and patients. Aust J Prim Health. 2017;23(1):66-74.

54. Peralta LR, Yager Z, Prichard I. Practice-based evidence: Perspectives of effective characteristics of Australian group-based physical activity programs for postpartum women. Health Promot J Austr. 2022;33(3):891-903.

55. Pico ML, Rangel-Osuna F, Estrada MS, Granich A, Grunnet LG, Silvia CIR, et al. "I have not been doing it because of my fear of something happening." Exploring perspectives on healthy dietary behaviors and physical activity in Mexican pregnant women and health care professionals: A qualitative study. Nutrition (Burbank, Los Angeles County, Calif). 2024;126:112493.

56. Schuft L, Sauvegrain P, Delotte J. Customizing Health Recommendations About Physical Activity During Pregnancy: A Qualitative Study Among Practitioners in France. Qual Health Res. 2023;33(6):471-80.

57. Sinha DD, Williams RC, Hollar LN, Lucas HR, Johnson-Javois B, Miller HB, et al. Barriers and facilitators to diabetes screening and prevention after a pregnancy complicated by gestational diabetes. PloS one. 2022;17(11):e0277330.

58. Talbot H, Strong E, Peters S, Smith DM. Behaviour change opportunities at mother and baby checks in primary care: a qualitative investigation of the experiences of GPs. Br J Gen Pract. 2018;68(669):e252-e9.

59. Tinius R, Duchette C, Beasley S, Blankenship M, Schoenberg N. Obstetric Patients and Healthcare Providers Perspectives to Inform Mobile App Design for Physical Activity and Weight Control During Pregnancy and Postpartum in a Rural Setting. Int J Womens Health. 2021;13:405-32.

60. van der Pligt P, Campbell K, Willcox J, Opie J, Denney-Wilson E. Opportunities for primary and secondary prevention of excess gestational weight gain: General Practitioners' perspectives. BMC Fam Pract. 2011;12(1):124.

61. Whitaker KM, Wilcox S, Liu J, Blair SN, Pate RR. Patient and Provider Perceptions of Weight Gain, Physical Activity, and Nutrition Counseling during Pregnancy: A Qualitative Study. Womens Health Issues. 2016;26(1):116-22.

62. Willcox JC, Campbell KJ, van der Pligt P, Hoban E, Pidd D, Wilkinson S. Excess gestational weight gain: an exploration of midwives' views and practice. BMC Pregnancy Childbirth. 2012;12(1):102.

63. Jardine J, Walker K, Gurol-Urganci I, Webster K, Muller P, Hawdon J, et al. Adverse pregnancy outcomes attributable to socioeconomic and ethnic inequalities in England: a national cohort study. Lancet. 2021;398(10314):1905-12.

64. Hopkinson Y, Hill DM, Fellows L, Fryer S. Midwives understanding of physical activity guidelines during pregnancy. Midwifery. 2018;59:23-6.

65. Athukorala C, Rumbold AR, Willson KJ, Crowther CA. The risk of adverse pregnancy outcomes in women who are overweight or obese. BMC Pregnancy Childbirth. 2010;10(1):56.

66. Bright D, Gray BJ, Kyle RG, Bolton S, Davies AR. Factors influencing initiation of health behaviour conversations with patients: Cross-sectional study of nurses, midwives, and healthcare support workers in Wales. J Adv Nurs. 2021;77(11):4427-38.

67. Faculty of Sport and Exercise Medicine UK. Moving Medicine: Faculty of Sport and Exercise Medicine UK; 2025 [Available from: https://movingmedicine.ac.uk/.

68. Taylor KA, De Vivo M, Mills H, Hurst P, Draper S, Foad A. Embedding Physical Activity Guidance During Pregnancy and in Postpartum Care: 'This Mum Moves' Enhances Professional Practice of Midwives and Health Visitors. J Midwifery Womens Health. 2024;69(1):101-9.

69. Malta MB, Carvalhaes MAdBL, Takito MY, Tonete VLP, Barros AJD, Parada CMGdL, Benício MHDA. Educational intervention regarding diet and physical activity for pregnant women: changes in knowledge and practices among health professionals. BMC Pregnancy Childbirth. 2016;16(1):175.

70. ACOG. ACOG Committee Opinion No. 736: Optimizing Postpartum Care. Obstet Gynecol. 2018;131(5):e140-e50.

71. Davenport MH, Ruchat S-M, Jaramillo Garcia A, Ali MU, Forte M, Beamish N, et al. 2025 Canadian guideline for physical activity, sedentary behaviour and sleep throughout the first year post partum. Br J Sports Med. 2025;59(8):515-26.

72. Ferguson A. Conversations About Alcohol Use in Pregnancy. In: Mukherjee RAS, Aiton N, editors. Prevention, Recognition and Management of Fetal Alcohol Spectrum Disorders. Cham: Springer International Publishing; 2021. p. 55-66.

73. Kennedy J. Barriers to success: smoking cessation conversations. Br J Midwifery. 2017;25(8):498-504.

74. Davenport MH, Ruchat SM, Poitras VJ, Jaramillo Garcia A, Gray CE, Barrowman N, et al. Prenatal exercise for the prevention of gestational diabetes mellitus and hypertensive disorders of pregnancy: a systematic review and meta-analysis. Br J Sports Med. 2018;52(21):1367-75.

75. Morrissey M, Shepherd E, Kinley E, McClatchey K, Pinnock H. Effectiveness and perceptions of using templates in long-term condition reviews: a systematic synthesis of quantitative and qualitative studies. Br J Gen Pract. 2021;71(710):e652-e9.

76. Furness A DVM, Soltani H. Moving Mums Initiative: Tailoring Physical Activity for Sheffield's Diverse Maternal Communities. Sheffield: Active Pregnancy Foundation; 2024 October 2024.

77. The King's Fund. Government's long-term plan for health and care: The King's Fund 2025 [Available from: https://www.kingsfund.org.uk/insight-and-analysis/projects/governments-long-term-plan-health-and-care.

78. Sport England. Active Mums Start with You – This Girl Can campaign: Sport England; 2021 [Available from: https://www.sportengland.org/news/new-campaign-promotes-activity-pregnant-women-and-new-mums.

79. Active Pregnancy Foundation. Professionals Active Pregnancy Foundation; 2025 [Available from: https://www.activepregnancyfoundation.org/professionals.

FIGURE LEGENDS

Figure 1. PRISMA [31] flow diagram showing the identification, screening, and inclusion of studies. Records refer to title and abstract entries retrieved from databases; reports refer to full-text publications assessed for eligibility; studies refer to the research included in the review.

Figure 2. Synthesised themes and subthemes illustrating healthcare professionals' views, practices, barriers, and solutions in providing physical activity advice to pregnant and postpartum women across diverse settings.