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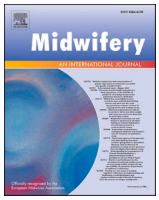

'It's just one step too far': Negotiating physical activity for perinatal mental health

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ABSTRACT

Background: Physical activity is recommended as a self-help strategy for some mild to moderate perinatal mental illnesses. Despite this, we know very little about how women remain active, or take up physical activity, in the context of changing family life and perinatal mental illness. We seek to explore: a) how women negotiate physical activity for their mental health during transitions into parenthood and the early years; and b) the experiences of women with perinatal mental illness in relation to physical activity.

Methods: An anonymous UK-wide qualitative online survey was used to better understand how physical activity may be used for perinatal mental health, barriers to activity and changes over time. 186 women with babies and children up to four years completed the survey. Reflexive thematic analysis was used to analyse the qualitative data and generate themes.

Results: Themes generated from this data were: 1) negotiating being active for perinatal mental health (the benefits and *how* these women remained active); 2) barriers to PA associated with mental illness (some women were active but still experienced general barriers to further PA, and there were several emotional barriers from mental illness); and 3) PA, guilt and the importance of valuing walking (guilt about not being active enough, guilt and feelings of failure exacerbated by questions about PA levels without support offered; regular walking not valued as PA exacerbating feelings of guilt).

Conclusions and Implications: This study provides new empirical data on the experiences of new mothers', physical activity and mental health with important implications for physical activity messaging and support for women during this time through maternity care. Individualised conversations are important and the value of walking and incidental activity from activities that mothers and families find enjoyable should be promoted.

Introduction

The first 1001 days of a child's life, conception to age two years, are significant in laying the foundations for their future. Early attachment and the experiences and environment during this phase and the early years (first 2000 days) influence the child's development, their health and wellbeing, learning and earnings potential (Doyle, 2020; Parent Infant Foundation, 2020). Evidence suggests up to 20 % of new mothers are affected by perinatal mental illness (a mental illness that can occur during pregnancy or the first year following the birth of a child) (Bauer et al., 2014; NHS, 2022). 2012 estimates of total long-term cost to UK society from perinatal depression, anxiety and psychosis, was £8.1 billion per one-year cohort of births (Bauer et al., 2014). 28 % of costs related to the mother, whilst 72 % of the total cost related to adverse impacts for the child (Bauer et al., 2014).

It is widely known that Physical Activity (PA) provides a range of benefits during pregnancy and postnatally (Davenport et al., 2018; Dipetrio, et al., 2019). More broadly, PA is viewed as an inexpensive, safe and effective intervention for mental health (Ekkekakis, 2013), and used for both prevention (Hu et al., 2020; Ekkekakis, 2013) and treatment (Heissel et al., 2023; Smith et al., 2022; Stubbs et al., 2018; Vella et al., 2023a) of mental illness. This is also important for mental health during pregnancy and postnatally (Liu et al., 2022; Pritchett, 2017; WHO, 2022), and recommended among a range of self-help strategies for some mild to moderate perinatal mental illnesses including postnatal depression (PND), perinatal anxiety, PTSD and birth trauma (NHS,

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2022; Mind, 2022). Exercise and PA interventions with supplemental psycho-social support (educational information, exercise advice or counselling) have brought about positive outcomes for postnatal depression (Brown et al., 2017; Saligheh et al., 2017). This has also been noted from interventions combining exercise with parent education (baby massage, nutrition for mothers, introducing solids, adjusting to a new lifestyle, communicating with baby, play development) (Normal et al., 2010).

The World Health Organisation (WHO) recommend pregnant and postpartum women without contraindication engage in at least 150 min of moderate-intensity PA per week and promote the health benefits of reducing sedentary time. Further guidance is provided in UK guidelines which recommend previously active pregnant women continue with adaptations and reintroduce activity gradually with adaptations post-natally, whilst inactive women should start gradually (Active Pregnancy Foundation [APF], 2023; UK CMO 2019a; UK CMO, 2019b). Building up towards 150 min/week of moderate intensity activity should aim to be achieved over a 12-month period after birth (APF, 2023; UK CMO, 2019b).

Postnatal women often face many barriers to PA (Shum et al., 2022). These include lack of support, depression, feelings of guilt, lack of motivation, weather, being tired, lack of time, childcare duties and physical limitations (Apostolopoulos et al., 2021; Cramp and Bray, 2011; Mailey et al., 2014; Saligheh et al., 2016). Emotional barriers to PA from depression have also been noted in the general population (Busch et al., 2016; Faulkner and Biddle, 2004; Glowacki et al., 2017). Despite this, some women remain active with support, through being active with their children, by being a role model, prioritising or making time for PA, or seeing benefits to health and the family (Mailey et al., 2014). Training for health care professionals (HCPs) supporting pregnant and postpartum women through maternity care has developed (Allin et al., 2023; Taylor et al., 2023) to overcome their perceived lack of training, knowledge, confidence, time, resources, and perceptions of vulnerability as barriers to effective PA messaging (De Vivo and Mills, 2019). Home-based PA interventions providing exercise equipment in the home have been shown to overcome some of the barriers to activity for women at risk of PND relating to weather, struggling to get out and feeling self-conscious (Teychenne et al., 2021). However, those taking part in such interventions also reported persistent barriers to using the equipment. These included: babies short nap times, babies being clingy or wanting to be held, crawlers or toddlers climbing onto the equipment and plenty of other things to do if the baby does nap (chores, life admin, spending time with partner, relaxing) (Teychenne, et al., 2021). Contextual factors for PA are important for promoting PA for mental health in the general population (Teychenne et al., 2020; Vella et al., 2023a, 2023b). Although PA has mental health benefits during the postnatal period, we now need to better understand how women with PND engage in PA (Teychenne et al., 2021). Missing from the current body of knowledge is an understanding of the specific experiences of women negotiating PA when experiencing mental health problems postnatally and in the early years. This knowledge is critical to inform the development of appropriately targeted PA interventions for this population group. Addressing this gap, the purpose of this study is to explore PA and mental health through transitions into motherhood and during the early years of caring for babies and young children.

Methods

This study was informed by an interpretivist research paradigm. A qualitative online survey was used to address key research questions: a) how do women negotiate PA for their mental health during transitions into parenthood and the early years; and b) what are the experiences of women with perinatal mental illness in relation to PA postnatally and during the early years? To ensure transparency and qualitative rigour, reporting follows the Standards for Reporting Qualitative Research (SRQR) (O'Brien et al., 2014). The potential for qualitative online surveys to generate both rich and broad data (Braun, Clarke and Gray, 2017) was appealing for research into this topic. In a participant group who may be experiencing undiagnosed mental illness or shame relating to poor mental health or mental illness (Hambidge et al., 2021), an anonymous survey provides the opportunity to explain their experiences openly without fear of judgment. The qualitative online survey also offered the potential for wide scope across the UK and the flexibility that new mothers needed to engage in the research at a time convenient for them (Braun et al., 2021).

Jisc Online Surveys (formerly BOS) was used to design and distribute surveys. A combination of closed questions (to generate biographical information, time and type of activity, and experience of perinatal mental illness) and open questions were included. Open questions, which provided the basis of the survey, enabled us to explore the diverse perspectives and experiences of PA and mental health in the context of family life that were shared by different groups of mothers through their own language (Braun et al., 2021). Open-ended questions focussed on the areas of 1) mental health and PA; 2) Current PA behaviours; 3) PA in the context of family life; 4) other support for their mental health; and 5) changes over time with family life. Guidance for seeking support from a health care professional and contact information for support services was provided at the end of the survey.

Participants

The survey was open to all parents in the UK of children up to the age of four years, including the postnatal period (between 6–8 weeks after birth) and early years to include those experiencing perinatal mental illness during the first year after birth, and to enable parents to reflect on change over time. Participants were eligible for inclusion if they lived in the UK and had a child of four years or younger. The final sample for this study specifically about mothers' experiences were identified from survey responses, excluding father responses ($n = 32$). Overall, 218 respondents completed the survey, though a small number declined to answer all questions on their biographies. 186 respondents were mothers and this is the focus of data explored here.

Procedure

Institutional ethical approval was gained (SPA-REC-2018–342) from the SPA-Departmental Research Ethics Committee at Edge Hill University, UK before the survey was available from May 2020. Due to COVID-19-related lockdowns the survey was not actively promoted until April 2021 and the survey was closed at the end of September 2021. Survey promotion was through personal and professional networks, including the perinatal mental health charities, parent support groups and PA providers who supported the survey design. Informed consent was provided by the submission of responses and each participant was assigned a unique personal identifier to facilitate analysis.

Data analysis

Basic descriptive data from participants responses to closed questions was recorded and used to provide the context for the analysis of the qualitative data generated. All survey responses were saved into data files and uploaded to NVivo 12 for analysis. The software enabled ease of coding and data retrieval without influencing the analysis as the researchers engaged in reflexive thematic analysis to develop patterns of experience and themes from the mothers' perspective (Braun and Clarke, 2022).

Braun and Clarke's (2022) six-phase reflexive thematic analysis was engaged in as follows: 1) Survey responses were all read and re-read during the familiarisation phase with notes and ideas recorded by the lead author; 2) Both latent and semantic codes were developed and discussed by two of the researchers to inform the ongoing process; 3) Candidate themes were constructed by bringing together clusters of

codes using a mind-map. For example, codes from phase 2: *active travel, active with family, babywearing, walking, family walks, family walks + dog, regular walks but described self as not active, walking not valued as PA, walking to get children to sleep* were grouped into a candidate theme of *valuing walking in family contexts*. 4) Themes were developed and reviewed, checking that they make sense in relation to the whole data set. Some candidate themes were discarded or collapsed into one (e.g. *feelings of personal responsibility* and *guilt about not being active enough* were combined). 5) Themes were refined by researchers as they generated the final reflexive themes and named them: *negotiating being active for perinatal mental health, barriers to PA associated with mental illness*, and *PA, guilt and the importance of valuing walking*; 6) Theme content was further revised by researchers through the writing up of the research and further discussion among co-authors for naming themes and prioritising content. Themes were written up with participant quotes, anonymised with pseudonyms.

Researcher reflexivity

Emily Lovett has previous academic experience exploring community PA promotion from a sociological perspective, and lived experience as a new mother, was the project lead and undertook survey promotion and coding. Andy Smith, a professor in mental health, sport and PA, contributed to survey design, along with local and national parenting and perinatal mental health charities; and he supported coding decisions and theme development. Megan Teychenne is a behavioural epidemiologist with lived experience as a mother and extensive experience researching PND and PA. Megan supported final analysis and theme development relating to contextual factors in PA promotion and the organisation of themes as displayed in Fig. 1.

Findings and discussion

186 mothers responded to the survey (Table 1). Of those, most were White British (73.1 %), aged 30 to 39 years (80.6 %), in an opposite sex married couple family (74.1 %), were working full-time (44.9 %) or part-time (38.4 %), and had no self-reported disability (98.9 %). 89.2 % of participants wanted to be more physically active and 34.4 % answered yes or maybe to experiencing perinatal mental illness in the past, whilst 16.1 % answered yes or maybe to currently experiencing perinatal mental illness.

This research has shed new light on the experiences of mothers, perinatal mental health and PA by generating new empirical data. Qualitative themes constructed are presented in Fig. 1 and discussed below through our analysis that helps to develop a more adequate understanding of *how* women use PA for their mental health during the perinatal period and early years of their child's life; barriers to PA associated with perinatal mental illness; and guilt and the importance of valuing walking in the perinatal period and beyond.

Negotiating being active for perinatal mental health

Several women described that their PA supported their mental health. Lucy told us that after her daughter was born, she 'needed to go for regular walks as I struggled with anxiety and I was very emotional for about 6 months'. Julia used PA for her mental health as she had previously experienced a perinatal mental illness. Julia wrote that:

> I had ptsd diagnosed after an e topic then traumatic birth of first child. Trouble bonding with first child. Mourning for the life I had and lost and shocked at my new reality. Going from being a successful career and being self assured to feeling that I was way out of my depth. Feeling a failure as a mother for not being able to breast feed (was due to huge post partum haemorrhage). Constant guilt and anxiety. Guilt about being a working mother. Missing out on social and support groups as I am a working mother and the main breadwinner…
>
> It's essential for my well-being and mental health. I feel foggy, sluggish and irritable if I can't do physical activity.

These women were, or had previously, experienced a range of difficulties during the early years of their children's lives. Stacey explained that:

> I almost lost my daughter after birth & yoga helped me heal. I turned to exercise after a miscarriage & my husband becoming critically ill

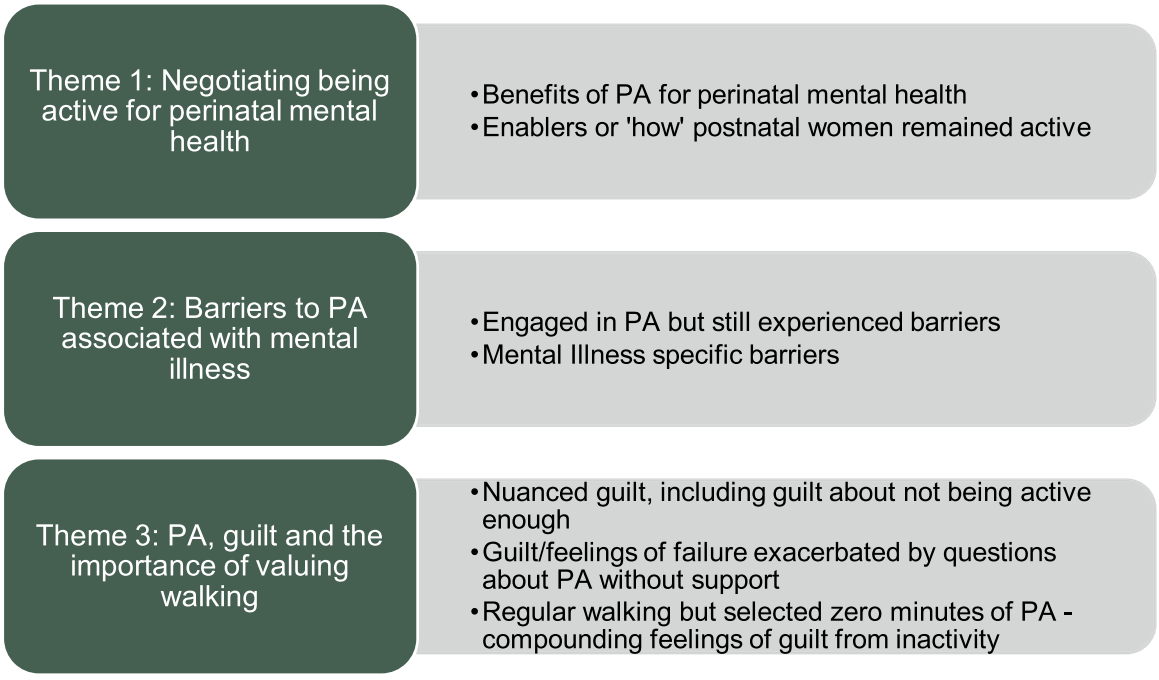

Fig. 1. Thematic map.

Table 1
Summary of survey respondent biographies.

Characteristic	Number	%
Age		
20–24 years	2	1
25–29 years	21	11
30–34 years	81	44
35–39 years	68	37
40–44 years	10	5
44–49 years	3	2
Ethnicity		
White British	136	73
White English	22	12
White Irish	4	2
White Scottish	1	1
White Welsh	1	1
White and Black Caribbean	1	1
White and Black African	1	1
White and Asian	2	1
Indian	1	1
Chinese	1	1
Other	16	9
Employment		
Full-time	83	45
Part-time	71	38
Self-employed	10	5
Currently unemployed	12	6
Other	9	5
Family type		
Opposite sex married couple	137	74
Same sex married couple	3	2
Civil partner couple	1	1
Cohabiting couple	30	16
Lone parent	9	5
Blended (step)	3	2
	2	1
Disability		
Learning Disability/Difficulty	1	1
No	183	98
Other	1	1
Experience of maternal/paternal mental illness		
Yes – in the past	35	19
Maybe in the past - undiagnosed	29	16
Yes – currently	17	9
Maybe currently – undiagnosed	13	7
No	92	49
Diagnosed perinatal mental illness		
Postnatal depression	15	8
Antenatal depression	1	1
Perinatal anxiety	9	5
Perinatal OCD	2	1
PTSD and birth trauma	2	1
Other	1	1

> & it has helped me improve my with [sic] depression and deal with major anxiety.

It is unsurprising that some of the women in our participant group used PA for their mental health, given previous research highlighting the known benefits of PA for perinatal mental health (Pritchett, 2017; NHS, 2022; Mind, 2022). What we needed to better understand was how they remained active in the context of their changing family lives and mental health problems (Teychenne, 2021).

Many of the enablers described by our respondents mirror those identified in previous research (Mailey et al., 2014; Saligheh et al., 2016). In explaining their experience, the processes by which the mothers responding to this survey did remain active for their mental health were explained through prioritisation, role modelling, integrating PA with care for their baby, spouse, family or other social support, and being active in nature or coupled with mindfulness. For example, Julia prioritised activity and wanted to model an active lifestyle for her daughter:

> physical activity is of the highest priority for me. It is essential for my well- being and therefore directly impacts on my family's wellbeing. I think it is important for my children to see their parents exercise and be healthy and hopefully they will follow that example.

Indeed, previous evidence from Saligheh et al. (2016) recognised birth as a life altering event and the challenges associated with adjusting to life after birth; finding that those mothers who did remain active postnatally no longer thought of themselves as the highest priority and prioritised the needs of their baby but used strategies and wider familial support to remain active. Caring for their babies remained a priority for the women responding to our survey and many would walk with their babies to help them to sleep, Lucy was one such mother who found this: 'my daughter napped in her pram so going out for a walk every morning and afternoon became a routine which really helped me. After minutes I could feel myself feel better'. Routine and family support were also important for Stacey who explained that:

> Keeping to schedule or routine, my daughter & getting her involved, weighing myself regularly, swimming membership, getting up early & exercising whilst everyone asleep

> Myself, my mother in law who helps with childcare, my employer who encourages me to take a proper break from work, my best friend who encourages me to keep active.

Carol wrote about a sense of calm from being active outside and pairing activity with mindfulness, she said that she feels:

> Much calmer. I suffer with anxious thoughts and had post natal psychosis after the birth of my first child. I find exercise quietens my mind and gives me a sense of calm. Also being outdoors helps me a lot.

> It has helped me immensely. I find being somewhere quiet also helps, like in the countryside, where there is no sound of traffic. Pairing it in with mindfulness and taking moments to stand and enjoy the sounds also helps.

These insights into the experiences of the ways in which women managed their PA in the context of their new family dynamic and during times of mental ill-health help to demonstrate why there were such a broad range of motives or things that respondents would want from a programme of activity or peer support. Social connections were key for many. Within any programme, time and skills for building social connections needs facilitating. The mothers responding to this survey had diverse needs; they wanted opportunities that included having: fun, enjoyment, the opportunities to create family bonds and entertain the children somewhere local, that was free, in the fresh air, where they could connect with nature. It is therefore important to think more broadly about how we promote activity and tap into the broader motives, where the exercise or PA is incidental to the other primary motives. This supports previous research that advocates against PA being perceived as another chore to fit in and manage (Shum et al., 2022). Elsewhere in the literature, the promotion of the broader benefits of PA is also considered by HCPs who reportedly approach conversations about PA in relation to bonding with baby, social interaction, mental health and wellbeing, and relaxation (Allin et al., 2023) when trying to promote a PA programme sensitively; or selling the benefits of PA while challenging misconceptions (De Vivo and Mills, 2019).

Barriers to physical activity associated with mental illness

Despite shedding light on how some mothers have navigated using PA for their mental health, it is important to develop a more nuanced understanding here. The women describing their strategies above still faced some barriers to more, or other forms of, activity. Stacey, who engaged in yoga, walking, exercise classes, swimming and running tried to keep to a routine, got her child involved and had family support, also

said that despite wanting to be more active, there was 'not enough hours in the day' and 'lack of childcare and money as can't afford to pay for more classes or memberships' prevented her from doing these. Carol, who gained a sense of calm from being active outdoors also stated that:

> I am only free from 7pm in the evening. Cost is a factor as I had very low maternity pay and I now move into unpaid maternity leave. Motivation is also an issue. I feel very tired in the evenings after having the kids since 7:30am when my husband goes to work.

These barriers to further PA described by the women already deliberately active for their mental health mirror the general barriers to PA cited in previous literature for mothers (Cramp and Bray, 2011; Mailey et al., 2014). Whilst these women faced barriers to further activity but still managed to remain active, it is important to represent contrasting experiences. Many women struggling with mental health problems as new mothers shared their experiences of more limited PA. Lack of confidence to exercise in a group setting, fear and anxiety about being active, or fear and anxiety about not being able to settle the baby were key barriers to those struggling with perinatal mental illness following the birth of a child.

In the wider literature, emotional barriers are known to be significant for those with depression (Faulkner and Biddle, 2004; Glowacki et al., 2017). This was mirrored by some of the women with PND in this study who struggled to be active because of 'childcare but also feeling low or too tired' (Briony) and 'my own lack of motivation, when I feel down' (Shirley). Laura who had PND, PTSD and birth trauma had rewind therapy for her PTSD and took anti-depressant medication explained her experiences of barriers to PA:

> Time looking after my baby, energy to do so at the end of the day, restrictions as I look after my baby, work, money, fear and anxiety, clothes, judgement.

> It has definitely decreased. I used to go to cross fit, or dance classes, or the gym… now I don't do any of that. Partly because of time. Classes are not on at convenient times, they don't allow you to bring children or provide childcare, I'm anxious about going because my fitness and body has changed so much…

> … it's hard! Looking after baby is number one priority.... looking after myself isn't. The change in perspective, outlook on priorities, view of self, self esteem and confidence changes so dramatically and no-one prepares you for it! I'm not the same person I was before I had a baby.

The caring responsibilities of mothers, coupled with their feelings of guilt and anxiety leaving the baby, were experienced by many of the new mothers. Phoebe who thought she may have had an undiagnosed perinatal mental illness described that it was 'very hard to find time to dedicate to yourself especially on a regular weekly basis. Being away in the first 2 years for my own activities felt selfish and brought anxiety to get back as soon as possible'. Similarly, Robin stated 'not feeling well enough' as one of her barriers to PA. Others who had perinatal mental illness in the past echoed those feelings of heightened anxiety. Zara now uses PA for her mental health but to start with struggled as she 'was feeling very anxious as a first-time mum to be out of the house with baby, terrified baby will wake up and I wouldn't be able to set her needs on the go'. Zara explained that:

> I used to be far more active before baby but it's been hard after birth. Having a difficult start doesn't help. I struggled with a difficult birth and breastfeeding do finding time to even shower was difficult. Some days i don't go your [sic] of the house at all and it does make me feel more isolated. After having a bit more of a routine with baby I've been able to fit more exercise onto my day

Pippa also explained that when 'struggling with so much else it's just one step too far'. When other researchers have examined emotional barriers to PA from depression, the lack of motivation, low mood and fatigue experienced by many with depression remained significant barriers to participation even for those who had shown an interest in an exercise for depression programme (Bush et al., 2016). These emotional barriers were evidently an issue for the women in our study with experience of perinatal mental illness. Other barriers described by our respondents also align with some of the more general barriers to exercise identified previously in the literature among postnatal women (Cramp and Bray, 2011; Mailey et al., 2014). What we have seen from the current study is the significance of heightened anxiety, fear, low mood and embarrassment among some of the women struggling with perinatal mental illness. In addition to guilt as a barrier to PA, they also wrote about their guilt about not managing to remain active, which we move onto examine next.

Physical activity, guilt and the importance of valuing walking

Clearly the standard opportunities for organised PA weren't working for many of the women who responded to our survey due to a range of barriers associated with perinatal mental illness and transitions into parenthood. In discussing advice from HCPs, some women responding to this survey felt increased feelings of failure or guilt:

> In the first few weeks after birth I felt that health visitors were asking about physical activity as a check-box exercise. 'are you going out for walks mum? Are you doing your pelvic floor exercises?' I felt that I failed for not being able to be out of the house much or remember to do my pelvic floor (Zara).

This feeling of guilt developed through conversations with HCPs was also described by Sophie who had no mental health problems:

> As a new mum, being told you need to exercise for your mental health or to "bounce back" whilst accurate, is not helpful if you are not provided with the opportunities to do so. Mum guilt is huge, without that added on too.

We have seen from previous literature that HCPs, including midwives, were aware of the sensitive nature of promoting PA with postnatal women; midwives have reported feeling burdened by the responsibility of this, concerned with the tick box approach and have identified a lack of confidence, limited knowledge or available training, time, resources, and perceptions of vulnerability as barriers to PA promotion with all postnatal women (Allin et al., 2023; De Vivo and Mills, 2019). Work is developing in this area with evidence of a cascade training model being used to successfully develop HCPs confidence, motivation, knowledge and skills in promoting PA guidelines with pregnant and postnatal women (Taylor et al., 2023).

For postnatal PA, walking is promoted for helping women to build up activity gradually (APF, 2023; UK CMO, 2019b). Interestingly, from our survey findings, many of the women were walking regularly but for the check box question about number of minutes of PA per week, they ticked zero. For example, all these women, and many more in the survey, selected 'I am not currently physically active' but described their engagement in walking in various ways, including: 'As a family, we are trying to do a leisurely walk once a week for around 1–2 miles. Other than that and being on my feet looking after a 3 year old, I am doing no other form of exercise' (Joy); 'meeting friends for walks with children' (Sally); 'walking on my own or with baby in buggy or with my toddler. Recently had c-section so only going for moderate walks currently' (Kim); and 'walk to and from work. Occasionally walk in countryside' (Beth).

It is likely that the description of moderate intensity PA used for the survey ('being able to talk but not sing') (DHSC, 2019, p.15), may have meant that respondents were not seeing, or valuing, their walking as PA because of the intensity required to meet UK CMO guidelines, even though it is made clear that 'any activity is better than none, and more is better still'. Other researchers are clear that this is relevant for both physical and mental health, with PA undertaken even in low doses (e.g.

walking twice per week) providing mental health benefits (Teychenne et al., 2020). In fact, more recently, the importance of contextual factors (such as the type of activity, domain/life context, social and physical environment) has been highlighted as more important than the volume of PA for mental health (Teychenne et al., 2020; Vella et al., 2023a, 2023b). As such, walking (type) outdoors/in nature (physical environment) with a friend (social environment) for recreational purposes (domain) a couple of times per week may enhance the experience of PA and subsequently mental wellbeing for a postnatal woman who prefers and enjoys PA in this context, compared to if they were pressured to undertake high volumes of PA in a less supportive or personally enjoyable context (e.g. high-intensity training in a large gym where they feel self-conscious). Therefore, it is critical that messaging around PA underscores the value of walking, for any duration, in a context that is most enjoyable (and preferred) for the individual, to enhance the mental health benefits of PA.

Strengths and limitations

A key strength of this study is the new empirical data provided about the realities of negotiating PA for mental health in the postnatal and early years period. Importantly, we provide a more nuanced understanding of how some women remain active whilst also highlighting the emotional barriers associated with perinatal mental illness. We have identified that walking and incidental PA is often not valued by new mothers which has implications for PA messaging. This addresses an important gap in current literature about PA that lacked the voices of those with lived-experience of mental illness.

There are limitations to the study relating to selection bias from an opt-in online survey. Due to the nature of an opt-in online survey, those interested in the subject and engaged in relevant online networks may be disproportionately represented in the participant group (selection bias) so caution should be taken regarding generalisability. It should also be noted that whilst the survey was opened after COVID-19 lockdown restrictions were lifted, there were likely to be lasting impacts on mental health and PA that affected the experiences described by these mothers.

Conclusion and implications

This study demonstrates how some women negotiate PA for mental health (prioritisation, routine, role modelling, integrating PA with care for their baby, spouse or family support, and being active in nature or coupled with mindfulness) and valued the broader benefits of activity but also, critically, some of the specific barriers from perinatal mental illness (low mood, fatigue, embarrassment, lack of confidence to exercise in a group setting, fear and anxiety about being active, or fear and anxiety about not being able to settle the baby, guilt) exist alongside the more general barriers to PA in the postnatal period (time, childcare, cost, tiredness, guilt).

Importantly, we also highlight challenges with PA messaging whereby some women felt increased guilt and feelings of failure when asked about their PA; and whilst many women engaged in regular walking, they did not count this as PA. This has important implications for how we promote PA through HCPs in maternity care to include considerations for the type (including walking), domain, physical and social environment when seeking to enhance the mental health benefits for the individual. Future health promotion strategies through maternity care, the PA and voluntary sectors working with new mothers and families in the early years can also develop practice by developing interventions and celebrating walking and incidental activity from activities that mothers and families find enjoyable. Future research including a more diverse participant group and exploring attempts to support PA for perinatal mental illness will be important.

CRediT authorship contribution statement

Emily Lovett: Writing – review & editing, Writing – original draft, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Andy Smith:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Data curation, Conceptualization. **Megan Teychenne:** Writing – review & editing, Writing – original draft.

Declaration of competing interest

The authors have no known competing financial interests or personal relationships that may have influenced this work.

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Supplementary materials

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