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Perceived Barriers and Motivators for Physical Activity in Women With Perinatal Depression

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Abstract

Background: Physical activity (PA) can help reduce depression symptom severity in women with perinatal depression. However, PA is low, and barriers and motivators for PA among women with perinatal depression are not well understood.

Methods: An ethnically diverse sample of women with perinatal depression was identified using a universal perinatal depression screening program. The authors conducted 8 focus groups (4 in pregnant women [$n = 15$] and 4 in postpartum women [$n = 20$]). Depression symptoms were measured using the Patient Health Questionnaire-8 at recruitment. Focus groups were analyzed using an inductive approach.

Results: Pregnant participants were 27 weeks gestation, and postpartum participants were 11.5 months postpartum, on average. Depression symptoms were moderately severe (mean Patient Health Questionnaire-8 score: 16). Women identified practical barriers and motivators for PA common to perinatal women (physical health, parental responsibilities, PA tracking tools, and environmental factors) and described emotional and social factors influencing PA. Motivators included using PA to improve mood, relieve stress, boost self-image, and spend time with others. Bad mood, fear of social judgment, and feeling discouraged made it difficult to be active.

Conclusion: PA interventions in women with perinatal depression should include components addressing emotional and social barriers to PA in addition to addressing additional common practical barriers to PA.

Keywords

pregnant; postpartum; emotions; social support

Perinatal depression (depression with onset during pregnancy or postpartum) is common, affecting between 12% and 20% of pregnant and postpartum women.¹ Perinatal depression increases the risk of pregnancy complications, such as preterm delivery^{2–4} and low

birthweight,³ and is associated with behaviors that adversely affect postpartum maternal and child health, such as negative maternal–infant interaction,⁵ lower likelihood of breastfeeding,^{4,6} lower likelihood of attending well-child visits,⁶ lower likelihood of completing recommended immunizations,⁶ greater risk of child behavioral problems,^{6,7} and greater risk of poor cognitive development.^{3,8,9}

Physical activity is beneficial for reducing the severity of depression symptoms.^{10–13} However, despite the mental and physical health benefits of leisure-time physical activity during pregnancy and the postpartum period, only 23% of pregnant women and 30% of postpartum women meet current national physical activity guidelines in the United States.^{14–20} The proportion of women with perinatal depression who meet physical activity guidelines is even lower. In a recent study, 9% of pregnant women and 8% of postpartum women seeking psychiatric care (86% of whom had depression) met physical activity guidelines.²¹

In the general population of pregnant and postpartum women, several barriers and motivators for physical activity related to health (energy, health benefits, discomfort, and pain), lifestyle (time and childcare), and psychosocial factors (motivation, knowledge, and social support) have been identified.^{22–29} However, barriers and motivators for physical activity have not been studied in women with perinatal depression. Women with perinatal depression may face additional psychosocial barriers to physical activity and may also have different motivators for physical activity than women who do not have depression. A unique motivator in women with perinatal depression may be the desire to avoid pharmacologic treatment for their depression as many pregnant and postpartum women are reluctant to use antidepressants due to concerns about side effects, stigma, and safety of antidepressant use while pregnant or breastfeeding.^{30–33}

Understanding barriers and motivators for physical activity among women with perinatal depression is important for tailoring strategies and interventions focused on increasing physical activity to the needs of this population.³⁴ Such tailored physical activity interventions may be attractive adjunct treatment options for depression in this population. The objective of this study was to identify barriers and motivators for physical activity among women with perinatal depression.

Methods

Study Setting and Participants

Pregnant and postpartum women with perinatal depression were identified within the Kaiser Permanente Northern California integrated health care delivery system. All pregnant and postpartum women are screened for depression as part of the universal perinatal depression screening program at Kaiser Permanente Northern California. Women are screened 2 times during pregnancy (at the first prenatal visit and at 24–26 wk gestation) and once postpartum (at 4- to 6-wk postpartum) using the Patient Health Questionnaire-9 (PHQ-9).^{35,36} The PHQ-9 has been validated as a screening instrument for depression with high sensitivity and specificity in perinatal women.^{37,38}

Eligible women were identified using the electronic health record database. Women were eligible for our study if they were 18–49 years old, could speak English, were pregnant or postpartum (at least 6 mo postpartum), and had a diagnosis of depression (ICD-9 codes: 296.20–296.26, 296.30–296.36, 298.0, 300.4, 309.0, 309.1, 309.28, 311, 648.40–648.44 and ICD-10 codes: F32.0–F32.9, F33.0–F33.9, F34.1, F43.21, F43.23, O90.6, O99.340–O99.345) or a PHQ-9 screening score of 10 or greater (indicating at least moderate depression symptoms) during pregnancy for pregnant women or during postpartum for postpartum women. Eligible women were contacted by telephone.

We conducted 8 telephone focus groups from November 2018 to February 2019: 4 in women with prenatal depression and 4 in women with postpartum depression. Participant homogeneity in personal experience and demographics within individual focus groups is recommended to facilitate participant comfort with self-disclosure about sensitive topics,^{39–41} and studies have found distinct perspectives by race/ethnicity related to barriers for physical activity.^{42,43} We also hypothesized that barriers and motivators may differ by perinatal time period (pregnancy vs postpartum). Therefore, to allow for possible differences in barriers and motivators by race/ethnicity and perinatal time period, we conducted each focus group with women of the same race/ethnicity and perinatal time period with 1 focus group among pregnant women and 1 among postpartum women for each of 4 race/ethnicity groups: Hispanic, non-Hispanic white, non-Hispanic black, and Asian. Focus group size ranged from 2 to 6 participants. A total of 15 women with prenatal depression and 20 women with postpartum depression participated.

This study was approved by the Kaiser Permanente Northern California Institutional Review Board. All participants provided informed consent prior to the start of the focus group. Participants received \$80 as compensation for their time.

Data Collection

Women completed a PHQ-8 questionnaire at study recruitment to measure current depression symptoms.⁴⁴ We collected demographic, medical history, and pregnancy data from the electronic health record database.

Focus groups lasted approximately 60 minutes. One moderator (E.I.), a clinical psychologist trained in qualitative methods, led all focus groups using a semistructured guide developed by S.E.B. and E.I. Questions assessed physical activity during pregnancy and postpartum, motivators and barriers to being physically active, mental health and emotions, connections between physical activity and mental health, and physical activity trackers. The full focus group guide is included as Supplementary Material (available online). S.E.B. was also present for all focus groups. Focus groups were audio recorded and transcribed verbatim.

Analysis

We used means and SDs to describe distributions of continuous variables and frequencies and percentages to describe distributions of categorical variables.

To identify themes and representative quotes for each theme, we conducted a general inductive analysis; this pragmatic method is well suited to generating brief summaries of

qualitative data in response to specific research objectives to inform health care service delivery.⁴⁵ Our coding process had 2 iterations. Four coders (S.E.B., E.I., L.N., and L.A.A.) initially read 3 transcripts each, with overlap, to independently identify major themes and subthemes. Coders then met as a group to compare identified themes and subthemes, discuss code definitions and exemplar quotes, and develop a coding scheme for the study. Disagreements were resolved through consensus, relying on the shared observations of S.E.B. and E.I. from the interviews themselves. The coders then coded 2 transcripts each, without overlap, using the coding scheme and identified representative quotes for each major theme and subtheme. NVivo (version 12.6; QSR International, Burlington, MA) was used for coding.

Results

Characteristics of focus group participants are presented in Table 1. Pregnant participants were 27 weeks of gestation, and postpartum participants were 11.5 months postpartum, on average. Close to 50% of the pregnant and postpartum participants had a depression diagnosis during pregnancy, and almost all (95%) of postpartum participants had a depression diagnosis during postpartum. The average PHQ-8 score at recruitment was 16 (range: 8–27), and 60% of pregnant and postpartum participants had moderately severe to severe depression symptoms.^{44,46}

We identified 6 major themes related to barriers and motivators for physical activity in pregnant and postpartum women: emotions, social influences, physical health, parental responsibilities, physical activity tracking tools, and environmental factors. Major themes and subthemes within each major theme with representative quotes are presented in Table 2. Major themes and subthemes were similar across race/ethnic groups and perinatal time period (pregnancy vs postpartum).

Emotions

Motivators.—Improving mood, stress relief, and improving self-image and confidence were motivators for being physically active. Women engaged in physical activity to alleviate depression symptoms, maintain a good mood, feel energized, and because they enjoyed being physically active. Participants used physical activity as stress relief and liked the meditative aspect of yoga for relieving stress. Women also felt better about themselves, more in tune with their bodies, and a sense of accomplishment from physical activity.

Barriers.—Bad mood and feeling discouraged were barriers to being physically active. Depression symptoms, low motivation, and low energy made it difficult for women to be physically active. In addition, women felt discouraged when they could not reach fitness goals or match their prepregnancy physical activity intensity. Women expressed disappointment with their bodies and the resulting limitations on physical activity due to weight gain and other pregnancy and postpartum body changes.

Social Influences

Motivators.—Some women were motivated by social pressures to be physically active, such as to avoid negative scrutiny of their health or to keep up with others' physical activity. Women generally viewed advice from health care professionals to be physically active favorably and were motivated to be more physically active due to upcoming health care appointments. Friendly competition around physical activity among friends and family was also a motivator for physical activity (including through shared physical activity tracker data). Many women identified having social support, in the form of a walking partner or pregnancy-specific exercise class or through a social component of a physical activity smartphone app, as helping them to be physically active.

Barriers.—Feeling judged by others about physical activity choices and abilities and lack of social support for physical activity were barriers to being physically active. Women felt judgment from family and friends both about being physically active and not being active enough. Women felt that being pregnant drew attention to them in gym or group exercise class settings, which made them embarrassed or uncomfortable. Many women also felt that they were burdening or slowing down their friends or peers in group exercise classes by asking for modifications and not being able to keep up. A lack of social support from family and friends was an additional barrier to being physically active. Some women expressed frustration with their partners for not contributing to household tasks and taking care of children so they could have time to be physically active.

Physical Health

Motivators.—Improvement in symptoms related to pregnancy and postpartum, pain relief, weight loss and maintenance, and preparing for labor were motivators for physical activity. Many women used physical activity to help manage musculoskeletal pain. Losing pregnancy-related weight and keeping weight off postpartum were also strong motivators for being physically active. During pregnancy, being physically active was viewed as good preparation for labor and helpful for recovering from labor and birth more quickly.

Barriers.—Pregnancy and postpartum health-related symptoms, such as fatigue, nausea, pain, poor sleep, pregnancy complications and discomfort, and recovery from cesarean delivery, made being physically active difficult. Women also expressed concern about doing too much physical activity and hurting themselves.

Parental Responsibilities

Motivators.—Benefits to the baby's health, the ability to include children in physical activity, and balancing one's own needs with others' needs were motivators for physical activity. Women were motivated to be physically active because they viewed physical activity as improving their baby's health and helping with breast milk supply. Women were also motivated by including their children in physical activity by walking with a stroller, playing at a park, or using the time their older children were being physically active (eg, sports practice) to be physically active themselves. Some women also saw physical activity as a way to care for themselves, maintain their identity, and not put their needs last so they could maintain stamina for parenting and caretaking.

Barriers.—Concerns about harming the baby, lack of childcare, prioritizing others' needs over one's own needs, and competing priorities were barriers to physical activity. Some women were concerned about high-intensity physical activity during pregnancy harming their babies or causing miscarriage. Many women identified lack of childcare as a barrier to being physically active and expressed difficulties being physically active while tending to the changing needs and moods of their young children. Some women also felt that “chasing” children around at home was not a satisfying way of being physically active as compared with more focused exercise. Almost all women mentioned lack of time as a barrier to being physically active with time and energy spent on different priorities (housework and breast feeding). Women also mentioned cost of existing physical activity resources as a barrier to using these resources.

Physical Activity Tracking Tools

Motivator.—Some women viewed physical activity trackers as motivating for being physically active. They enjoyed the tracking, competition, and accountability features of physical activity trackers.

Barriers.—Other women were discouraged by physical activity trackers because they set unrealistic expectations, and these women were frustrated and discouraged when they did not reach their physical activity goals. Some women also viewed physical activity trackers as stressful and burdensome or felt that they were not the target audience for trackers and would not benefit from them.

Environmental Factors

Motivators.—Nice weather was a motivator for physical activity. Some women viewed physical activity as a required part of other life activities and responsibilities, such as their job, walking the dog, or for transportation around their neighborhood.

Barriers.—Unpleasant weather was a barrier to being physically active. There were insufficient options for exercise classes for pregnant and postpartum women; women reported that many classes were full or were not offered at convenient times.

Discussion

Among pregnant and postpartum women with perinatal depression, most with current high depression symptom burden, we identified practical barriers and motivators for physical activity common to pregnant and postpartum women (physical health factors, parental responsibilities, physical activity tracking tools, and environmental factors) and emotional and social factors influencing physical activity. Women were motivated by the positive emotional benefits of physical activity, social support and friendly competition around physical activity, and the physical health benefits of physical activity related to pregnancy and postpartum recovery. Women were also motivated to be physically active to take care of themselves, emotionally and physically, during a time of their lives when a large responsibility is taking care of children and others. Some women found physical activity trackers, good weather, and routine physical activity as part of daily activities to be

motivators for being physically active. Negative emotions, social judgment and lack of social support for physical activity, physical health limitations, and competing priorities, especially childcare and household responsibilities, made it difficult to be physically active. Some women were discouraged after using physical activity trackers and not being able to access available tailored physical activity resources.

The practical and social barriers and motivators for physical activity that we identified among women with perinatal depression are generally similar to barriers and motivators for physical activity among the general population of pregnant and postpartum women. A recent systematic review of 49 qualitative studies on barriers and motivators for physical activity in pregnant women identified maternal and fetal health benefits, social support, and pregnancy-specific exercise programs as the most frequently identified motivators for physical activity.²³ The same systematic review identified lack of time, fatigue, and other pregnancy-related physical discomforts to be the most frequently identified barriers to physical activity during pregnancy. Among postpartum women, several studies have identified health benefits, social support, accountability through smartphone apps or group activities, and good weather as motivators for physical activity.^{25,26,28} Previous studies about barriers to physical activity among postpartum women have identified prioritization of others' needs, especially children's and family needs, over one's own needs, lack of time, low energy, lack of social support, lack of childcare, unrealistic expectations, high cost and limited access to existing physical activity resources, physical health limitations, and bad weather as barriers to physical activity during the postpartum period.^{24–29}

Emotional influences related to depression symptoms also emerged as important barriers and motivators in our study. Women commonly viewed physical activity as a way to manage and alleviate depression symptoms and often mentioned bad mood as a barrier to being physically active. Previous studies in the general population of perinatal women have reported general maternal well-being and feeling energized after being physically active as motivators for physical activity and have identified lack of motivation and energy as barriers to being physically active.^{23,26,28} However, these previous studies have not specifically identified bad mood or depression as emotional influences on physical activity in the perinatal population. The depression symptom burden among participants in our study was likely high compared with studies in the general perinatal population, making barriers and motivators related to maternal mental health more prominent concerns for our study participants.

An additional barrier to being physically active that was identified in a previous study in the general population of postpartum women in Canada was limited counseling from health care professionals about physical activity and other healthy habits during postpartum.²⁵ Perinatal women with depression in our study did not mention limited guidance from health care professionals as a barrier to physical activity. This may be due to the later postpartum stage of the women in our study (~12 mo in our study vs 4–6 mo postpartum in the previous study), when more time had elapsed since the last encounter with postpartum care.⁴⁷ Health care professional advice may be a more important influence on physical activity earlier in postpartum.

Perinatal women in our study generally viewed physical activity resources that were tailored for pregnant and postpartum women as positive and had a desire to take advantage of such resources; however, many women found these resources to be difficult to access because of high cost or difficulty finding exercise classes and programs that had available space for new participants. Our findings are consistent with a recent study in pregnant and postpartum women seeking psychiatric care (86% were seeking care for major depression) in an urban setting in the United States wherein almost 90% of participants reported interest in participating in an exercise program.²¹ Women reported improved physical and mental health and energy, including lower stress, anxiety, and depression, as perceived benefits of physical activity; however, this other study did not include assessment of barriers to accessing tailored physical activity programs in perinatal women with mental health disorders. Physical activity interventions tailored to women with perinatal depression can address the emotional influences on physical activity in this population by incorporating messaging about the mental health benefits of physical activity and acknowledging difficulties being physically active when experiencing bad mood or high burden of depression symptoms. Peer support groups may also be effective additions to existing physical activity interventions for perinatal women to address emotional and social influences on physical activity in women with perinatal depression.⁴⁸

Our qualitative study enabled us to capture perspectives about physical activity based on the individual experiences of pregnant and postpartum women from multiple racial/ethnic backgrounds. In addition, our focus on women with perinatal depression adds important information for designing tailored physical activity interventions in this population. New and existing individual telehealth or virtual interventions, such as the telephone-based Wellness Coaching program at Kaiser Permanente Northern California,⁴⁹ app-based health coaching and physical activity promotion programs, and on-demand libraries of exercise videos, offer opportunities to address practical barriers associated with in-person physical activity resources. The COVID-19 pandemic has accelerated availability of virtual physical activity resources,⁵⁰ broadening the options available for in-home physical activity. The COVID-19 pandemic has also enhanced many existing emotional and social barriers to being physically active in women with perinatal depression, negatively affecting maternal mental health, increasing childcare demands, and limiting social support.^{51,52} Although availability of virtual physical activity resources has increased, these resources may not adequately meet the needs of women with perinatal depression, especially during a challenging time with increased emotional and social barriers to being physically active. Incorporating components addressing emotional barriers and social support may better meet the needs of women with perinatal depression and increase the effectiveness of these virtual physical activity interventions in this population. For example, including action planning for physical activity when faced with emotional barriers may help develop self-efficacy for physical activity in this population. In addition, adding virtual peer groups may increase social support for physical activity, especially during a time when in-person support may be limited.

The barriers and motivators for physical activity identified in our study may be generalizable to other populations of women with perinatal depression; however, some caution should be applied when generalizing our findings as women in our study were members of an integrated health care delivery system. Women who participated in our focus groups may

have been more interested or concerned about physical activity than eligible women who did not participate in our focus groups. An additional limitation of our study is that we were not able to calculate interrater reliability of coding as a measure of consensus as each transcript was coded by only one coder.

Our findings indicate that practical and social barriers and motivators for physical activity are generally similar in women with perinatal depression and the general population of perinatal women; however, emotional barriers to physical activity are particularly important in women with perinatal depression, a population in which physical activity levels are particularly low and the mental health benefit to be gained is high.^{10,12,21} Future research in this area to identify which barriers and motivators are most strongly related to physical activity levels and characteristics associated with these key barriers and motivators will help further tailor physical activity interventions for women with perinatal depression. Based on our findings, future physical activity interventions and programs for pregnant and postpartum women with depression should address identified barriers and can leverage identified motivators related to emotions and social influences in addition to practical barriers and motivators related to physical health, parental responsibilities, physical activity tracking tools, and environmental factors.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Characteristics of 35 Focus Group Participants

Demographic characteristics	
Maternal age, mean (SD), y	32 (5)
Race/ethnicity, n (%)	
Black	12 (35)
Asian	8 (23)
White	8 (23)
Hispanic	7 (20)
Medicaid during pregnancy, ^a n (%)	10 (29)
Educational attainment, n (%)	
High school graduate	4 (13)
Some college	13 (42)
College graduate	8 (26)
Advanced degree	6 (19)
Married, n (%)	20 (57)
Medical characteristics	
Nulliparous, n (%)	11 (31)
Pregnant, n (%)	15 (43)
Gestational age, mean (SD), wk (n = 13) ^b	27 (7)
Postpartum, n (%)	20 (57)
Weeks postpartum, mean (SD)	50 (10)
Prepregnancy BMI category, n (%)	
Underweight (<18.5 kg/m ²)	0 (0)
Normal weight (18.5–24.9 kg/m ²)	12 (34)
Overweight (25–29.9 kg/m ²)	11 (31)
Obese (≥30 kg/m ²)	10 (29)
Missing	2 (6)
Depressive symptoms, diagnoses, and medication use	
PHQ-8 score, mean (SD)	16 (5)
Depressive symptom severity, n (%)	

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Mild (PHQ-8 score 5–9)	3 (9)
Moderate (PHQ-8 score 10–14)	11 (31)
Moderately severe (PHQ-8 score 15–19)	13 (37)
Severe (PHQ-8 score 20)	8 (23)
Depression diagnosis prior to pregnancy, n (%)	9 (26)
Depression diagnosis during pregnancy, n (%)	18 (52)
Depression diagnosis during postpartum (n = 20), n (%)	19 (95)
Antidepressant medication use prior to pregnancy, n (%)	8 (23)
Antidepressant medication use during pregnancy, n (%)	7 (20)
Antidepressant medication use during postpartum (n = 20), n (%)	7 (35)

Abbreviations: BMI, body mass index; PHQ-8, Patient Health Questionnaire-8.

^aMedicaid is a government health insurance program for individuals and families with low or very low income. It is presented here as a proxy for low income.

^bTwo women had fetal deaths prior to focus group participation (at 16 and 22 wk gestation).

Table 2

Major Themes, Subthemes, and Representative Quotes

Subtheme	Barrier/motivator	Quotes
Major theme: Emotions		
Mood	Motivator—improving mood	“[Physical activity] definitely helps with my depression, and I noticed that if I don’t get physically active, I will become more depressed.” (pregnant woman) “... I knew that the natural endorphins created with working out would help me with [postpartum depression].” (postpartum woman)
Mood	Barrier—current bad mood	“I have a treadmill in my living room. I try to get on it, but it really depends on my mood.” (pregnant woman) “... if you’re not in the mood or you’re not feeling like yourself, then you’re probably not going to feel the energy to get up and work out and be physically active ... if you’re not feeling good, then it’s hard to work out.” (postpartum woman)
Stress	Motivator—stress relief	“I feel like [yoga] helps relax me ... it gives me the relax [sic] that I need, and then I can handle [the stress].” (postpartum woman)
Self-image	Motivator—self-confidence and accomplishment	“[Being physically active] you feel like you accomplished something in that day ... The days when we cannot do it, you feel more lazy. You feel like the day has just passed without you doing one thing. You did not accomplish anything.” (pregnant woman) “[Physical activity] would make me feel much better about myself and my body knowing that I’m doing something for my body.” (postpartum woman)
Self-image	Barrier—feeling discouraged	“... it’s frustrating and depressing. I walk, but I don’t walk the same distance or length of time as before.” (pregnant woman) “... I would feel a little sad that I wasn’t working out. I didn’t have the strength, or I was losing the strength that I had before pregnancy, or I would miss the higher impact workouts I was able to do before.” (postpartum woman)
Major theme: Social influences		
Scrutiny about weight, health, and physical activity	Motivator	“... if my doctor suggested that being physically active would help, I would definitely try to incorporate that in my daily life.” (pregnant woman) “My husband tells me, ‘You’ve got to stop eating,’ ‘cause I love soda, and he’s like, ‘No, you’ve got to stop the soda. You’ve got to stop the fast food.’ ... [He says] don’t do it for me. Do it for the kids.” (postpartum woman)
Scrutiny about weight, health, and physical activity	Barrier—judgment	“I felt many times like I was being judged or looked at negatively because I was working out even though I wasn’t doing anything crazy ... I was super self-conscious and then, on top of that, other people’s looks made me not even want to enter the gym anymore.” (pregnant woman) “Even though they mean well, it still feels like judgment, and it didn’t help me try to stay active.” (postpartum woman)
Keeping up or not fitting in	Motivator—friendly competition	“... there would be weekly challenges where on Saturday night, if I’m not number one, I am walking around the house getting the last 200 steps in so I can be number one.” (pregnant woman)
Keeping up or not fitting in	Barrier—not fitting in	“It would make things easier if there were more pregnancy workout classes ... so that I didn’t have to be a burden. [Asking for modifications] takes a toll on the class, yourself, the teacher.” (pregnant woman)
Support availability	Motivator	“My husband always pushes me to do more physical activity and be more active. So even in my first trimester, when I was not able to do anything, he knew that I needed to step out of the house and be active. So he’s made it a point that, even in those times, he took me out for a walk in my neighborhood.” (pregnant woman) “If you can make it into a group setting where other women are around the same age, same dynamics, same ethnicities, age group, similar backgrounds ... The similarity in numbers is what helped me a lot, to know that I can do this with other women that are going through the same thing that are familiar. It made it more comfortable and more acceptable for me to go ahead and do it.” (postpartum woman)
Support availability	Barrier—lack of support	“[My husband] used to not be very helpful ... it brought me down because I felt like I didn’t have any support for anything that I was trying to do.” (postpartum woman)
Major theme: Physical health		

Subtheme	Barrier/motivator	Quotes
Pregnancy and postpartum health	Motivator—improving current symptoms	"I find [physical activity] really helps me because sometimes I just feel really stiff, and my joints hurt with the extra weight, and it helps me to be in a better mood, too." (pregnant woman) "I think [being active] helped me a lot dealing with other symptoms and really helped my morning sickness or any queasiness that I encountered." (postpartum woman)
Pregnancy and postpartum health	Barrier—current symptoms	"Having morning sickness, I lost my momentum to want to do anything." (pregnant woman) "My pelvic floor was very weak. I would be on the treadmill, and then I would feel my hip start pinching I had to stop even though, I knew I could keep going. I hadn't hit what I wanted to do." (postpartum woman)
Other health conditions	Motivator—pain relief	"I'm having low-back pain . . . I don't feel the pain after doing exercise." (pregnant woman) "I have a lot more pain if I don't do [physical activity] . . . the pain has actually motivated me. If I wasn't having [pain], I might not be doing the exercise." (postpartum woman)
Weight	Motivator—losing/maintaining weight	"I try to walk as much as I can and be active . . . so that I don't gain so much weight during these weeks that I have left, and then when the baby comes, it will be easier to keep the weight off." (pregnant woman) "It's good to stay active because then you don't tend to gain as much weight." (postpartum woman)
Labor	Motivator—easy labor and recovery	"When you are active, you will recover fast after your delivery. It will help to strengthen your core muscles. And pelvic strength will also increase." (pregnant woman) "[Physical activity] was really important because I was going to try my first natural labor, no pain medication, so I really wanted to make sure I was still physically fit to be able to tackle that challenge of giving birth, and I know being active helps with that." (postpartum woman)
Safety	Barrier—concern about hurting yourself	"I know there's a lot of poses that you can't do or a lot of things you shouldn't do when you are pregnant. So, definitely it would be safer [to have a pregnancy-specific class]." (pregnant woman) "Even though the doctor said it was fine, I was still getting scared that my heart rate would go too high up . . . I discussed it with my doctor, and he assured me that as long as I felt fine, it should be fine, that I should just listen to my body, but I would get bouts of nausea when my heart rate would go up to about 140." (postpartum woman)
Major theme: Parental responsibilities		
Baby's health	Motivator	"[Exercise] is important to me, obviously, because it impacts not just me but my baby." (pregnant woman) "[My daughter] loves socializing, and I'm thinking, if I'm not more active, then I wouldn't be able to take her to the parks or a baby swimming class. So [I'm active] not so much for my benefit, but also for her well-being." (postpartum woman)
Baby's health	Barrier—concern	"I do believe a lot of it is fear, because especially first-time moms, they see all this, and of course their first thought is that maternal instinct of 'Well, what if it hurts the baby?'" (postpartum woman)
Children	Motivator	"My older kids, they're the ones that keep me active. When they want to go walk or do something, I'll go." (pregnant woman) "As he's getting older, I am being more active with him . . . We walk to the park and walk back home. Or we go to those kid gyms. So that's starting to get me just a little bit more active. And now that he's walking, I'm definitely a little bit more active than I was before!" (postpartum woman)
Children	Barrier	"[My other kids] keep me from trying to do [physical activity] after work." (pregnant woman) "Babysitting is an issue. Who's going to watch my child while I work out, or if the gym has a day care that they run." (postpartum woman)
Self vs mother role	Motivator—addressing own needs	"[A motivator for me is] trying to do something for myself. I don't do that very often, so it's something I've been trying." (pregnant woman) "I feel like exercising gives me that 'me time' . . . It helps me feel like I'm doing something other than being a mom." (postpartum woman)
Self vs mother role	Barrier—prioritizing others' needs	"It depends on what I've got going on with other things. I am always last for myself. My kids and my husband and my family, they're always first." (pregnant woman) "Trying to find the time to work out is my issue . . . I think it's important for our self-image, self-esteem kind of aspect, but it's finding the time between the kid's napping, or he doesn't want to nap, or he doesn't want to eat." (postpartum woman)
Competing priorities	Barrier	"There's been so many things going on that exercising is the least of my concerns right now . . . Exercising really wasn't a priority. I have kids and animals and all kind of other things going on. So, it's not been that important." (pregnant woman) "There's so many other things that are competing for our attention. [When I start thinking] maybe I should do a couple of workout tapes that I

Subtheme	Barrier/motivator	Quotes
Major theme: Physical activity tracking tools		have or things online that I could do, then I start thinking. 'Okay, well, but I would much rather get laundry done,' or 'I'd rather make sure that my dishes are done,' or take a shower. All of those other things end up taking priority over that.' (postpartum woman)
Physical activity trackers/Motivator	Motivator	"I have had my Fitbit for years now, and I just upgraded to one of the newer ones. I track literally everything on it, every food, every water, my steps. I do challenges, which really motivate me." (pregnant woman) "[[The Apple Watch] was helpful, because it kept me moving. In my job, I would sit all day. It'll ding and say, 'It's time to move around.' Then I'll get up and go walk a lap around the office or go outside and walk a mile or something. So it was helpful in that regard." (postpartum woman)
Physical activity trackers	Barrier	"I don't use the fitness tracker] "because I don't want to see the numbers It's very discouraging. I feel very discouraged 'Cause seeing how, months before, I was able to do so many steps, and then now it's just a few." (pregnant woman) "I have an Apple Watch, and sometimes it can be the devil because . . . at the end of the day, if you didn't hit that marker, it can be daunting." (postpartum woman)
Major theme: Environmental factors		
Weather	Motivator	"If it's really nice outside, nice and sunny, I take a stroll." (postpartum woman)
Weather	Barrier	"Sometimes the weather is not good. So, under those circumstances, it is difficult for us to keep active." (pregnant woman)
I have no choice	Motivator	"With my job . . . I drive clients around, doing appointments and errands and that type of work. So I was always up and moving the entire pregnancy, up and moving I rarely sat down throughout the day I felt like it kept me in shape, versus just sitting a lot more, sitting at the desk all day, or being at the office." (postpartum woman) "My day-to-day routine and things that I do throughout the day feels like a workout because I feel like I'm constantly up and on the go and not just sitting or relaxing or laying around. I'm constantly up and moving, even chasing my little one-year-old around all day, because he has so much energy It's not so much of a structured exercise, but definitely just being up and moving is a way of getting some kind of physical activity." (postpartum woman)
Existing physical activity resources	Barrier—awareness and access	"There needs to be more awareness that there are [exercise] groups, and that it is easy to join them It wasn't easy for me to find these groups." (postpartum woman) It seemed like you have to go through hell and high water to find a class that wasn't full, that didn't cost too much, and was available at the time you were able to go. If there were more programs that were available that would last three months to help women, that would be extremely helpful. It's really hard." (postpartum woman)