Understanding the challenges and impact of training on referral of postnatal women to a community physical activity programme by health professionals: a qualitative study using the COM-B model

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Abstract

Objective: To understand the value of training for health professionals for improving their ability to effectively refer postnatal women to a targeted community physical activity programme. The study also sought to understand challenges to effective referral of postnatal women from deprived areas.

Design, setting and participants: Semi-structured interviews were conducted in January-February 2020 with early years practitioners (n = 4), health visitors (n = 1) and community midwives (n = 2) who had participated in a training workshop implemented as part of a targeted community physical activity referral programme for postnatal women from deprived areas in the North East of England. Two follow up interviews were also conducted with one midwife and one early years practitioner during the Covid-19 pandemic. Data were analysed thematically and the Capability, Opportunity, Motivation, Behaviour (COM-B) model was employed to facilitate identification of the impact of training and the challenges in referral from the health professionals' perspective.

Findings: The training increased capability to refer by improving knowledge and confidence of health professionals in being able to give appropriate guidance to postnatal women about physical activity without having to refer to other professionals. Health professionals reported adequate opportunities to engage with postnatal women, were motivated to refer and perceived this to be part of their role. The timing and method of message delivery were key contexts for perceived successful referral, particularly for midwives who wanted to ensure the messaging began in the

antenatal period. Low staffing levels, limited interprofessional collaboration and finding strategies to engage women from deprived areas were key challenges to effective delivery of physical activity messages. These challenges were exacerbated during Covid-19, with increased mental health issues among postnatal women.

Key conclusions and implications for practice: Training health professionals for physical activity messaging can be a useful way to increase capability, opportunity, and motivation to refer to physical activity interventions for postnatal women in deprived areas to potentially increase physical wellbeing and reduce postnatal depression. The COM-B is a relevant framework to underpin training. A clearly identified referral pathway and staffing issues need to be addressed to improve referrals by health professionals.

Key words: health professionals, referral, exercise, postpartum, community health

Introduction

Physical activity (PA) is widely recognized as an important element of a healthy lifestyle across all life stages, including pregnancy and after childbirth (Department of Health and Social Care (DHSC), 2019; American College of Obstetricians (ACOG), 2020). Regular PA contributes to prevention and management of noncommunicable diseases such as cardiovascular disease, diabetes and cancer, as well as helping maintain a healthy body weight, improving quality of life and mental wellbeing (World Health Organization, 2020). PA is particularly important postnatally, in that even among women who start pregnancy with a normal BMI, around one-third become overweight or obese by one year following childbirth, which can increase the risk for developing cardiovascular disease (Ryan et al., 2022). The postnatal (PN) period is also a crucial time to support the commencement or development of positive healthy habits (ACOG, 2020; DHSC, 2019). For those already with healthy lifestyles, PA in this time can support the return to pre-pregnancy mental and physical fitness (Havelka and Jurikover, 2018). Recent guidelines indicate PA after childbirth (from 0-12 months) is safe and beneficial in helping return to pre-pregnancy weight, strengthening and toning of abdominal muscles, improving mood, sleep and fitness, as well as potentially giving the mother time for herself and reducing worries or depression (ACOG, 2020; DHSC, 2019).

Several studies support the value of PA in the prevention or treatment of PN depression (Dale & Pritchett, 2018; Daley et al, 2007; Kolomanska-Bogucka & Mazur-Bialy, 2019), however the clinical effectiveness of PA has yet to be established and the evidence quality is low (Carter et al. 2019). Nevertheless, a recent umbrella review of the benefits of PA at different stages of during pregnancy and postpartum proposed that PN PA may be more important than at pregnancy for the elements of weight management, mitigating against depressive symptoms, and improving quality

of life (DiPietro et al, 2019). The recommended guidelines for PA in the PN period is currently 150 minutes of moderate intensity each week, ideally spread over the week, with a gentle and gradual increase in activity when medically safe and listening to the body, depending on delivery (ACOG, 2020; DHSC, 2019).

However, PN women are less likely to meet the recommended guidelines for PA and frequently identify more barriers to PA than those in the general population (Edie et al., 2021). Such barriers include lack of sleep, time constraints, unpredictable routines, weather, physical limitations, and/or childcare duties (Cramp & Bray, 2011, Edie et al, 2021; Ellis et al., 2019). PN women often have had higher levels of sustained inactivity both prior to their pregnancy and following birth, due to fatigue and physical discomfort but also influenced by a lack of motivation and confidence, limited availability of affordable and appropriate activities and poor access to public transport (Saligheh et al, 2016). Recent evidence suggests there have also been psycho-social changes and increasing anxiety amongst PN women as a consequence of social distancing measures and concerns in relation to the COVID-19 pandemic (Fallon et al, 2021).

PA is even lower among women from deprived areas with low incomes (Hoebeke, 2008) and these inequalities in activity have widened during the Covid-19 pandemic (Sport England, 2021a). The risk of PN depression increases with increasing social deprivation, influenced by factors such as lifestyle, social support and chronic stressors (Ghaedrahmati et al., 2017; Peterson et al., 2018). PN women from areas of deprivation therefore present a particular challenge for PA interventions yet have much to gain in terms of potential health and wellbeing outcomes from participation (Sport England 2021b).

To encourage the participation of PN women from deprived areas with low incomes into regular PA, a charitable leisure trust in the North East (NE) of England adopted an approach which involved health care professionals changing their practice to refer these women to an initial five week, tailored programme of classes. Training was offered to support and build confidence in health professionals' ability to effectively refer women to the programme. Training included Make Every Contact Count (MECC) training (Public Health England/NHS, 2016), walk leader training, e-learning modules on individual topics (e.g. mental health, pelvic floor) and a face-to-face workshop bringing health professionals together and imparting knowledge and guidance around PN exercise with an expert in PN exercise. The day workshop also included information about the community PA programme and referral. By early 2020, 45-50 health care professionals had been trained on the MECC and/or walk leader courses, 30 on e-learning and approximately 20 had attended one of the face-to-face workshops (personal communication with programme co-ordinator). The community-based PA programme itself was funded by Sport England and comprised a variety of face-to-face classes including Prams/Buggy Walks, Baby Tone and Postnatal Core Stability, led by a qualified PN instructor. The target audience were women of childbearing age (over 16 years old), who live in 14 wards within South-East Northumberland, in the NE of England. These wards are in the 20% most deprived nationally (Northumberland City Council, 2019) and women in these wards predominantly hold part time and zero-hour contracts within low paid routine roles such as cleaners, shop assistants, care assistants and factory workers. They typically earn low wages and this, combined with the rising cost of living, places additional pressures on them, with many returning to work early from statutory maternity leave due to financial pressures.

To understand the impact of training on health professionals for effective referral of targeted women to the community physical activity programme, the COM-B model (Mitchie et al, 2014) was used as an underpinning framework. The COM-B model is a simple model which has been used previously in relation to understanding the behaviour of health professionals (Sport England, 2020; Barker et al, 2016, Webb et al, 2016) and recently in the analysis of women's postpartum PA behaviour (Ellis, Pears and Sutton, 2019). It comprises three core elements which need to be impacted for effective change in practice to occur: i) capability (physical capability and psychological capability), ii) opportunity (environmental factors or structures) iii) motivation. The model suggests that for health professionals to promote PA effectively they need to have increased capability to refer (to know what to say, the skills on how to say their message, alongside an understanding of PA benefits and guidelines), appropriate opportunities to engage with PN women, and the motivation and belief in the programme and referral pathway. Both capability and opportunity influence motivation which leads to effective behaviour change (Sport England, 2020; Webb et al., 2016). Understanding the experiences of referral is important as PA and/or exercise education is not traditionally part of the role for many health professionals.

This study aimed therefore to (1) understand if and how the training of health professionals in the maternity/early years pathway supported them in effectively referring PN women from deprived areas to PA via a targeted community programme and (2) to explore the challenges faced by health professionals in the referral of these PN women to PA.

Methods

This study used a qualitative research design with an interpretive approach to analysis (Bryman, 2016). This approach, using the COM-B model to guide, was selected as it helps gain a contextual

understanding of the views and experiences from health professionals' perspectives. The study received ethical approval from Northumbria University Ethics Committee (Ref: 17550). We report this study using the Standards for Reporting Qualitative Research framework (O'Brien et al. 2014). We recruited a convenience sample of seven health professionals who had participated in one of the face-to-face workshop training events in SE Northumberland, designed to inform and increase their confidence in promoting PA to PN women and bringing together health professionals across different roles who have contact with PN women. The programme co-ordinator verbally informed participants about the study at the workshop. If an interest was expressed, she provided a more detailed face-to-face explanation of the study and gave them information in writing via a participant information sheet provided by the research team. Health professionals who then agreed to participate in the study completed informed consent forms allowing a member of the research team to arrange and conduct a telephone interview at their convenience. Eight health professionals initially provided consent forms, but one was not able to be reached by the research team. The final sample comprised Community Midwives (CMWs) (n = 2), Health Visitors (HVs) (n = 1) and Early Years Practitioners (EYPs) (n = 4), Health Visitors support the health and development of babies and children between the ages of 0-5 years in the home, health clinic or GP surgery, whilst Early Years Practitioners look after the day-to-day needs of this age range such as changing and feeding. Early Years Practitioners also organize age-appropriate activities to stimulate physical, educational and emotional development and work in a variety of settings including local authority funded childcare or private nurseries.

Health professional characteristics can be viewed in Table 1.

Table 1: Health professional characteristics

Participant	PA background	Practitioner role and length of service	Training undertaken
EYP 1	Does not enjoy exercise but previously attended a community PA programme for new mums and walks	Early years practitioner in a children's centre for three years	Face to face workshop
EYP 2	Does not exercise	Early years practitioner in a children's centre for six years	Face to face workshop
EYP 3	Exercises less than the recommended guidelines	Early years practitioner in children centre for four years	Face to face workshop Walk leader training MECC training
EYP 4	Does some walking	Early years practitioner in a children's centre for one year	Face to face workshop
CMW 1	Goes to gym	Experienced midwife new to community midwife role for less than six months	Face to face workshop
CMW 2	Does not exercise	Experienced midwife now in community, in continuity midwife role for less than six months.	Face to face workshop MECC training
HV 1	Exercises regularly	Health visitor for three years, previously midwife	Face to face workshop Walk leader training E-learning

Data collection

Data were collected through individual semi-structured interviews which were conducted remotely via telephone by one of the authors (JD), who is a female, postgraduate, health professional with experience of qualitative interviewing, but unknown to interviewees. Interviews followed a topic guide informed by discussions with the programme coordinator and the research team around the intentions of the training and PA programme. Interview questions were devised to examine the health professionals' background, their experiences of referral and responses to the training they

had received including its impact on their capability and confidence to refer PN women to the programme. They were also asked about their own activity and whether they felt they had the opportunity to deliver physical activity messages. Questions were discussed with the research team and the interviewer engaged in discussion with a colleague midwife to ensure she had sufficient understanding of the health professionals' contexts. Interviews lasted approximately 25-40 minutes, were digitally recorded and took place between January 2020 and February 2020.

JD then contacted all participants a year later during the Covid-19 pandemic for follow up interviews. Follow up interviews were designed to understand longer term implementation facilitators and barriers, particularly as a consequence of change and Covid-19. Two participants were no longer employed in their roles and three did not respond to the invitation sent to the original email address provided. Follow up telephone interviews were therefore completed with two health professionals (one CMW and one EYP), giving a total of nine interviews across first and second interviews. This number of interviews sits within the recommended guidelines of six to ten participants for small scale qualitative studies using thematic analysis (Braun and Clarke, 2013). We also felt the overall sample size was sufficient based on the depth, relevance and specificity of information the health professionals interviewed held in relation to the study aim. This was decided using the guidance of information power, which indicates that the more information the sample holds, relevant for the actual study, the lower the number of participants needed (Malterud et al. 2016).

Data Analysis

Interview data from health professionals were transcribed verbatim, anonymised and analysed thematically (Braun and Clarke, 2013). Anonymised transcripts were read through initially by one of the authors (LA) for familiarisation with the data. LA then undertook initial open coding in

relation to the key topic areas of interest. Following this process, LA developed further analytical codes in an iterative process using insights from the programme aims, and the COM-B model. Therefore, a mix of inductive and deductive reasoning was used. LA also discussed emerging themes with JD acting as a 'critical friend'. This allowed the expansion of ideas and exploration of alternative themes or explanations for data (Sparkes and Smith, 2014), and facilitated reflective and reflexive processes. Critical dialogue across the research team also allowed for challenge to interpretations to be made throughout the analysis process to enhance the rigour of the findings (Smith and McGannon, 2018) and confirm the final themes.

Findings

The findings are presented under the following themes: (i) Developing knowledge and confidence (capability to refer), (ii) Influence of personal PA, (iii) Opportunities to refer, (iv) Motivation to refer, (v) Strategies for effective PA messaging, (vi) Challenges to delivery, and (vii) The impact of Covid-19. The capability, opportunities and motivations of health professionals to refer PN women to an exercise referral programme are discussed in relation to the underpinning COM-B framework.

Developing Knowledge and Confidence (Capability to Refer)

Through the interviews the health professionals who had attended MECC or walk leader training before the face-to-face training workshop deemed the latter to be the more detailed and informative training mode:

> 'We have done a MECC course – making every contact count. But it didn't

> go specifically into… It just mentioned that these were the areas we needed to discuss. It didn't really go into detail like the workshop did' (CMW 1)

Several participants indicated that the presence of an expert in PN exercise at the workshop face-to-face and work around the pelvic floor brought a 'personal perspective' to the workshop and information which they could relate to and use. Health professionals perceived increased knowledge led to greater confidence in delivering the PA message; notably in relation to being able to discuss and give appropriate guidance to women without having to refer to other professionals. Participants indicated they were able to understand the benefits of the PA classes and had knowledge of the programme. Participants identified increased knowledge from the workshop in three main areas: 1) knowledge or recognition of the importance of qualified staff or 'proper' specialised classes for PN women rather than general exercise classes 2) increased knowledge about pelvic floor exercises and 3) increased knowledge of services, information and groups available:

> It informed me that there are certain guidelines that you do have to adhere to. After birth, it recommends six weeks [before returning to exercise]. After the six-week check-up with the doctor, or twelve weeks if they've had a c-section. Things like that, I would've always been a little bit apprehensive. And I would've immediately said, "Speak to your health visitor. Speak to your GP." So, I think… it's the snippets of information that makes me, as a practitioner, feel a bit more confident telling parents [to exercise] (EYP 4)

The participants felt the face-to-face workshop, delivered by an expert in PN exercise, provided them with sufficient knowledge to engage in conversations with PN women. As a result, the health

professionals were more comfortable to raise the topic and therefore more capable (i.e., the capability component of the COM-B model) in promoting behaviour change.

Influence on personal PA

In raising awareness of PA guidelines, the workshop training also influenced one community midwife in terms of her own personal motivation to exercise: *'They discussed how it should be three times, 30 minutes activity. I realised that I was not doing that myself. So, I joined an exercise class after I went to the course' (CMW 1)*. Another participant who was already active explained how this personal knowledge of the benefits of exercise influenced her desire to pass those on to her clients:

> I exercise and I know the benefits… I obviously want to pass that on to my clients. So, that is really beneficial for your own wellbeing - physically and emotionally. I know the benefits myself. And I want to pass that on because you know how well that works (HV 1)

Not all participants were influenced to increase their own personal exercise following the training, but this did not negatively impact on their motivation to refer. Several were new to their role and to referring to PA at the time of interview. The health visitor had taken part in walk leader training and had become very keen to encourage women to take part in both the buggy walks and the referral classes:

> First of all I took part in the training to do the buggy walk in the area I work, which is a very deprived area. So, we run a buggy walk once a week. And then I've done further training. And one of the areas I'm

> really trying to promote is getting the mums in my area to take part in the buggy walks. And then take part in the classes that are running in the area for the [physical activity] programme (HV 1)

Opportunities to deliver

All health professionals, irrespective of role, felt they had opportunities to engage with PN women. These professionals indicated that they worked particularly in deprived areas, and were involved with specific targeted intervention work, hence felt they were well placed to deliver referral to the PA programme identified. For EYPs, referral to this programme was part of a wider remit of programme delivery, outreach and other work they had trying to engage parents in the use of the local area children's centre:

> So, we go out and tell them about the centre. Tell them about, kind of, what's on in their local area. Like, trying to give them a friendly face, so that actually... You know, if they do come along to the centre, they're not kind of coming in and feeling really anxious because they've never met anybody before. That's kind of the aim (EYP 4)

One EYP identified that a pathway process existed through clinics and through a HV run programme from birth to six weeks after which the idea would be that they would move to the early years activities in the children's centers. Links with the co-ordinator of the programme seemed an important part of this process:

> There's obviously links there with [the co-ordinator], where we

> promote the programme. And [she] has been in to talk to parents about it as well. And also…we have a referral system for another programme. So, when I was at the training, we talked to [her] about the referral process… there's like a two-way process there. We're referring people to her, but she's also going to be referring people to us (EYP 2)

The two CMWs explained that their team offered continuity to mums throughout pregnancy, and that they had smaller caseloads, so they were able to have more contact with women postnatally. They also indicated that they targeted women they felt more vulnerable to physical or mental health issues, for example those with high body mass index or who smoked. The importance of delivery timing and pathway as key contexts for perceived successful referral were echoed by both midwives:

> I would like to know that I introduced it before they had the baby, because in the first ten days… that's probably the last thing they'll be thinking about. So, at least if I've got them in antenatally, I think it'll increase the likelihood of them accessing different activities postnatally - when they're a little bit more recovered from delivery (CMW 2)

These CMWs suggested that they were involved in a new initiative or way of working as part of a 'continuity team' (see NHS England, 2017) and were relatively new to their positions. They compared themselves to CMWs in 'the traditional model' whom they felt would find delivery of PA messages more difficult due to a higher caseload and less contact with PN women. In addition to routine visits at days five and 10, both of these CMWs indicated they were able to see PN women '*as often or as little*' according to the woman's needs and potentially up to four times a week. They indicated they also had 'the scope to continue PN care longer if needed'.

The flexibility and lack of restrictions to time and ability to see women in their home environment or at a location of their choosing, meant these CMWs felt they were in a good position to develop rapport, although they intimated that effective delivery may be 'down to the individual midwife'. Unlike the messages around smoking or diet, there were no set expectations around when or how CMWs should discuss PA:

> I mean, we are public health professionals as midwives. So, we should be trying to promote, you know, physical activity. Antenatal and postnatally. I think we would struggle to actually provide the facilities… but we absolutely have the opportunity and the… role, really, to promote it. It's definitely down to the individual midwife… There isn't anything. I mean, at booking they expect us to discuss a healthy diet in pregnancy. But after that, really, there's no scope for us. There's no set time or appointment that we have to discuss that [physical activity] with them (CMW 2)

EYPs also highlighted the flexibility they had and 'lack of time limit' they had in how much time they could spend with PN women as a factor facilitating their ability to develop rapport. EYPs engaged with PN women potentially several times per week, due to the number and type of sessions they offered, including 'drop in' sessions for new PN women to talk about activities they could attend in the community. The referral scheme provided health professionals with a physical opportunity (e.g., a resource/ programme) available to PN women, however, other physical opportunities such as the time and access available to deliver the message and promote exercise was often a limiting factor for many of the health professionals in this study.

Motivation to refer

All health professionals strongly agreed it was important for their respective areas of expertise (EYPs, CMWs, and HV) to work together to support pre and PN women to become more active. All health professionals agreed that the workshop training had increased the likelihood of them referring to the community PA programme and felt the workshop was valuable to their professional role, suggesting positive motivation to refer.

This was supported by one CMW when asked if she would refer to the programme, she said: *'Absolutely. Anything that we can do to inform our women or improve our services for our women - we can work together and do that'*. This automatic motivation to discuss exercise referral was evident and health professionals perceived the promotion of PA messages as relevant to their role despite the challenges they face (e.g., lack of time and opportunity to discuss exercise).

Strategies for effective PA messaging

Health professionals identified strategies that they used or proposed to use to make it more likely women would be accepting of the PA message. These were predominantly ways that meant approaching the subject of PA in a '*slightly roundabout way*' that differed according to the health professional role and individual. For example, for the CMWs, successful delivery of the message was associated with approaching the conversation through mother and baby bonding or for social interaction.

> Like, in a bonding with your baby kind of way as well. So, it's not just about your physical health. It's spending time meeting other mums,

> meeting other women in the same situation and having that time with your baby as well (CMW 1)

In contrast, for HV 1 and EYPs, the conversation was often steered via questions around mental health and wellbeing, although PA was not on the list of questions that they were required to ask about:

> There isn't a specific question - do you exercise? But there's a question about how do you relax? And normally that's... they say, "I watch TV" or something. So, you know, you can probe a little bit more. So, when you're chatting, you can generally... when you're chatting, you'll sort of ask then and explore (HV 1)

EYPs and HV 1 also identified how many of the women they worked with struggled with accepting help and support and could be suspicious of intervention, potentially due to the perceptions around safeguarding, anxiety issues and/or mums worrying that other people would judge them. The EYPs, who had already tried to promote the [physical activity] programme said they had gained different reactions, but not typically negative ones:

> As far as referrals are concerned, I would give them the information and then… you don't want to pressure them immediately about it. So, I would leave it up to them as to whether they wanted to ring. But all that information would be there (EYP 2)

All health professionals were keen to ensure they delivered the message in a way appropriate to the target group. They expressed the view that engaging the targeted women in conversations around PA was, for example, '*a hard conversation to have*', '*a hard subject*', or sensitive such that

they '*wouldn't want to be upsetting anybody*' and were very conscious of how they would come across in trying to engage referrals. Each, regardless of role, recognised the specific issues associated with their target group, including mental health issues, body image issues, being overweight, not being a first-time mum or lacking in motivation as being factors which might impede a positive reaction.

Challenges to delivery

Challenges perceived by health professionals to effective delivery of PA messages related to potential issues around communication links with other services/health professionals. One issue in the training at the time of interviews was that there had been low numbers of some health professionals (CMWs) on the initial workshop training. Interviewees felt more interaction between EYPs, HVs and CMWs at that time could have strengthened interprofessional links, which might also increase perceived confidence to refer:

> I wish there'd been more people there, because on the day… So, we went, sort of, with the impression that we were going to, sort of, interact with other people. And there was going to be a lot of exchange of information. That didn't happen. There'd been training, I believe, for the health visitors on the same day. Which was a bit unfortunate. So, it meant that we couldn't do a lot of the discussions. (EYP 2)

Some EYPs identified constraints to rapport building with PN women due to the number of visits they had and the numbers of PN women coming along to particular groups they ran. These

factors influenced how much they could talk to parents on a one-to-one basis. Staffing levels were a particular concern across health professionals. One of the EYPs also recognised that they had their own priorities in message delivery, hence messages about this particular community PA scheme competed with other health messages they were asked to include.

> It's very difficult to get all of the messages across because we have our key messages that we have to… we'd obviously prioritise ours first, and then look at other things (EYP 2)

Referral seemed to comprise primarily of information giving, signposting and leaflets. However, at the time of the first interview not all of the health professionals had yet referred PN women to PA. In addition, those who had referred did not seem to know whether their referral had resulted in women attending the classes. One CMW responded that '*the few women I have spoken to that have done it are really enjoying it*', suggesting that knowledge of attendance when it came, was positive, but feedback was only gained if it was actively sought as an Early Years practitioner explains:

> Well, we do talk about the programme all the time, but we don't monitor who goes. So, I was talking to some mums yesterday, who have already been. Which was lovely, you know. So, there was a real good conversation went on. So, it's kind of indirect, but we do discuss it. But… we don't monitor if they've gone. So, it would probably be good to know, and have feedback, about who has actually turned up [EYP 2]

Formal feedback on the outcomes of referral, rather than on referral itself, was therefore lacking at the time of this evaluation.

The impact of Covid-19 on the referral pathway

Follow up interviews with two health professionals highlighted a decline in referral due to Covid-19 as well as issues of staff turnover and insufficient staffing levels which may also impact on continuity of training. The Covid-19 pandemic increased workloads for health professionals and regulations exacerbated staff shortages, led to a move to more telephone contacts which made it more difficult to establish more personalised support and to effectively refer hard to reach women to the PA programme. Capacity and opportunity to refer were therefore more limited.

> Because there's a lot of mental health problems with the mums that we're working with, I'm always talking about walks. And when I was less busy, what I would try to do is, I would actually try to meet with the mums for, like, one-to-ones, and go for a walk with them. I'm not able to do that at the moment, because I just do not have the capacity to do that (HV 1, follow up)

Motivation to refer appeared high throughout the interview process, with one CMW interviewed at the follow up stage, highlighting she remained motivated to refer women to the opportunities available, particularly due to the increased likelihood of mental health issues amongst their target group:

> I certainly encouraged online, kind of groups and looking to social media for a bit more interaction. I think women got very lonely [during Covid], and that's kind of the only place they could go, for people who are in the same situation as them. So, we did have the [physical activity

> programme] - they've got a Facebook™ page and they always have little videos and things every now and then. So, we did point them towards that (CMW 2, follow up)

Health professionals also identified the significant contextual challenges of the hardest to reach women that they targeted. In follow up interviews they noted that they had seen significant increase in anxiety in these women during the Covid-19 pandemic which would be a further challenge to their initial attendance:

> She would've been someone I would have really tried to target to come because she never did anything with her child - Mum suffered with mental health problems and she was terrified about Covid. She was terrified before Covid, and then Covid just made it worse. So, she felt safe in her house, never mind the pandemic. So, for some mums it gave them an excuse to stay at home (HV 1, follow up)

The HV further indicated the need for more walk leader training for the staff of children's centers, who during Covid-19 times she saw as key in supporting these more anxious women to engage in PA: *'What really needs to happen now - and this is like the critical, critical thing - is more people from the children's centre need to be trained up to do the walk' (HV 1, follow up).*

Conclusion

This study provides a novel vantage point for the better understanding of health professionals' experiences of undergoing training in order to facilitate effective referral to a community-based

PA programme. The findings show that all participants felt that promotion of PA messages was within their role but they recognised limitations in their personal and professional knowledge base which impacted on their confidence to pass on these messages to PN women. Similar findings were reported in a study by De Vivo & Mills (2019) which identified lack of training, knowledge, and confidence as barriers to midwives not being able to address the issues surrounding PA for pregnant women. Health professionals also highlighted the need to approach the subject of physical activity indirectly to their target group for fear of alienating or upsetting women and to gain a more positive reaction. These findings are supported by previous studies which have shown that health professionals are often afraid to address issues of weight and physical activity (Lindqvist et al. 2014).

The participants' response to the training they received around referral to PA was overwhelmingly positive and reflects the unmet need among health professionals working with pregnant and PN women (Okafor & Goon, 2021). The knowledge and confidence that was gained from the face-to-face training (i.e., increasing their capability to refer PN women to the exercise referral programme), and the opportunity to participate in face to face training with a wider network of healthcare practitioners empowered participants with the confidence and knowledge to deliver consistent messages regarding PA. Automatic motivation to refer was evident immediately after training, however, follow-up interviews suggest that motivation to refer was impacted by a global pandemic, increasing workloads and staff shortages. Further research is needed to understand the long term impact of training on capability and motivation of health professionals to refer PN women to exercise referral programmes.

Overall, the findings suggested that the training programme increased capability to refer by improving knowledge and confidence of health professionals in being able to give appropriate

guidance to women about PA without having to refer to other professionals. Health professionals felt the face-to-face workshop was the most beneficial training tool, with the use of an expert in PN exercise particularly beneficial in providing a personal touch and developing their understanding of both the PA guidelines for PN women and the pelvic floor exercises. Health professionals in the maternity/early years pathway perceived they had opportunities to engage with PN women and were motivated to refer to PA as part of their role in supporting women's health. The timing and method of message delivery were key contexts for perceived successful referral for the targeted PN women, particularly for midwives who wanted to ensure the messaging began in the antenatal period. The importance of training health professionals in prenatal PA promotion has also been recently identified as a priority in the academic literature (Okafor and Goon, 2021). For the particular targeted group it was important to find 'roundabout' ways of addressing the topic of PA in a non-pressurised way, through discussions on wellbeing or as a way to promote baby bonding. Staffing levels, communication between different professionals and being able to reach the targeted women were key challenges to effective delivery of PA messages. Challenges were exacerbated during Covid-19, with increased mental health issues seen by health professionals among the targeted PN women making it less likely for these women to attend. More training of people to lead PA sessions, including those in children's centers, may also improve opportunities for PN women to engage in PA.

A primary strength of this study is the variation in participants' professional backgrounds which adds additional context and depth to the data. The opportunity to conduct follow up interviews with two of the participants also offered valuable insights into the impact of Covid-19 on the health professionals' experience of the referral process. It is likely that issues related to availability due to Covid-19 may have contributed to the challenges of recruiting more health

professionals for follow up and more understanding of the impact of Covid-19 on health professionals experiences of referral would be useful. The COM-B was a useful overarching framework to understand and structure findings in relation to the impact of training on the health professionals. However, this study used primarily the main components of the COM-B model in analysis. Further insight may be gained by using the COM-B model and its components as a framework at the design stage of a training intervention. This study also involved a small sample across a range of health professionals working with PN women in a deprived area of the UK at a particular period in time. More research is needed to understand the specific contexts and processes of how training impacts on PA referral for health professionals on a larger scale.

References

American College of Obstetricians and Gynecologists (2020). Physical Activity and Exercise During Pregnancy and the Postpartum Period, ACOG Committee Opinion, Number 804. Obstetrics & Gynecology, 135 (4), p e178-e188 doi: 10.1097/AOG.0000000000003772

Barker, F., Atkins, L., & de Lusignan, S. 2016. Applying the COM-B behaviour model and behaviour change wheel to develop an intervention to improve hearing-aid use in adult auditory rehabilitation. *International journal of audiology*, *55*(sup3), S90-S98.

Braun, V., and Clarke, V. 2013. *Successful qualitative research: a practical guide for beginners.* Sage

Bryman, A. 2016. *Social research methods*. Oxford university press.

Carter, T., Bastounis, A., Guo, B., & Jane Morrell, C. (2019). The effectiveness of exercise-based interventions for preventing or treating postpartum depression: a systematic review and meta-analysis. *Archives of Women's Mental Health*, *22*(1), 37-53.

Cramp A. G. & Bray, S. R. 2011. Understanding Exercise Self-Efficacy and Barriers to Leisure-Time Physical Activity Among Postnatal Women. *Maternal Child Health Journal, 15:642–651.*

Dale, A.J., & Pritchett, R.V. 2018. Postnatal depression and the exercising female. In Jacky Forsyth and Claire-Marie Roberts (eds.). *The Exercising Female*. Routledge.

Daley, A. J., MacArthur, C., & Winter, H. 2007. The Role of Exercise in Treating Postpartum Depression: A Review of the Literature, *Journal of Midwifery and Women's Health,* 52(1), 56 - 62.

DHSC (Department of Health & Social Care). 2019a. UK Chief Medical Officers' Physical Activity Guidelines. Available at: https://www.gov.uk/government/publications/physical-activity-guidelines-uk-chief-medical-officers-report

DiPietro, L., Evenson, K. R., Bloodgood, B., Sprow, K., Troiano, R. P., Piercy, K. L., ... & Powell, K. E. 2019. Benefits of physical activity during pregnancy and postpartum: an umbrella review. *Medicine and science in sports and exercise*, *51*(6), 1292.

De Vivo, M., Mills, H. 2019. “They turn to you first for everything”: insights into midwives’ perspectives of providing physical activity advice and guidance to pregnant women. *BMC Pregnancy Childbirth*, 19, 462 https://doi.org/10.1186/s12884-019-2607-x

Dworkin, S. L. 2012. Sample size policy for qualitative studies using in-depth interviews. *Archives of Sexual Behavior, 41,* 1319-1320

Edie, R., Lacewell, A., Streisel, C., Wheeler, L., George, E., Wrigley, J., Pietrosimone, L. and Figuers, C. 2021. Barriers to exercise in postpartum women: A mixed-methods systematic review. *Journal of Women’s Health Physical Therapy*, *45*(2), 83-92.

Ellis, K., Pears, S. and Sutton, S. 2019. Behavioural analysis of postnatal physical activity in the UK according to the COM-B model: a multi-methods study. *BMJ Open*. doi: 10.1136/bmjopen-2018-028682. PMID: 31377705; PMCID: PMC6686995.

Fallon, V., Davis, S.M., Silverio, A.A., Jackson, L., De Pascalis, L., Harrold, J. A. 2021. Psychosocial experiences of postnatal women during the COVID-19 pandemic. A UK-wide study of prevalence rates and risk factors for clinically relevant depression and anxiety. *Journal of Psychiatric Research*, *136*, 157 - 166.

Ghaedrahmati, M., Kazemi, A., Kheirabadi, G., Ebrahimi, A., and Masood Bahrami, M. 2017. Postpartum depression risk factors: A narrative review, *Journal of Educational Health Promotion, 6*, 1-7.

Hoebeke, R. 2008. Low-income women's perceived barriers to physical activity: focus group results, *Applied Nursing Research*, 21(2), 60-65.

Kołomańska-Bogucka, D., & Mazur-Bialy, A. I. (2019). Physical activity and the occurrence of postnatal depression—a systematic review. *Medicina*, *55*(9), 560.

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 14, 343 2014. https://doi.org/10.1186/1471-2393-14-343

Malterud K, Siersma VD, Guassora AD. 2016. Sample Size in Qualitative Interview Studies: Guided by Information Power. *Qual Health Res*, (13):1753-1760. doi: 10.1177/1049732315617444.

Michie S., Atkins L. & West R. 2014. *The behaviour Change Wheel: A Guide to Designing Interventions*, 1st edn. Silverback.

NHS England. 2017. *Implementing better births: continuity of carer*. Available at URL: https://www.england.nhs.uk/wp-content/uploads/2017/12/implementing-better-births.pdf

Norman E, Sherburn M, Osborne RH, and Galea MP. 2010. An exercise and education program improves well-being of new mothers: a randomized controlled trial. *Phys Ther*, 90(3): 348-55. doi: 10.2522/ptj.20090139.

Northumberland City Council. 2019. Indices of Deprivation 2019 –Northumberland Summary Report. https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Northumberland-Knowledge/NK%20place/Indices%20of%20deprivation/Indices-of-Deprivations-2019-Summary-Report.pdf

O'Brien, B. C., Harris, I. B., Beckman, T. J., Reed, D. A., & Cook, D. A. 2014. Standards for reporting qualitative research: a synthesis of recommendations. *Academic medicine, 89*(9), 1245-1251.

Okafor, U.B., and Goon, D.T. 2021. Physical Activity Advice and Counselling by Healthcare Providers: A Scoping Review. Healthcare (Basel). 9(5): 609. doi:10.3390/healthcare9050609

Peterson, I., Peltola, T., Kaski, S., Walters, K., and Hardoon, S. 2018. Depression, depressive symptoms and treatments in women who have recently given birth: UK cohort study. *BMJ Open*, 8(10).

Public Health England. 2016. Making Every Contact Count (MECC): Consensus statement. https://www.england.nhs.uk/wp-content/uploads/2016/04/making-every-contact-count.pdf

Saligheh, M., McNamara, B., and Rooney, R. 2016. Perceived barriers and enablers of physical activity in postpartum women: a qualitative approach. *BMC pregnancy and childbirth*, *16*(1), 1-8.

Sport England. 2021a. Active Lives Adult Survey. The impact of coronavirus on activity levels revealed. Available at URL: https://www.sportengland.org/news/impact-coronavirus-activity-levels-revealed

Sport England. 2021b. Uniting the Movement. Our ten year vision to transform lives and communities through sport. Available at URL: https://www.sportengland.org/why-were-here/uniting-the-movement

Sport England. 2020. Applying behaviour change theories: Real world examples from the Get Healthy Get Active projects. Available at URL: https://sportengland-production-files.s3.eu-west-2.amazonaws.com/s3fs-public/applying-behaviour-change-theories-real-world-examples-from-ghga.pdf

Smith, B., and McGannon, K.R. 2018. Developing rigor in qualitative research: problems and opportunities with sport and exercise psychology. *International Review of Sport and Exercise Psychology*, *11*(1), 101-121

Sparkes, A.C., and Smith, B. 2014. *Qualitative Research Methods in Sport, Exercise and Health: From Process to Product*. Oxon: Routledge.

Webb, J Hall, J., Hall, K., and Fabunme-Alade, R. 2016. Increasing the frequency of physical activity very brief advice by nurses to cancer patients. A mixed methods feasibility study of a training intervention, *Public Health, 139*, 121-133