

Embedding Physical Activity Guidance During Pregnancy and in Postpartum Care: 'This Mum Moves' Enhances Professional Practice of Midwives and Health Visitors

Katrina Ann Taylor¹, PhD , Marlize De Vivo², PhD, Hayley Mills², PhD, Phil Hurst², PhD, Stacey Draper³, MSc, BSc, Abby Foad³, PhD

Introduction: The benefits of physical activity during pregnancy and after childbirth are well established, yet many health care professionals do not feel well equipped to provide physical activity guidance to these populations. As such, the objectives of this study were to explore the immediate and longer term effects of training on health care professionals' ability to provide physical activity guidance to pregnant women and new mothers (mums).

Methods: Midwives and health visitors from 5 locations in the United Kingdom were provided with training on the Chief Medical Officers' physical activity guidelines for pregnancy and after childbirth (n = 393). Midwives and health visitors attended training to become *This Mum Moves* Ambassadors, then disseminated education to colleagues through a cascade training model. Changes in knowledge, confidence, and professional practice were assessed by survey before and immediately after training (n = 247), and follow-up surveys were completed 3 (n = 35) and 6 (n = 34) months posttraining.

Results: At all posttraining time points, health care professionals reported a significant increase in their confidence to communicate about physical activity ($P < .001$). The reported frequency of having conversations about physical activity increased significantly 3 and 6 months following training compared with baseline (pregnant women, $P = .017$; new mums, $P = .005$). There were changes in the types of advice and resources offered by health care professionals and an overall increase in health care professionals' own reported physical activity levels.

Discussion: The *This Mum Moves* cascade approach to delivering training in physical activity guidelines improved reported knowledge, confidence and professional practice of midwives and health visitors, both immediately following and 3 and 6 months after training.

J Midwifery Womens Health 2023;0:1–9 © 2023 by the American College of Nurse-Midwives.

Keywords: active, education, physical activity, postpartum, pregnancy, prenatal

INTRODUCTION

The value of maintaining physical activity levels during pregnancy for the woman and her fetus are well established, extending to reduced risk of adverse outcomes and improvements in various aspects of both physiologic and psychological health.¹ Despite this, pregnancy is consistently associated with a decline in physical activity.² Recommendations for physical activity during pregnancy and after childbirth have been sparse and inconsistent. However in 2017, the United Kingdom's Chief Medical Officers (CMO) published physical activity guidelines for pregnancy.³ These were relaunched in 2019, with the addition of physical activity guidelines for

the postpartum period. In 2020, for the first time, the World Health Organization included guidelines for pregnant and postnatal populations in their international physical activity guidelines.¹ A recent review of public health guidelines for physical activity during pregnancy highlights the noticeable agreement in advice given around the world.⁴ The current study is UK based and therefore used the UK CMO guidelines.

Within the UK health care system, midwives and health visitors are a regular point of contact during pregnancy and postpartum; they are often consulted about physical activity choices and are valued as a credible source of information.^{5,6} However, health care professionals' education on physical activity guidelines and how to support activity in pregnancy and the postnatal period is inconsistent within professions, between Trusts (sections within the National Health Services of England and Wales, which commonly serve a geographical area), and within initial training syllabuses.⁷ The latest National Institute for Health and Care Excellence (NICE) guidelines⁸ suggest women should be asked about physical activity as part of their clinical history within the booking (initial prenatal) appointment. The same guidelines make further reference to physical activity as a tool to support weight management during and after pregnancy. Much of the focus relating to activity choices within perinatal services has been targeted at reducing excessive weight gain and supporting

¹School of Sport and Exercise Sciences, University of Kent, Canterbury, United Kingdom

²Sport Exercise and Rehabilitation Sciences, Canterbury Christ Church University, Canterbury, United Kingdom

³Centre for Sport Physical Activity and Education Research, Canterbury Christ Church University, Canterbury, United Kingdom

Correspondence

Katrina Taylor

Email: k.taylor-399@kent.ac.uk

ORCID

Katrina Ann Taylor  <https://orcid.org/0000-0003-0117-2130>

Quick Points

- ◆ Prior to this study, most midwives and health visitors reported not having previously received formal training relating to physical activity in pregnancy and the postnatal period.
- ◆ A Patient Public Involvement approach to training design, and subsequent development of a time-efficient cascade training model, has demonstrated improvements in confidence and knowledge of health care professionals in this field.
- ◆ Clearly aligning the known health and well-being benefits of physical activity to wider performance indicators and priorities facilitates greater buy-in from professionals.
- ◆ A whole-systems approach to provide consistent physical activity information between workforces during the perinatal period is essential. Wider availability of this training through national dissemination is recommended.

appropriate weight gain for women with obesity.⁹ However, the wider benefits of physical activity for both the woman and her fetus justifies promotion of active lifestyle behaviors during pregnancy and in the postpartum period.¹⁰

Variation exists in the quality and consistency of information provided during pregnancy and in the postpartum period. Reported operational challenges including competing health agendas, stretched services, and limited appointment time, particularly during and following the coronavirus disease 2019 (COVID-19) pandemic, within the National Health Service¹¹ may contribute to this variation. However, this variation may also reflect limited confidence caused by lack of specific education received by health care professionals.⁶ An insight report summarizing the development of the *This Mum Moves* program revealed 77% of midwives and 88% of health visitors had received no previous formal training on physical activity for pregnant and postpartum patients, despite an interest to engage in such training (97% of respondents).⁷

Throughout health care services, consultation with service users through Patient and Public Involvement (PPI) is essential to provide services that benefit their intended populations. When applied to the context of health care professional's education on physical activity guidelines in pregnancy and the postnatal period, an effective PPI and coproduction approach should encompass the input of patients, health care professionals, and physical activity experts to ensure training is designed by and with those whom it will serve. Ensuring content is applicable, valued, relevant, and understood by the target audience may ultimately improve confidence and motivation to disseminate information on physical activity to pregnant and postpartum women. In addition, operational considerations such as accessibility and time and cost efficiency may support uptake and adherence.

To reduce time and cost burden of training dissemination, a cascade training model is used within health care settings (eg Practical Approach to Care Kit training program¹²). This is demonstrated as an effective peer-to-peer model to disseminate information while promoting shared value and parity of information within teams. Effectiveness of training is typically measured by improved knowledge immediately after training, yet it is equally important to assess impact on professional practice and sustainability over time.

This article describes the implementation and evaluation of a novel education program, conducted in the National Health Service in the United Kingdom. The program, entitled

This Mum Moves, aimed to provide health care professionals with education around physical activity guidelines in pregnancy and the postnatal period. Design of the program incorporated PPI with health care professionals and patients, and training was delivered using a peer-to-peer dissemination model. The focus of this 3-year pilot evaluation (2018-2021) was the education of midwives and health visitors in 5 pilot sites in England (cities of Sheffield, Sunderland, and Plymouth, the London Borough of Bexley, and the region of Cambridgeshire).

METHODS

Program Background

This Mum Moves is an educational program that aims to empower women to make informed physical activity choices throughout pregnancy and beyond, by providing professionals with the tools to discuss physical activity through the child-bearing years. The program was coproduced by women and professionals and received national support from Sport England, a government-funded organization supporting physical activity habits among people and communities.

Prior to the present evaluation, a PPI phase including 7 focus groups and an online survey informed the development of an educational campaign (Figure 1) comprising a workshop and training resources which form a continued professional development accredited and trademarked educational program. Training was centered around the need to provide *very brief advice* (VBA) and *making every contact count* (MECC), concepts employed consistently in behavior change and health promotion interventions in health care services.^{13,14}

A cascade training model was employed to efficiently reach community midwives and health visitors within the 5 pilot locations (Figure 1: Cascade training dissemination), as PPI insight highlighted significant challenges in releasing an entire workforce to attend training at the same time. Selected midwives and health visitors from each location attended comprehensive training (*This Mum Moves* Ambassador training) to equip them to deliver short education sessions to larger numbers of colleagues in their local workforce. This model facilitates time and cost-efficient peer-to-peer dissemination of information through layers of professionals toward the target audience of pregnant and postpartum women. The earliest training sessions (2019) were delivered in a face-to-face format, but training later moved online because of the COVID-19 pandemic.

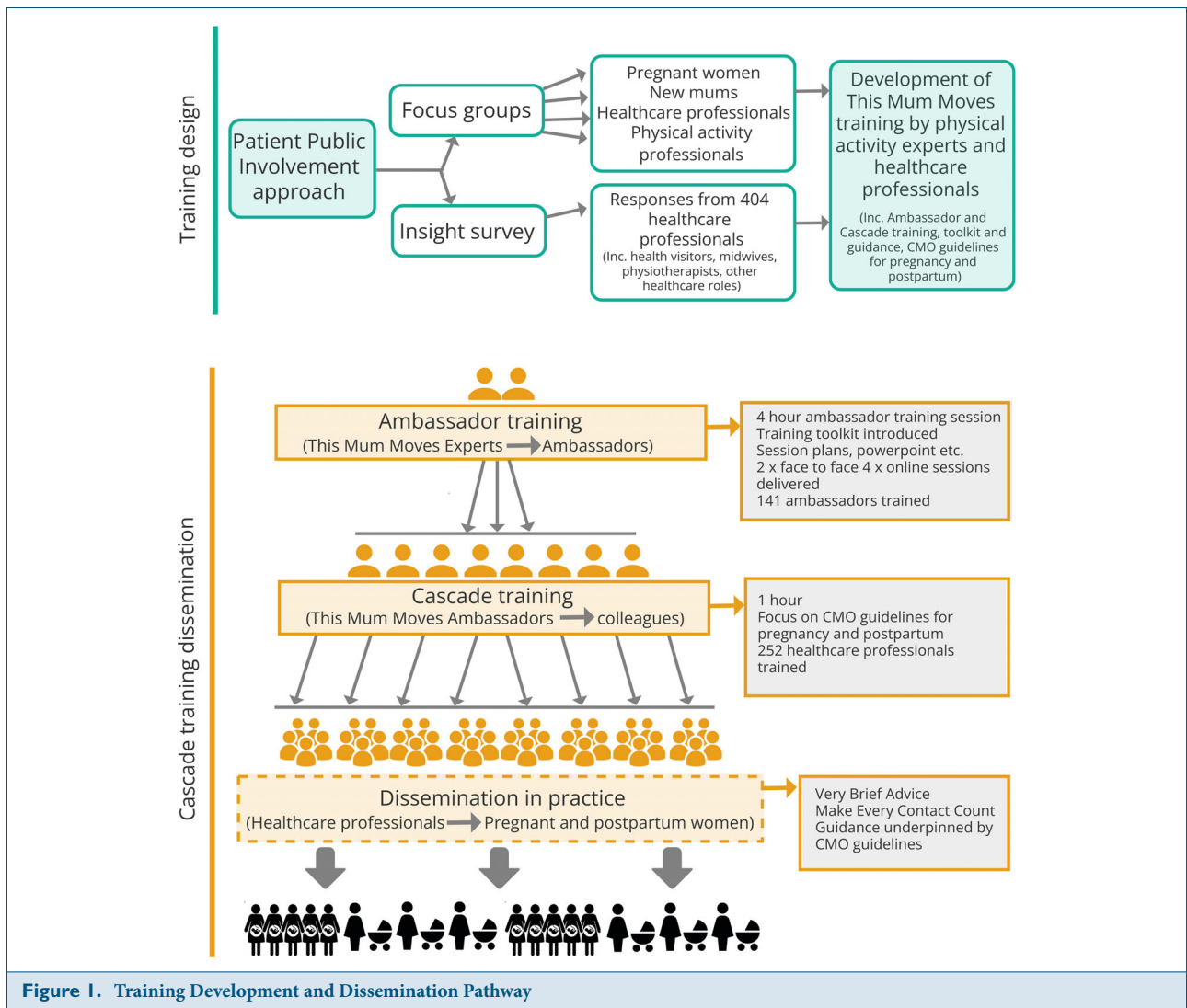


Figure 1. Training Development and Dissemination Pathway

Abbreviation: CMO, Chief Medical Officers.

Participants

A total of 393 health care professionals engaged in training (36% ambassador training, 64% cascade training). Participants included midwives (37%), health visitors (56%), and other occupations (7%), including nursery nurse, early years practitioner, family nurse, school nurse, research nurse, or student. Health care professionals were a mean (SD) age of 46 (10.5), and their years of professional experience ranged from 0 to 50 (mean [SD] 13 [10.5] years). Health care professionals came from Bexley (4%), Plymouth (9%), Cambridgeshire (19%), Sunderland (25%), and Sheffield (43%).

Evaluation

A bespoke questionnaire was developed for the evaluation of this pilot program to assess immediate and sustained impacts of attendance to *This Mum Moves* training. Engagement with health care professionals through PPI and responses to a preliminary online survey⁷ highlighted a lack of knowledge and confidence in health care professionals; therefore, these

aspects were identified as important metrics to monitor in this evaluation. The evaluation received ethical approval from the National Health Service (NHS) Health Research Authority and was registered as a Clinical Research Network portfolio study.

Questionnaire completion took approximately 10 minutes and incorporated open and closed questions. Participants were invited to provide responses at 4 time points (before training, immediately following training, 3 months post-training, and 6 months posttraining). Questionnaires were completed online and accessed via an email link sent to participants at each time point; follow-up reminder emails were sent after 2 weeks. Questionnaire content was tailored appropriately for each time point, as shown in the overview in Figure 2.

The pretraining questionnaire included demographic information, questions about previous experience of training in physical activity guidance, years of professional practice, awareness of physical activity guidelines, and motivation for participation in training. Demographic and physical activity engagement questions were based on Sport England Active Lives Surveys.¹⁵

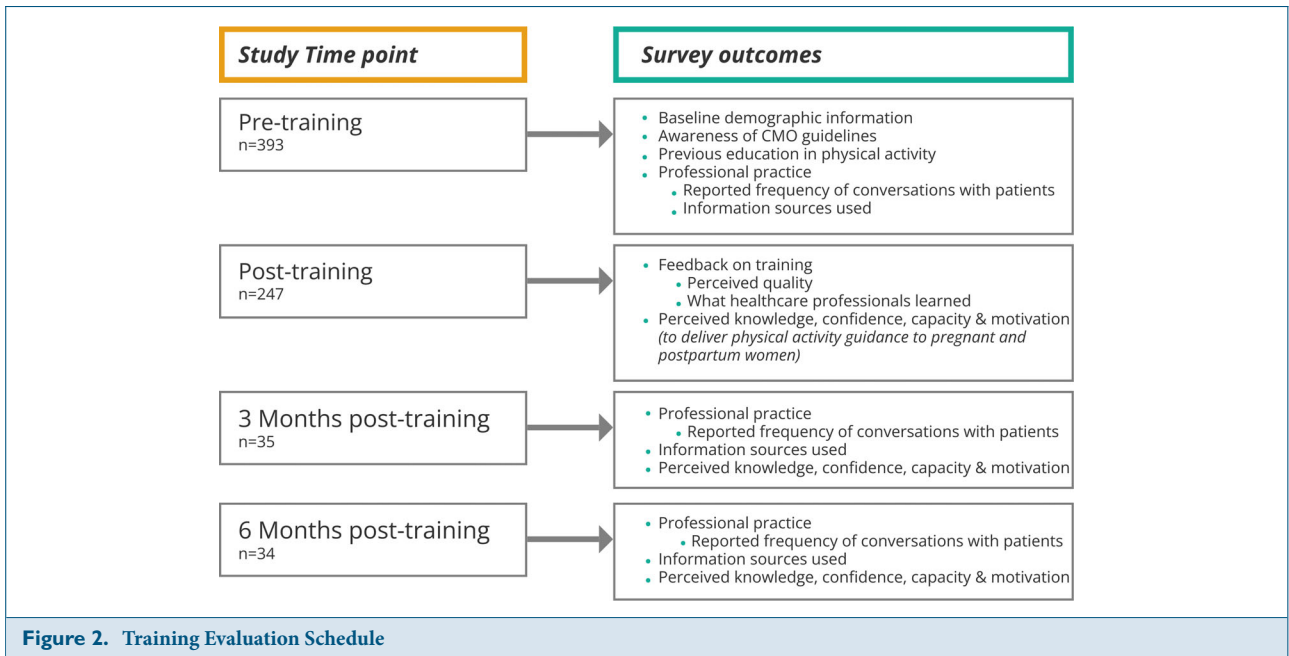


Figure 2. Training Evaluation Schedule

Abbreviation: CMO, Chief Medical Officers.

At all time points, health care professionals answered questions devised to assess knowledge, confidence, capacity, and motivation. To monitor knowledge, health care professionals ranked their understanding of specific elements of the CMO guidelines. Ratings of perceived knowledge, confidence, capacity, and motivation were self-reported using Likert-type scales. Statement wording was devised to be specifically relevant to health care practice and patient interactions, as such existing prevalidated scales were not appropriate. All participants answered questions about both pregnant and postpartum women.

The posttraining questionnaire gathered feedback on training received and what participants had learned as well as knowledge of specific elements of the CMO guidelines.

Professional practice in relation to dissemination of physical activity guidelines, knowledge of guideline information, and perceived confidence in delivering this information was reported pretraining and at 3 and 6 months posttraining. Health care professionals were also asked to classify their own physical activity participation in line with Sport England guidelines¹⁶ at these time points.

Data Analysis

Quantitative data were analyzed using SPSS version 27.0 (IBM, Armonk, New York). Frequency statistics were computed for all outcome measures (ie, experience, confidence, capacity and motivation, knowledge and skills, and professional practice). Crosstabs and χ^2 tests identified differences in frequency for each outcome measure between each time point. The Cramér's V statistic is reported as the effect size, with coefficients interpreted as weak (.05), moderate (.10), strong (.15), and very strong (.25),¹⁷ and significance was accepted at $P < .05$.

Open-ended responses were organized deductively to supplement findings from quantitative (closed) survey re-

sponses. Where significant findings were identified, quotes and relevant extracts that provide additional context and enrich data are presented. This approach of deductive thematic analysis improves the validity, generalizability, and application of findings into real-world health care settings where the feasibility of implementing change must be considered within the wider context of the job role and patient need.¹⁸

RESULTS

Pretraining surveys were completed by 393 health care professionals between November 2019 and June 2021; posttraining surveys were completed by 247 health care professionals between November 2019 and June 2021. Recruitment and retention to the study were substantially impacted by the COVID-19 pandemic, and between February 2020 and September 2020, 3- and 6-month follow-up surveys were completed by 35 and 34 health care professionals, respectively. Unless otherwise stated, all results presented refer to the collective sample of participants at each time point.

In line with physical activity classifications described by Sport England,¹⁶ 18% of health care professionals were inactive, 49% were fairly active, and 33% were active. Compared with baseline, fewer health care professionals were classified as inactive (18.3% pretraining; 6.3% at 3 months posttraining; 6.3% at 6 months posttraining) and fairly active (49.2% pretraining; 28.1% at 3 months posttraining, 37.5% at 6 months posttraining), and more were classified as active (32.5% pretraining; 65.6% at 3 months posttraining; 62.5% at 6 months posttraining). Changes in physical activity classification were significant ($P < .001$).

Experience

At baseline, 88% of health care professionals said they had not previously received formal education on physical activity in pregnancy and the postnatal period. Qualitative responses

Table 1. Ratings of Health Care Professionals' Confidence in Communication Behaviors Before (n = 373) and After (n = 241) This Mum Moves Training

Communication Behaviors and Likert Scale Responses	Pregnant Women	Pregnant Women			New Mums	New Mums			Cramér's	
	Pretraining (%)	Posttraining (%)	P Value	χ^2	V	Pretraining (%)	Posttraining (%)	P Value	χ^2	V
Providing advice on physical activity or being active			<.001	354.117	.419			<.001	361.624	.424
Not at all confident	13.2	0				10.2	0			
A little confident	39.1	5.4				37.5	4.2			
Reasonably confident	42	22.9				46.6	23			
Confident	5.1	54.6				5.1	53.6			
Highly confident	0.5	17.1				0.5	19.2			
Starting a conversation about physical activity			<.001	283.428	.374			<.001	285.899	.376
Not at all confident	9.4	0				7	0			
A little confident	30.9	2.5				30.1	2.1			
Reasonably confident	41.9	19.9				45.3	19.5			
Confident	14.5	52.3				14.8	52.7			
Highly confident	3.2	25.3				2.7	25.7			
Delivering the safety messages that may apply to being physically active			<.001	335.192	.407			<.001	332.335	.405
Not at all confident	18.3	0.4				18.3	0.4			
A little confident	38.4	2.1				38.4	2.1			
Reasonably confident	34.4	25.8				34.4	25.8			
Confident	7.3	50.4				7.3	50.4			
Highly confident	1.6	21.3				1.6	21.3			
Answering questions about physical activity from			<.001	334.568	.407			<.001	317.898	.397
Not at all confident	17.3	0				13.6	0			
A little confident	39.4	23.3				37.1	3.7			
Reasonably confident	36.7	28.6				40.1	26.6			
Confident	5.7	50.2				7.9	51.9			
Highly confident	1.1	17.4				1.4	17.8			

revealed existing knowledge was derived from “personal experience” or “pregnancy,” “self-directed study,” and “on the job” learning. A number of health care professionals reported attending targeted training for obesity or risk of gestational diabetes.

Confidence

Health care professionals rated their confidence in specific elements of practice. Table 1 shows reported changes in confidence from pre- to posttraining and a significant increase in overall ratings of confidence following training

($P < .001$). Data collected at 3 and 6 months continue to show significantly higher confidence ratings than baseline (Table 1).

Capacity and Motivation

Following training, health care professionals commented on their capacity and motivation to “deliver physical activity advice to pregnant women and new mums.” There was a significant difference in capacity reported immediately posttraining and 3 or 6 months after training ($P = .037$) but no significant change in motivation ($P = .46$). The majority

Likert Scale Responses	Posttraining n (%)	3 mo Posttraining n (%)	6 mo Posttraining n (%)	P Value	χ^2	Cramér's V
Capacity	359	34	32	.037	13.385	.147
Not at all	4 (1.2)	0 (0)	1 (3.1)			
Not much	13 (3.7)	6 (17.6)	1 (3.1)			
A little	131 (36.5)	11 (32.5)	12 (37.5)			
A lot	211 (58.6)	17 (50)	18 (56.3)			
Motivation	360	34	33	.46	3.617	.076
Not at all	3 (0)	0 (0)	0 (0)			
Not much	73 (0.8)	1 (2.9)	1 (3)			
A little	284 (20.2)	5 (14.7)	9 (27.3)			
A lot	284 (79)	28 (82.4)	23 (69.7)			

^aVariation in sample sizes between time points are due to missing data

Conversation Frequency Responses	Pretraining n (%)	3 mo Posttraining n (%)	6 mo Posttraining n (%)	P Value	χ^2	Cramér's V
Do you currently talk about/provide advice about being active to pregnant women:	356	30	33	.017	18.682	.149
Never	45 (12.6)	3 (10)	2 (6.1)			
Rarely	65 (18.3)	4 (13.3)	5 (15.2)			
Sometimes	139 (39)	5 (16.7)	9 (27.3)			
Often	71 (19.9)	12 (40)	9 (27.3)			
Always	36 (10.1)	6 (20)	8 (24.2)			
Do you currently talk about/provide advice about being active to new mums:	367	32	33	.005	21.81	.159
Never	35 (9.5)	3 (9.4)	4 (12.1)			
Rarely	63 (17.2)	1 (3.1)	4 (12.1)			
Sometimes	138 (37.6)	6 (18.8)	8 (24.2)			
Often	96 (26.2)	16 (50)	9 (27.3)			
Always	35 (9.5)	6 (18.8)	8 (24.2)			

^aVariation in sample sizes between time points are due to missing data.

of health care professionals reported being a little or a lot motivated at all time points as shown in Table 2.

Confidence and motivation were specifically mentioned at the 3 and 6 month follow-up time points. One health care professional said,

I feel more confident in encouraging women to stay active at the same level if they are used to exercising. The training served as a reminder and gave me enthusiasm to promote increased physical activity to those who don't particularly think about it.

Knowledge and Skills

Prior to training, 99% (n = 356) of health care professionals felt further training would help increase their skills and knowledge about physical activity in pregnant and postpartum women, and following training, 99% (posttraining

survey, n = 247) felt they had obtained this knowledge. In the pretraining survey, 33% (n = 119) of health care professionals reported awareness of the CMO guidelines during pregnancy, and 30% (n = 108) were aware of the guidelines for the postnatal period.

Professional Practice

Reported frequency of talking about and providing advice to pregnant and postpartum women was higher 3 and 6 months after training, and most health care professionals reported "often" or "always" talking to pregnant and postpartum women about being active, significantly more frequently than baseline (pregnant women, $P = .017$; $V = .149$ postpartum women, $P = .005$) (Table 3). Qualitative feedback also highlighted changes to professional practice. One midwife said,

I have incorporated discussions, more than I would have before so the training has definitely impacted on the conversations I have with women. Whereas before they might have been delivered at a booking appointment, it's more on my radar to incorporate that into everyday appointments now.

Information Sources

Prior to training, 22% (n = 79) of health care professionals reported using online sources to find information on physical activity during pregnancy and the postnatal period. Most commonly reported examples included guidelines from the NHS, Royal College of Obstetricians and Gynaecologists, NICE, Start4Life, Change4Life, Active for Life, and Healthy Start. Others referred to YouTube videos and tutorials and weight loss resources such as Slimming World and Weight Watchers.

The nature of specific advice offered by health care professionals in practice was reported at 3 and 6 months post-training as well as before training. Prior to training, 14% (n = 50) of health care professionals reported providing specific information from the CMO guidelines; following training, 65% (n = 22; 3 months posttraining) and 75% (n = 24; 6 months posttraining) reported providing this information. A greater proportion of health care professionals reported giving out leaflets 6 months after training (pretraining, 25% [n = 90] vs 6 months posttraining, 31% [n = 10]) and directing women to online resources (pretraining, 51% [n = 184] vs 6 months posttraining, 63% [n = 21]). This shift in use of information sources used was reflected in qualitative feedback from health care professionals. One midwife said, "The training definitely equipped me to deliver very brief advice to the women about physical activity. The leaflets are very useful to be able to share with the women."

Training Feedback

To evaluate specific knowledge exchange, participants were asked to highlight things they had learned in training. Answers commonly related to 4 themes: (1) CMO guidelines, including the recommendation of 150 minutes of activity per week; (2) use of language: to be mindful to use inclusive and accessible language such as being active, physical activity, or movement as opposed to exercise and sport; (3) activity is for everyone: pregnancy and the postnatal period are appropriate times to take up physical activity and start something new if it is built up gradually; (4) health benefits: the role of physical activity in reducing risk of gestational diabetes and hypertension, as well as better weight management. Following training, health care professionals noted, "I now feel more confident to provide brief accurate information which suits all" (Midwife), "The training has given me confidence to discuss moving more" (Health visitor), "Given me knowledge to feel confident to speak about physical activity" (Midwife).

DISCUSSION

This study demonstrates effective use of a cascade training model to disseminate physical activity guideline information clearly and consistently to teams of health care providers

within professional practice, in a format designed to minimize burden on already stretched workforces. Findings demonstrate improvements in perceived knowledge, increased confidence in communication behaviors, and changes in reported provision of physical activity guidance within professional practice. Reported changes were observed immediately following training and sustained in the 3 and 6 months following training. Measures of motivation did not change between time points.

An unanticipated outcome of the training was also noted. The health care professionals own physical activity levels significantly increased at 3 and 6 months following training. Although this was not an explicit aim of the study, physical activity levels of health care professionals were captured as part of the evaluation to explore potential differences in motivations and knowledge to engage in training and apply what they had learned. Not only does this finding indicate a potential impact on the health of those professionals, but it is possible that health care providers who are physically active themselves, and appreciate the many benefits of being active for their own health, may be more likely to advocate physical activity for their patients.¹⁹

A crucial evidence-based international priority is for health care providers to understand physical activity during pregnancy guidelines and to encourage safe participation.⁴ The concepts of providing VBA²⁰ and MECC¹⁴ are advocated by Public Health guidelines and, alongside PPI insight, were integral to the design of this program. Pregnant women view health care professionals as credible sources of information⁵ and may hold an expectation for health care professionals to demonstrate expertise. The National Maternity Review²¹ highlighted "personal health and fitness are integral to safe and fulfilling childbearing." and that maintaining health should be the responsibility of the women themselves, but this must be supported by health care professionals. However, health care professionals have reported a lack of training, knowledge, and confidence as reasons for not providing effective activity guidance and advice.⁶ de Vivo and Mills⁶ also identified a lack of awareness of suitable resources and opportunities for training, further supported by insight gathered in advance of this study.⁷ This is echoed through this study, as baseline data demonstrated limited previous education in physical activity guidelines. Resources accessed by health care professionals prior to training indicate broad yet inconsistent dissemination of guidance offered in practice, highlighting the need for standardized training. The *This Mum Moves* toolkit was praised by health care professionals, and reported use of resources (eg leaflets) increased in the 3 and 6 month follow-up surveys. Willingness and capacity to disseminate information is likely to be enhanced when the process is facilitated and validity of information is accepted; an outcome supported via effective PPI. This is highlighted in quotes relating to both confidence and professional practice, evidenced in the results.

In advance of this study, a majority of health care professionals wanted to receive training.⁷ This willingness is reflected in the high levels of motivation to deliver physical activity guidelines reported by health care professionals following training. Beyond training, almost all health care professionals reported motivation to apply what they had

learned, and the majority felt they had capacity to incorporate physical activity guidance within patient interactions. At follow-up time points, health care professionals reported greater frequency of conversations about physical activity with pregnant and postnatal women and changes in the types of information and resources offered. Despite attrition from survey completion, improved confidence ratings in specific elements of communication in practice (starting a conversation, answering questions, providing advice, and delivering safety messages) suggest health care professionals who completed responses felt equipped to disseminate content covered in training. Previous research highlighted health care professional avoidance of providing physical activity guidance based on a lack of understanding of the safety and a fear of adverse outcomes.⁶ Training in this study included explanation of evidence-based guidelines, associated safety messages, and confirmation within CMO guidelines that (in the absence of contraindications) being active is for all, which may be responsible for increasing confidence in delivering safety messages.

Guidance from the National Maternity Review highlights “those who work together should train together,”²¹ and the ambassador training invited health visitors and midwives to learn together. In the context of physical activity guidelines and this evaluation, professionals observe the need to understand both pregnancy and postnatal guidelines.

Improving evidence-based knowledge was a key motivation to engage in training. A similar finding was reported by de Vivo and Mills,⁶ who found health care professionals wanted to provide reliable and current information and improve evidence-based practice. Following training, almost all health care professionals reported an improvement in their knowledge and high levels of satisfaction in the training received, further supporting effectiveness of the cascade peer-to-peer training model. *This Mum Moves* cascade trainees received just one hour of training, delivered by a peer.

Interventions promoted by primary health care professionals have previously proven effective in increasing patient engagement in physical activity.²² Although continuity of care remains a key priority,²³ pregnancy and the postnatal period present an opportunity for repeated routine engagement with health care professionals to optimize delivery of physical activity guidance by MECC. While national attention is placed on improving maternity services as part of the Maternity Transformation Programme²⁴ and updated NICE guidelines for antenatal and postnatal care,^{8,25} it is necessary to consider how physical activity promotion may support a number of priority workstreams, acting as a vehicle to address improved personalization of care and patient choice, serve to prevent poor health outcomes, and support perinatal mental health services.

Policy adjustments are needed to ensure the importance of physical activity, and the well-evidenced benefits are integral to the undergraduate and postgraduate education health care professionals receive. In addition, continued professional development and upskilling of the existing workforce are required, to include not only those within midwifery services but for general practitioners, physiotherapists, fitness professionals, and other relevant professions supporting pregnancy and postpartum care.

Inherent limitations are associated with multisite, field-based research and the impact of COVID-19 on this study must be acknowledged, resulting in delay and modification of training and attrition in survey completion at follow-up time points. Despite extensions to the study timeline and protocol adaptations, some NHS Trusts terminated their involvement in *This Mum Moves* early. In the first 12 months of data collection (November 2019 to November 2020), many training sessions were cancelled or rescheduled, and training was reformulated to enable online delivery. Training delays, and cessation of involvement from a number of sites, reduced the available time and participant base eligible for follow-up survey completion within the life of the research study. Although the authors acknowledge that the participants at follow-up time points may have been more motivated and confident in completing responses, as well as health care professionals with employers who offered greater support to prioritize engagement, the data collected at all time points included responses across the full spectrum of responses on the scales used.

No survey questions were related to the pandemic; however, responses to open questions at all time points referred to COVID-19 and associated challenges (staff shortages and redeployment, reduced appointment times, time spent answering questions on COVID-19). Health care professionals also acknowledged that pregnant and postpartum women were concerned with maintaining their health and fitness in light of COVID-19.

In the 6 months following *This Mum Moves* training, improvements in knowledge and confidence were sustained, although measurements of confidence show signs of diminishing. Future evaluations of this nature must work to secure sustained engagement at follow-up time points to ensure results are not biased toward those who are most motivated to participate. Consideration as to how information and resource updates can be offered and how to recognize and reward ambassadors continuing to disseminate training will be important. Engagement with health care professionals, population groups, and physical activity professionals in the design and dissemination of education and information is paramount in ensuring content remains valued and valuable for those it intends to serve. Its inclusion must be prioritized in the ongoing evaluation and development of prenatal and antenatal care, coupled with consistent longer term follow-up of the impact of training on professional practice and the experiences of pregnant and postnatal women.

CONCLUSION

Within existing health care services, there is clear alignment of how physical activity can support key perinatal care priorities through consistent inclusion of physical activity guidance within routine care. As such, midwives and health visitors can be encouraged to understand and value the broad benefits of physical activity for their patients. Consistent delivery of VBA within routine professional practice is effective in promoting an active lifestyle,¹³ can be implemented adjunctively within existing care pathways, and can be used to support women to make informed decisions about their engagement with physical activity.

As a result of *This Mum Moves* education package, knowledge and confidence of midwives and health visitors improved alongside more frequent discussions about physical activity within professional practice in the 3 and 6 months following training. An increase in reported physical activity levels of health care professionals who had received training was also observed. Health care professionals were motivated to better understand the value of physical activity during pregnancy and the postpartum period and had an improved awareness of specific elements of the guidelines following their training.

ACKNOWLEDGMENTS

ukactive, Institute of Health Visiting, Active Pregnancy Foundation, The NHS Trusts, and health care professionals involved.

This project received funding from the Sport England and the National Lottery through Sport England's Core Market Fund—Helping the Active Stay Active When Life Changes (Sport England 2016).

CONFLICT OF INTEREST

The authors have no conflicts of interest to disclose.

REFERENCES

1. Bull FC, Al-Ansari SS, Biddle S, et al. World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *Br J Sports Med.* 2020;54(24):1451-1462.
2. Abbasi M, van den Akker O, Bewley C. Persian couples' experiences of depressive symptoms and health-related quality of life in the pre-and perinatal period. *J Psychosom Obstet Gynecol.* 2014;35(1):16-21.
3. Department of Health & Social Care. *UK Chief Medical Officers' Physical Activity Guidelines.* Department of Health & Social Care; 2019. Accessed August 2, 2022. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832868/uk-chief-medical-officers-physical-activity-guidelines.pdf
4. Hayman M, Brown WJ, Brinson A, Budzynski-Seymour E, Bruce T, Evenson KR. Public health guidelines for physical activity during pregnancy from around the world: a scoping review. *Br J Sports Med.* 2023 doi:10.1136/bjsports-2022-105777
5. Atkinson L, Shaw RL, French DP. Is pregnancy a teachable moment for diet and physical activity behaviour change? An interpretative phenomenological analysis of the experiences of women during their first pregnancy. *Br J Health Psychol.* 2016;21(4):842-858.
6. de Vivo M, Mills H. "They turn to you first for everything": insights into midwives' perspectives of providing physical activity advice and guidance to pregnant women. *BMC Pregnancy Childbirth.* 2019;19(1):1-12.
7. Gilroy V, de Vivo M, Lawson R. *Educational Campaign to Support Pregnant Women and New Mothers in Enjoying and Benefitting from an Active Lifestyle. Insight Report.* ukactive; 2019.
8. *Antenatal Care [NG201].* National Institute of Health and Care Excellence; 2021. Accessed August 2, 2022. <https://www.nice.org.uk/guidance/ng201/chapter/Recommendations>
9. Mills H, Atkinson L, Olander E, et al. Bump start needed: linking guidelines, policy and practice in promoting physical activity during and beyond pregnancy. *Br J Sports Med.* 2020;54(13):764-765.
10. Mottola MF, Davenport MH, Ruchat SM, et al. 2019 Canadian guideline for physical activity throughout pregnancy. *Br J Sports Med.* 2018;52(21):1339-1346.
11. Atkinson L, de Vivo M, Hayes L, et al. Encouraging physical activity during and after pregnancy in the COVID-19 era, and beyond. *Int J Environ Res Public Health.* 2020;17(19):7304.
12. Simelane ML, Georgeu-Pepper D, Ras CJ, et al. The Practical Approach to Care Kit (PACK) training programme: scaling up and sustaining support for health workers to improve primary care. *BMJ Glob Health.* 2018;3(Suppl 5):e001124.
13. Stegenga H, Haines A, Jones K, Wilding J. Identification, assessment, and management of overweight and obesity: summary of updated NICE guidance. *BMJ.* 2014;349:g6608.
14. Public Health England. *Making Every Contact Count (MECC): Consensus Statement.* Public Health England; 2016.
15. Sport England. *Active Lives Survey, 2018—2019.* Sport England; 2020.
16. Sport England. *Active Lives Survey, 2020—2021.* Sport England; 2022.
17. Akoglu H. User's guide to correlation coefficients. *Turk J Emerg Med.* 2018;18(3):91-93.
18. Shorten A, Smith J. Mixed methods research: expanding the evidence base. *Evid Based Nurs.* 2017;20(3):74-75.
19. Buckley BJR, Finnie SJ, Murphy RC, Watson PM. "You've got to pick your battles": a mixed-methods investigation of physical activity counselling and referral within general practice. *Int J Environ Res Public Health.* 2020;17(20):7428.
20. *Physical activity: brief advice for adults in primary care.* National Institute for Health and Care Excellence; 2013.
21. *Better Births. Improving Outcomes of Maternity Services in England A Five Year Forward View for Maternity Care.* NHS England; 2015. Accessed August 2, 2022. <https://www.england.nhs.uk/wp-content/uploads/2016/02/national-maternity-review-report.pdf>
22. Kettle VE, Madigan CD, Coombe A, et al. Effectiveness of physical activity interventions delivered or prompted by health professionals in primary care settings: systematic review and meta-analysis of randomised controlled trials. *BMJ.* 2022;376:e068465.
23. NHS England. *Implementing Better Births: Continuity of Carer.* NHS England; 2017. Accessed August 2, 2022. <https://www.england.nhs.uk/wp-content/uploads/2017/12/implementing-better-births.pdf>
24. Maternity transformation programme. NHS England website. Published 2021. Accessed August 2, 2022. <https://www.england.nhs.uk/mat-transformation/>
25. *Postnatal Care [QS37].* National Institute of Health and Care Excellence; 2021. Accessed August 8, 2022. <https://www.nice.org.uk/guidance/qs37/resources/postnatal-care-pdf-2098611282373>