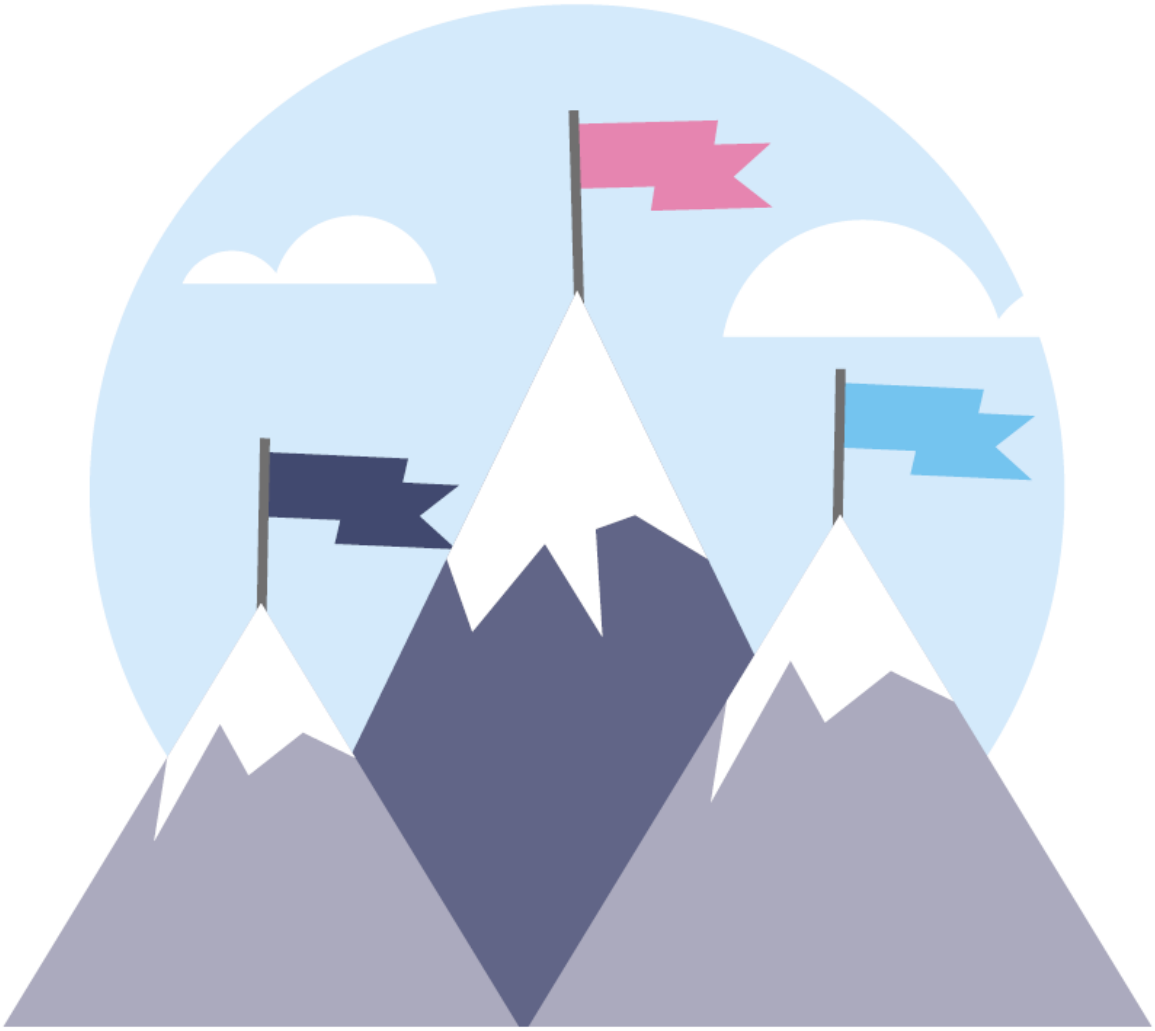
The MAP of Health Behaviour Change Evaluation Report – Aug 2025



THE MAP OF HEALTH BEHAVIOUR CHANGE LEARNING PROGRAMME: EVALUATION

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Executive Summary*

Background

Since 2019, NHS Education for Scotland (NES) has delivered the MAP of Health Behaviour Change Learning Programme to support practitioners in developing person-centred behaviour change skills. The programme integrates 12 Behaviour Change Techniques (BCTs) across three categories—Motivation, Action, and Prompts & Cues—and includes eLearning, workshops, and coaching. It has reached 13 of 14 Scottish Health Boards.

Evaluation Aim

This evaluation aimed to assess the impact of MAP training on learners' knowledge, confidence, and use of BCTs, as well as satisfaction with the programme and barriers/facilitators to implementation.

Key Findings

- **Improved Knowledge and Confidence**: Learners showed significant increases in knowledge and confidence with the MAP model and BCTs post-training.
- **Increased Use of BCTs**: Frequency of BCT use rose significantly from pre-training to follow-up, especially for Action and Prompts & Cues BCTs.
- **Satisfaction**: Learners expressed high satisfaction with the programme, particularly valuing the support from workshop leaders and opportunities for skills practice.
- **Barriers**: Challenges included cognitive load, limited time and opportunity, and adapting MAP to patient needs.
- **Facilitators**: Effective materials, integration with existing practice, flexibility of the MAP model, and peer support were key enablers.

Conclusions

The MAP programme is effective in enhancing practitioner skills and confidence in behaviour change techniques. High engagement and satisfaction suggest strong acceptability. Future improvements could focus on embedding MAP into routine practice, enhancing guidance for patient suitability, and strengthening peer support networks.

Limitations

Data completeness was affected by the non-compulsory nature of evaluations, leading to missing data across timepoints. While multiple imputation was used to address this, caution is advised in interpreting results, especially those based on small follow-up samples.

* This summary was generated with the assistance of MS365 Copilot to enhance clarity and conciseness.

Project Overview

NES has been delivering the MAP of Health Behaviour Change Learning Programme since 2019. This blended learning programme aims to develop person-centred health behaviour change skills for practitioners working in health care, social care and partner organisation services. These skills involve the use of 12 behaviour change techniques (BCTs), including goal setting and social support, which can be categorised into Motivation BCTs, Action BCTs and Prompts & Cues BCTs (MAP). The programme includes an eLearning Module, pre-learning resources, skills-based workshops (either delivered face to face or via a virtual learning environment (VLE)) and the opportunity to attend coaching sessions. The workshops are delivered by NES staff as well as by MAP learners who have completed a Training for Trainers workshop.

MAP training has been delivered in 13 of the 14 Scottish Health Boards to date. NES routinely collects process and learning outcome data for all components. One of the seven principles of NES's Learning and Education Strategy for 2023 - 2026 is to systematically define and measure quality value and impact of their learning and education (NES, 2023). This will provide an evidence base to allow NES to develop and refine the programme for future delivery and expand its reach across Scotland.

Aim of the Project

The aim of the project is to analyse and report (using qualitative and quantitative statistical methods) training evaluation and outcome data from the MAP Learning Programme.

The research questions are as follows:

1. Does learner knowledge and confidence in using the MAP model and BCTs change from Time 1 (T1, pre-learning, prior to workshop) to Time 2 (T2, post-workshop)?
2. Does frequency of BCT use change between T1 and Time 3 (T3, follow-up)?
3. Is there a relationship between knowledge and confidence with BCTs and frequency of BCT use at T3?
4. Does intention to use BCTs at T2 predict BCT use at T3?
5. How satisfied are MAP learners with the learning programme?
6. What are the barriers and facilitators to using the MAP model and corresponding BCTs in practice?

Methods

Design

Survey data were collected at three time points from February 2019 to November 2023:

- T1 - Pre-learning (prior to workshop)
- T2 - Post-workshop (immediately after the workshop)
- T3 - Follow-up (4-weeks post workshop)

Materials

The T1 survey collected the following information:

- Knowledge (4 items) and confidence (4 items) with using the MAP model (scored on a 6-point Likert scale ranging from Strongly Disagree to Strongly Agree)
- Knowledge, confidence and frequency of using individual BCTs (scored on an 11-point Likert scale ranging from 0 to 10)

The T2 survey collected the same information (measuring intention to use individual BCTs rather than frequency of current use), as well as information on satisfaction with the MAP workshop.

Originally, satisfaction questions were based on the Training Acceptability Rating Scale (TARS, Davis, Rawana & Capponi, 1989) and was later changed to the REACTS Form (Milne et al., 2012), in line with a NES Psychology decision about training evaluation data collection. These questions collected scale data (Likert scales differing between survey versions, see results for more information), as well as qualitative information gathered via free-text fields.

The T3 survey collected the same information as the T1 survey, as well as qualitative feedback on the barriers and facilitators to implementing the MAP model in practice. This information was gathered using free-text responses to the following questions:

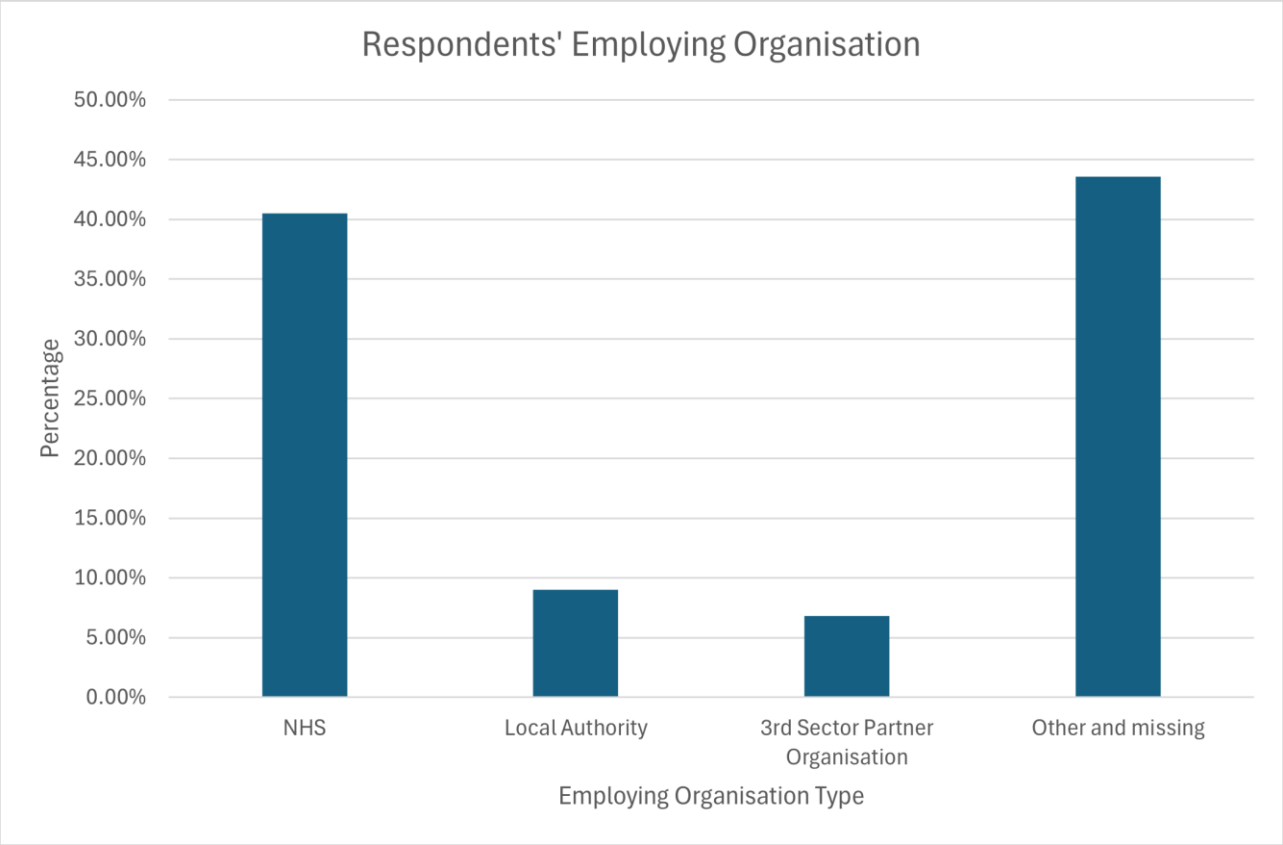
- What would you say the biggest challenge has been for you in using the MAP model and BCTs in your everyday work?
- What has been the most helpful thing, or would be most helpful, in supporting your use of the MAP model and BCTs in your everyday work?

Participants

A total of 474 learners provided survey responses for at least one of the timepoints and were included in the data analysis. The majority of learners who specified their employing organisation worked within the NHS (40.5% of those who responded) (Figure 1 and Table 1).

Figure 1

Bar chart showing respondents' employing organisation (of those who specified)



Analysis of quantitative survey data

IBM SPSS Statistics 29 was used to analyse the data. Across the entire dataset, 29.41% of values were missing. In all variables, missing values exceeded 40% due to incomplete survey responses and dropouts over the three timepoints. Where missing values are greater than 40%, further investigation is recommended, followed by either deletion or imputation (Jakobsen et al., 2017; Mirsaei et al., 2022). Missing data analysis confirmed that data was not missing at random (MNAR), as results of the Little's MCAR test were significant ($\chi 2 = 10248.14$, DF = 3503, $p < .001$). As multiple imputation can handle MNAR data (Pedersen et al., 2017), this was the method chosen for dealing with the missing data, so that as much of the original data as possible could be used in the analyses. In cases where multiple imputation did affect the significance of the results, the results from the imputed data have been reported. For analyses using data from the follow-up survey (T3), only responses from those who completed this survey were included ($n = 41$), due to the amount of missing data at T3.

Table 1

Descriptive statistics for demographic information of respondents

		n (%)
Employing organisation	NHS	251 (40.5)
	Local Authority	56 (9)
	3rd Sector Partner Organisations	42 (6.8)
	Other	32 (5.2)
	Not specified	238 (38.4)

To account for missing data and lack of normal distribution in the data, non-parametric analyses were used:

- To evaluate Research Questions 1 and 2, the Wilcoxon Signed Rank Test was used to assess changes in variables over time (knowledge and confidence with the MAP model and BCTs; frequency of using BCTs).
- To evaluate Research Questions 3 and 4, Spearman Rank-Order Correlations were used to explore relationships between variables (knowledge, confidence and frequency of BCT use; intention to use BCTs and frequency of BCT use).
- For Research Questions 1 - 4, where data were analysed for individual BCTs, analyses were also conducted with BCTs grouped by MAP category (i.e. Motivation BCTs, Action BCTs and Prompts & Cues BCTs).
- Frequency analysis was used to understand the quantitative satisfaction data (Research Question 5), while qualitative responses were inspected to provide additional insight into satisfaction with the workshop and possible areas for improvement.

Analysis of qualitative survey data

To address Research Question 6, Thematic Analysis was used to explore barriers and facilitators to implementing the MAP approach in practice within the qualitative survey responses. Analytic steps included familiarisation with the data, generating initial codes, searching for and reviewing themes, and naming themes (Braun & Clarke, 2006). A deductive analytic approach was taken, whereby data were coded and themes generated under the categories Barriers and Facilitators.

Results

Research Question 1: Does knowledge and confidence in using the MAP model and BCTs change from T1 to T2? (Table 2)

A total of 474 responses were analysed after data imputation of missing values. As outlined in Table 2, overall knowledge and confidence with the MAP approach, as well as knowledge and confidence with BCTs (individually and grouped by MAP categories), improved significantly after MAP training (all at the $p < .001$ significance level). Results for each individual BCT are shown in Appendix 1.

Research Question 2: Does frequency of BCT use change between T1 and T3? (Table 3)

A total of 36 responses were analysed. Frequency of use had increased significantly for all BCTs by the follow-up when using original and imputed data (individually and grouped by MAP categories) (shown in Table 3).

For the 'starting conversations about change' variable, Wilcoxon tests for change were conducted using the original data as well as with imputed data. Analysis with the original data showed a significant difference in frequency of use from T1 to T3. However, out of the 5 analysis models using imputed data, 3 showed a significant difference and in 2 models, the difference was not significant in frequence of use from T1 to T3. (*p*-values ranging from <.001 to .238, and the pooled mean was 7.38 pre-training and 6.16 at the follow-up).

Results for each individual BCT are shown in Appendix 1.

Research Question 3: Is there a relationship between knowledge and confidence with BCTs and frequency of BCT use at T3? (Table 4)

For this research question, 37 responses were analysed. For the following BCTs: Outcome Goal Setting, Action Planning, If-Then Plans, Self-Monitoring, Review Goals, Habit Formation, Adapting the Environment and Social Support; knowledge and confidence at the follow-up (T3) were moderately and significantly associated with frequency of use (*r* values ranging from .35 for the relationship between knowledge and frequency of using If-Then Plans, to .57 for the relationship between confidence and frequency of using Action Planning). Results for each individual BCT are shown in Appendix 1. Splitting the BCTs by MAP category, significant relationships between knowledge, confidence and frequency of use only existed for the Action BCTs, as shown in Table 4.

Table 2

Research question 1 results: Probability for the Wilcoxon Signed Rank Test for changes in knowledge and confidence following MAP training (T1 to T2)

	Before MAP training (T1)		After MAP training (T2)			
	M	*SD*	*M*	*SD*	*Z*	Wilcoxon Signed Rank Test Probability
Overall knowledge of MAP	3.81	1.11	5.46	0.80	-5.51	< .001
Overall confidence with MAP	3.77	1.06	5.24	0.84	-5.43	< .001
Knowledge of Motivation BCTs	5.48	2.73	9.88	1.06	-9.03	< .001
Confidence with Motivation BCTs	5.47	2.88	9.78	1.10	-8.90	< .001
Knowledge of Action BCTs	5.82	2.64	9.81	1.05	-9.18	< .001
Confidence with Action BCTs	5.87	2.76	9.69	1.08	-8.96	< .001
Knowledge of Prompts / Cues BCTs	5.31	2.67	9.67	1.15	-9.13	< .001
Confidence with Prompts / Cues BCTs	5.41	2.81	9.56	1.18	-8.93	< .001

Table 3

Research question 2 results: Probability for the Wilcoxon Signed Rank Test for changes in frequency of using BCTs following MAP training (T1 to T3)

	Before MAP training (T1)		After MAP training (T3)			
	M	*SD*	*M*	*SD*	*Z*	Wilcoxon Signed Rank Test Probability
Frequency of using Starting Conversations about Change (pooled data)	7.38	-	6.16	-	-	<0.001 to 0.238 (for the 5 different imputation models)
Frequency of using Motivation BCTs	5.93	2.68	8.50	2.00	-3.19	.001
Frequency of using Action BCTs	5.95	2.65	8.68	1.92	-3.36	< .001
Frequency of using Prompts / Cues BCTs	5.17	2.94	8.11	2.31	-3.20	.001

Research Question 4: Does intention to use BCTs at T2 predict BCT use at T3? (Table 5)

In this analysis, 40 responses were analysed. For all BCTs (individually and grouped by MAP categories), the relationship between intention of use post-training (T2) and frequency of use at the follow-up (T3) was weak and non-significant, as summarised in Table 5. Results for each individual BCT are shown in Appendix 1.

Table 4

Research question 3 results: Spearman Rank-Order Correlations between knowledge and confidence with BCTs at follow-up (T3) and frequency of BCT use at follow-up (T3)

	Knowledge of Motivation BCTs	Confidence with Motivation BCTs	Knowledge of Action BCTs	Confidence with Action BCTs	Knowledge of Prompts / Cues BCTs	Confidence with Prompts / Cues BCTs
Frequency of using Motivation BCTs	.12	.19				
Frequency of using Action BCTs			.43*	.44*		
Frequency of using Prompts / Cues BCTs					.33	.24

Note. $*p < .05$

Research Question 5: How satisfied are MAP learners with the learning programme? (Tables 6 and 7)

Tables 6 and 7 show descriptive data for 289 responses to the satisfaction components of the original version of the T2 survey. The results were positive, demonstrating a majority agreement with the satisfaction statements about the training in general, with no learner disagreeing that MAP is appropriate and beneficial for a variety of staff, and that it is consistent with good practice. All learners reported that the workshop leaders were competent, related well to the group and were motivating, and that the workshop covered all of the topics it set out to cover.

Table 5

Research question 4 results: Spearman Rank-Order Correlations between intention to use BCTs (T2) and frequency of BCT use (T3)

	Frequency of using Motivation BCTs (T3)	Frequency of using Action BCTs (T3)	Frequency of using Prompts / Cues BCTs (T3)
Intention to use Motivation BCTs (T2)	-.10		
Intention to use Action BCTs (T2)		.06	
Intention to use Prompts / Cues BCTs (T2)			.10

Tables 8 and 9 show descriptives for 254 responses to the satisfaction components of the later version of the T2 survey. Responses were positive, particularly in relation to the role of the workshop leaders, with 86% of learners indicating that the leaders led the workshops effectively, 87% feeling supported by the leaders, and 79% strongly agreeing that the workshop leaders helped them to try out new skills.

The responses to the satisfaction elements of the T2 survey were supported by comments from learners provided in free-text fields in response to the following questions:

Original T2 free-text satisfaction questions:

- What was the most helpful part of the workshop for you personally?
- What changes if any would you recommend (e.g. to the content or the teaching)?
- Any other comments or suggestions?

Later T2 free-text satisfaction questions:

- Of the events which occurred in the workshops, which one do you feel was the most helpful for you personally?
- Any other comments (e.g. unhelpful events, recurring problems)?

This data was inspected and comments relating to the most helpful aspects of the workshops and recommended changes have been summarised in Table 10.

Table 6

Research question 5 results: Responses to the satisfaction elements of the original version of the T2 survey, relating to the MAP training in general

	Strongly disagree *n* (%)	Moderately disagree *n* (%)	Slightly disagree *n* (%)	Slightly agree *n* (%)	Moderately agree *n* (%)	Strongly agree *n* (%)	Total (*n*)
General acceptability - this approach would be appropriate for a variety of staff	0 (0)	0 (0)	2 (1)	31 (11)	99 (36)	146 (53)	278
Effectiveness - the training will be beneficial for staff	0 (0)	0 (0)	3 (1)	31 (11)	94 (34)	149 (54)	277
Negative side-effects - the training will result in disruption or harm to clients	128 (46)	98 (35)	11 (4)	4 (1)	10 (4)	27 (10)	278
Appropriateness - most staff would NOT accept that the training provided an appropriate approach to client care	84 (30)	127 (46)	23 (8)	11 (4)	13 (5)	18 (7)	276
Consistency - the training was consistent with common sense and good practice in helping staff to work effectively	0 (0)	0 (0)	3 (1)	26 (9)	118 (42)	131 (47)	278
Social validity - in an overall, general sense, most staff would approve of training in this method (e.g. would recommend it to others)	0 (0)	1 (<1)	6 (2)	37 (13)	120 (43)	114 (41)	278

Table 7

Research question 5 results: Responses to the satisfaction elements of the original version of the T2 survey, relating to how competently the training was conducted, and whether it was helpful or not

	Not a lot *n* (%)	**A little *n* (%)**	**Quite a lot *n* (%)**	**A great deal *n* (%)**	**Total (*n*)**
Did the workshop improve your understanding?	2 (1)	23 (8)	106 (37)	156 (54)	287
Did the workshop help you to develop work-related skills?	4 (1)	38 (13)	135 (47)	111 (39)	288
Has the workshop made you more confident?	5 (2)	54 (19)	125 (44)	102 (36)	286
Do you expect to make use of what you learnt in the workshop in your workplace?	2 (1)	36 (12)	117 (40)	134 (46)	289
How competent were the workshop leaders?	0 (0)	2 (1)	26 (11)	215 (88)	243
In an overall, general sense, how satisfied are you with the workshop?	2 (1)	9 (3)	87 (30)	190 (66)	288
Did the workshop cover the topics it set out to cover?	0 (0)	4 (1)	64 (22)	217 (76)	285
Did the workshop leaders relate to the group effectively? (e.g. made you feel comfortable and understood)	0 (0)	2 (1)	53 (18)	234 (81)	289
Were the leaders motivating? (e.g. energetic, attentive and creative)	0 (0)	3 (1)	44 (15)	242 (84)	289

Table 8

Responses to the satisfaction elements of later versions of the T2 survey, relating to experiences with the MAP workshop

Thinking about your experience of the MAP Workshop(s), please answer the following questions:	**Strongly disagree *n* (%)**	**Disagree *n* (%)**	**Neither agree nor disagree *n* (%)**	**Agree *n* (%)**	**Strongly agree *n* (%)**	**Total (*n*)**
I am satisfied with the duration of the workshops (i.e. they lasted as long as it should have/needed to)	10 (4)	7 (3)	10 (4)	67 (26)	160 (63)	254
I am satisfied with the workshop venue (i.e. training room, online via Microsoft Teams)	9 (4)	8 (3)	18 (7)	70 (28)	148 (58)	253
The workshop leaders led the workshops effectively (e.g. structuring, collaborating, managing, problem-solving)	10 (4)	0 (0)	1 (<1)	24 (9)	218 (86)	253
I felt support by the workshop participants and leaders (e.g. feeling encouraged, receiving recognition and validation)	10 (4)	0 (0)	1 (<1)	21 (8)	221 (87)	253

Table 9

Responses to the satisfaction elements of later versions of the T2 survey, relating to the workshop in general

Thanks to the workshop (including other participants)...	**Strongly disagree *n* (%)**	**Disagree *n* (%)**	**Neither agree nor disagree *n* (%)**	**Agree *n* (%)**	**Strongly agree *n* (%)**	**Total (*n*)**
I was able to recognise relevant feelings (e.g. became more self-aware)	7 (3)	1 (<1)	12 (5)	96 (38)	137 (54)	253
I was able to reflect on events more clearly (e.g. draw on my own experience to clarify material)	7 (3)	0 (0)	6 (2)	86 (34)	153 (61)	252
My understanding was improved	7 (3)	0 (0)	4 (2)	46 (18)	196 (77)	253
I have an action plan, based on the workshops (e.g. noted next steps, set a goal)	6 (2)	0 (0)	10 (4)	91 (37)	142 (57)	249
The workshop leaders helped me to try things out (e.g. practising skills, offering feedback)	7 (3)	0 (0)	2 (1)	43 (17)	199 (79)	251

Table 10

Responses to free-text satisfaction questions in the T2 survey, describing what learners felt to be the most helpful aspects of the workshops, as well as changes they would make

		Example quotes
Most helpful aspects of the workshops	Being able to practise MAP	"Roleplaying as patient/practitioner - helped put into practice. Really helpful to get thinking on the spot/real life examples."
		"I enjoyed the practice element of the training as I was able to put what I have learned into practice and build up a toolbox in ways to improve a patient journey."
		"I personally feel I benefited the most from role play as it helped me to see how I would use the technique in practice."
		"The skills practise! This really helped me build confidence and learn from others too."
	Informative and helpful materials	"The sample videos were informative."
		"The practical activities were helpful and observing the videos for specific things was really useful"
		"Having the resources, prompted by videos and the opportunity to practise with peers - this raised questions and reflections on the best method of using MAP effectively."
	Engaging trainers	"The information gathering session was dynamic and engaging. The facilitators were excellent throughout. "
		"The trainers were very knowledgeable and informative."
		"Great work from the facilitators! Great interaction and engagement opportunities."
		"The workshop leaders were very understanding and motivating."
		"Both facilitators were very relaxed, confident and excellent facilitators."
	Discussing with others	"Having opportunities to work with others and how they would use the model - shared skills/knowledge."
		"Discussion around how it can be placed into practice."
Recommended changes for the	Preference for face-to-	"Face to face sessions would be preferable. 2-3 hours prep and 8 hours on teams felt a bit too long."

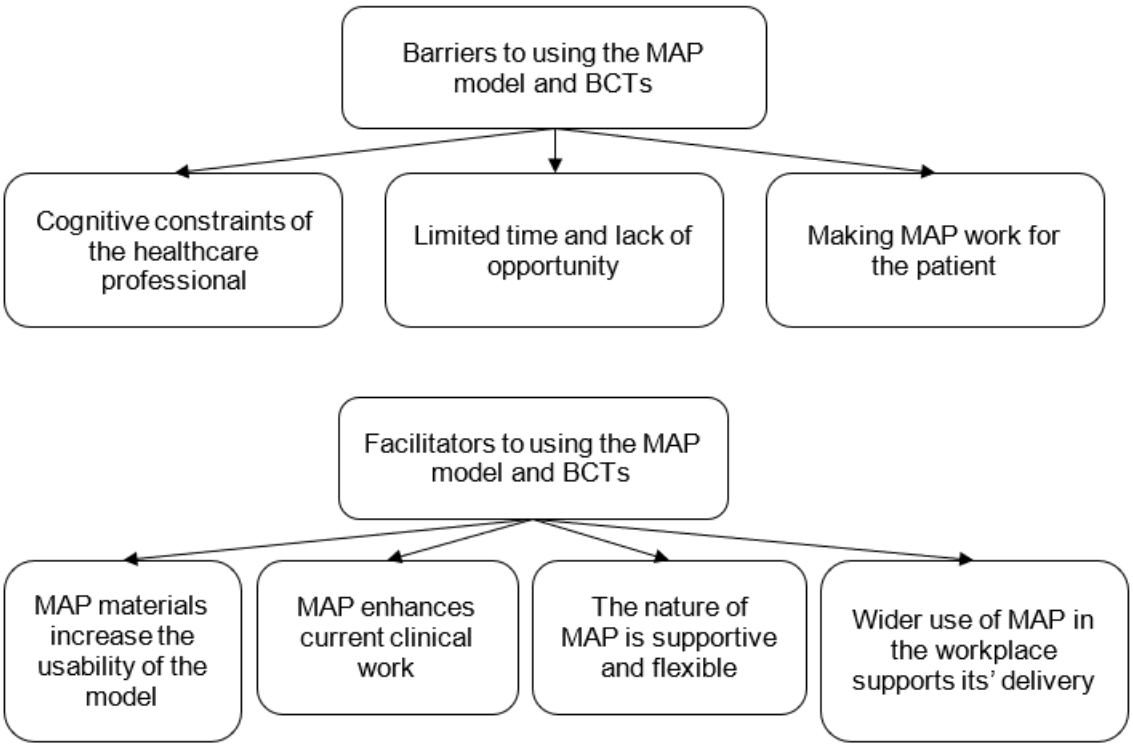
		Example quotes
workshops	face	"Would have preferred in person training? The interaction would have been a lot more fun! But still thoroughly enjoyed the sessions." "The facilitators did a great job on Teams but being in person would have been better."
	Considering session times	"Too long - I lost concentration." "Friday afternoon not an ideal time to do any training; the group formulation/bring it all together activity was a bit stilted - I don't think anyone's fault, partly the time of day and partly online but I don't think it's a great activity for a bigger group either." "Any staff not able to attend / to be able to complete training (mop up session)."

Research Question 6: What are the barriers and facilitators to using the MAP model and corresponding BCTs in practice?

Qualitative survey responses (n = 50) to the questions "What would you say the biggest challenge has been for you in using the MAP model and BCTs in your everyday work?" and "What has been the most helpful thing, or would be most helpful, in supporting your use of the MAP model and BCTs in your everyday work?" were extracted from the follow-up (T3) dataset and analysed. Themes were organised deductively under overarching themes Barriers and Facilitators. Thematic analysis revealed three themes which fell under Barriers: (1.1) Cognitive constraints of the healthcare professional; (1.2) Limited time and lack of opportunity; and (1.3) Making MAP work for the patient. Another four themes were identified under Facilitators: (2.1) MAP materials increase the usability of the model; (2.2) MAP enhances current clinical work; (2.3) The nature of MAP is supportive and flexible; and (2.4) Wider use of MAP in the workplace supports its' delivery. A summary of the results can be found in Figure 2, and tables with the themes and example quotes can be found in Appendix 2.

Figure 2

Thematic map of the themes emerging under Barriers and Facilitators to implementing the MAP model and BCTs in practice



Theme 1: Barriers to using the MAP model and BCTs

Learners felt that using the MAP model in practice was hindered by factors involving limits to their own capacity, limitations of current clinical practices, and challenges presented by their patients.

1.1 Cognitive constraints of the healthcare professional

Learners expressed that it could be challenging to remember to use the MAP model and BCTs: "I have not experienced any significant challenges other than my own memory to use them!". They also felt that they "overthink this at times which can make me struggle". Due to the additional cognitive capacity required, it was felt that:

"Attending the training and retaining the information is one thing but to start conversations with the terminology used in the training will take some time to be able to say it with ease."

They felt that more practice would support making the use of the MAP model more natural.

1.2 Limited time and lack of opportunity

As well as being demanding of mental capacity, learners noted that having enough time and opportunity could also be a barrier to using the model. Learners commented that they needed "the time to use the MAP training as assessment times are limited due to capacity", and that they

struggled to find opportunities to progress with the MAP approach as they had "irregular direct contact with patient group" and weren't always "able to see service users on a more frequent basis". Therefore, continuity with using the model was difficult and managing appointments to include time for MAP and BCTs presented a challenge.

1.3 Making MAP work for the patient

Lastly, barriers were observed with regards to the openness and motivation of patients, learning to let the patient lead, and identifying how MAP would be appropriate for a patient. "Judging when patients are open to it or not" was seen as challenging. Patients' expectations for the appointment could also act as a hindrance to using the model:

"When the individual is not motivated to change, this can create barriers. Also, on occasion, individuals often want to be told what to do - seeing us as the experts."

Learners also described it as challenging "not to jump in with suggestions for change", and "learning to not provide solutions and giving enough time for information gathering". Therefore, difficulties learning to let the patient lead, and working with the patient's receptiveness to MAP, were seen to hinder using the model.

Theme 2: Facilitators to using the MAP model and BCTs

Factors which facilitated using the MAP model in practice were also discussed. These included having helpful materials which aided using the MAP approach, the ability to combine MAP with other approaches, the general flexibility of the MAP model, and having support using MAP from a wider clinical team.

2.1 MAP materials increase the usability of the model

The worksheets were viewed as key to the implementation of MAP, as "it is useful to have a prompt in front of you when having conversations", with learners having "saved the MAP worksheets into the folder where I keep all the worksheets / materials I use with patients". In addition to the worksheets, the acronyms used with the MAP approach were seen as useful: "The sessions showed examples and the acronyms helped me remember each stage". Not only were the materials viewed as increasing the usability of MAP within the clinic setting, they were also able to be applied in community settings, for use with a range of issues: "The forms have worked well within the community setting where patients have an array of concerns such as weight, living conditions etc.". Therefore, the materials made the MAP model easier to use and increased its adaptability across settings.

2.2 MAP enhances current clinical work

Learners commented on the way in which MAP complimented their current practice. The tools provided by the MAP approach were able to be integrated into their work: "The MAP training has enhanced my previous knowledge and learning and provided me with new techniques to use as part of my working practice." The model also supported practitioners in assessing patients holistically: "I feel I listen more and look at the bigger picture why a person is the way they are".

The model helps with understanding the problem at hand, and encourages new ways of working, which were felt to enhance existing practices.

2.3 The nature of MAP is supportive and flexible

Another facilitator to implementing the MAP was that the model was found to be supportive and flexible. Learners found "having a process to follow" was helpful, and the behaviour change techniques were able to be flexibly worked into practice:

"I have found just implementing more open-ended questions into general conversation has been very useful. Also using pro/cons techniques works well within my field of practice."

The clear structure and well-defined techniques used with the MAP model increase its usability.

2.4 Wider use of MAP in the workplace supports its delivery

Lastly, being able to discuss the use of MAP with other MAP trainees or colleagues was seen as key to implementing the model in practice. Learners desired "having other members of my team trained to discuss practice", while others had already experienced being able to discuss MAP in their workplace as they worked "with my Maternity colleagues to discuss the use of these techniques". Additionally, learners reflected on the importance of having continued support, from MAP trainers as well as other trainees. They felt that MAP trainers may be able to support continued development with using the MAP model, as "it would be helpful to have a follow-up contact to ask about tips and advice to use it more effectively". They also expressed that "reviewing the resources with my peers who we undertook the training with" would be helpful. Having an ongoing support network was observed to be a valuable facilitator in the implementation of MAP.

Limitations

Missing Data

The completeness of the dataset used for this evaluation has been hampered due to the pragmatic stance taken by the Health Improvement team. As Health Psychologists and Educators, we understand the need for robust data collection as well as the demands this places on our learners. As practitioners from health, social care and third sector, our learners' contexts are complex, stressful and often challenging; it is unrealistic and unfair to place additional stress to engage in training. As such we have not made completion of evaluations compulsory to attend or complete the learning and instead, try to meet practitioners where they are and support them through their learning journey, whatever that looks like.

The impact of this approach has impacted the data in two ways. Firstly, many participants have not completed evaluations at all three time points. This has meant that we may have pre-workshop but not post-workshop data for an individual, or vice versa. In this case, data imputation has been applied where the relevant assumptions are held, to allow the analyses to be conducted and therefore caution must be taken when interpreting the results.

As is often the case in social science research, there was the expected drop off in response rate across the multiple evaluation time points. For research questions involving T3 data, only responses from those who completed this survey were included, resulting in a very small sample (n=41). Again, caution must be taken when interpreting these results due to, for example, an increased risk of Type 1 errors, and an overestimation of effect sizes.

Conclusions

The MAP programme is effective in enhancing practitioner skills and confidence in behaviour change techniques. High engagement and satisfaction suggest strong acceptability. Future improvements could focus on embedding MAP into routine practice, enhancing guidance for patient suitability, and strengthening peer support networks.

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Appendix 1. Expanded quantitative analyses results

Table 3 (expanded)

Probability for the Wilcoxon Signed Rank Test for changes in knowledge and confidence following MAP training (T1 to T2)

	Before MAP training (T1)		After MAP training (T2)			
	M	*SD*	*M*	*SD*	*Z*	Wilcoxon Signed Rank Test Probability
Overall knowledge of MAP	3.81	1.11	5.46	0.80	-5.51	< .001
Overall confidence with MAP	3.77	1.06	5.24	0.84	-5.43	< .001
Knowledge of Starting Conversations About Change	6.86	2.38	9.79	1.07	-8.53	< .001
Confidence with Starting Conversations About Change	7.11	2.53	9.65	1.15	-7.75	< .001
Knowledge of Pros & Cons	5.71	2.91	9.91	1.03	-8.78	< .001
Confidence with Pros & Cons	5.64	3.05	9.83	1.09	-8.56	< .001

	Before MAP training (T1)		After MAP training (T2)			
	M	*SD*	*M*	*SD*	*Z*	Wilcoxon Signed Rank Test Probability
Knowledge of Looking to the Future	5.26	2.85	9.84	1.20	-9.03	< .001
Confidence with Looking to the Future	5.30	3.00	9.73	1.19	-8.76	< .001
Knowledge of Outcome Goal Setting	6.50	2.90	9.92	1.08	-8.35	< .001
Confidence with Outcome Goal Setting	6.61	3.00	9.81	1.15	-7.83	< .001
Knowledge of Behaviour Goal Setting	6.19	2.86	9.91	1.09	-8.65	< .001
Confidence with Behaviour Goal Setting	6.21	3.01	9.77	1.14	-8.21	< .001
Knowledge of Action Planning	5.73	2.83	9.80	1.22	-8.79	< .001
Confidence with Action Planning	5.72	2.99	9.64	1.24	-8.46	< .001
Knowledge of If-Then Plans	5.46	2.87	9.81	1.19	-9.02	< .001
Confidence with If-Then Plans	5.50	3.02	9.72	1.21	-8.70	< .001

	Before MAP training (T1)		After MAP training (T2)			
	M	*SD*	*M*	*SD*	*Z*	Wilcoxon Signed Rank Test Probability
Knowledge of Self-Monitoring	5.45	2.91	9.69	1.23	-8.82	< .001
Confidence with Self-Monitoring	5.53	3.03	9.55	1.28	-8.52	< .001
Knowledge of Review Goals	5.75	2.89	9.78	1.19	-8.79	< .001
Confidence with Review Goals	5.84	3.03	9.66	1.21	-8.46	< .001
Knowledge of Rewards	5.09	2.86	9.68	1.22	-8.91	< .001
Confidence with Rewards	5.19	3.00	9.52	1.31	-8.57	< .001
Knowledge of Habit Formation	5.17	2.82	9.61	1.36	-8.98	< .001
Confidence with Habit Formation	5.27	2.98	9.49	1.37	-8.76	< .001
Knowledge of Adapting the Environment	5.67	2.89	9.72	1.31	-8.76	< .001
Confidence with Adapting the Environment	5.78	3.06	9.67	1.25	-8.58	< .001

	Before MAP training (T1)		After MAP training (T2)			
	M	*SD*	*M*	*SD*	*Z*	Wilcoxon Signed Rank Test Probability
Knowledge of Social Support	5.65	3.03	9.74	1.40	-8.84	< .001
Confidence with Social Support	5.70	3.13	9.66	1.39	-8.57	< .001

Table 4 (expanded)

Probability for the Wilcoxon Signed Rank Test for changes in frequency of using BCTs following MAP training (T1 to T3)

	Before MAP training (T1)		After MAP training (T3)			
	M	*SD*	*M*	*SD*	*Z*	Wilcoxon Signed Rank Test Probability
Frequency of using Starting Conversations About Change (pooled data)	7.38	-	6.16	-	-	<.001 to .238 (for the 5 different models of imputation)
Imputed Data – Model 1	7.40	2022	8.23	3.74	-2.29	0.02
Imputed Data – Model 2	7.35	2.28	-5.50	141.65	-1.18	0.238
Imputed data – Model 3	7.43	2.20	8.16	3.06	-1.88	0.06
Imputed Data – Model 4	7.24	2.26	11.18	6.23	-4.01	<0.01
Imputed Data – Model 5	7.50	2.22	8.14	6.54	-2.09	0.37
Frequency of using Pros & Cons	6.26	2.86	8.57	2.05	-2.98	.003
Frequency of using Looking to the Future	5.61	2.89	8.43	2.16	-3.15	.002
Frequency of using Outcome Goal Setting	6.75	2.59	8.81	1.94	-2.85	.004
Frequency of using Behaviour Goal Setting	5.91	3.19	8.58	2.60	-2.51	.012

	Before MAP training (T1)		After MAP training (T3)			
	M	*SD*	*M*	*SD*	*Z*	Wilcoxon Signed Rank Test Probability
Frequency of using Action Planning	6.00	2.75	8.74	2.21	-3.08	.002
Frequency of using If-Then Plans	5.46	3.09	8.13	2.64	-2.53	.012
Frequency of using Self-Monitoring	5.52	3.33	8.73	2.08	-2.96	.003
Frequency of using Review Goals	6.00	3.28	8.55	2.54	-2.62	.009
Frequency of using Rewards	5.17	3.01	7.93	2.64	-2.95	.003
Frequency of using Habit Formation	4.96	3.13	8.13	2.36	-3.40	< .001
Frequency of using Adapting the Environment	5.39	3.39	8.27	2.46	-3.04	.002
Frequency of using Social Support	5.79	3.08	9.00	1.86	-3.54	< .001

Table 4 (expanded - Motivation BCTs)

Spearman Rank-Order Correlations between knowledge and confidence with Motivation BCTs at follow-up (T3) and frequency of Motivation BCT use at follow-up (T3)

	Knowledge of Starting Conversations About Change	Confidence with Starting Conversations About Change	Knowledge of Pros & Cons	Confidence with Pros & Cons	Knowledge of Looking to the Future	Confidence with Looking to the Future
Frequency of using Starting Conversations About Change	.32	.18				
Frequency of using Pros & Cons			.15	.20		
Frequency of using Looking to the Future					.13	.18

Table 4 (expanded - Action BCTs)

Spearman Rank-Order Correlations between knowledge and confidence with Action BCTs at follow-up (T3) and frequency of Action BCT use at follow-up (T3)

	Knowledge of Outcome Goal Setting	Confidence with Outcome Goal Setting	Knowledge of Behaviour Goal Setting	Confidence with Behaviour Goal Setting	Knowledge of Action Planning	Confidence with Action Planning	Knowledge of If-Then Plans	Confidence with If-Then Plans	Knowledge of Self-Monitoring	Confidence with Self-Monitoring	Knowledge of Review Goals	Confidence with Review Goals	Knowledge of Social Support	Confidence with Social Support
Frequency of using Outcome Goal Setting	.50*	.55*												
Frequency of using Behaviour Goal Setting			.25	.24										
Frequency of using Action Planning					.47*	.57*								
Frequency of							.35*	.41*						

	Knowledge of Outcome Goal Setting	Confidence with Outcome Goal Setting	Knowledge of Behaviour Goal Setting	Confidence with Behaviour Goal Setting	Knowledge of Action Planning	Confidence with Action Planning	Knowledge of If-Then Plans	Confidence with If-Then Plans	Knowledge of Self-Monitoring	Confidence with Self-Monitoring	Knowledge of Review Goals	Confidence with Review Goals	Knowledge of Social Support	Confidence with Social Support
using If-Then Plans														
Frequency of using Self-Monitoring									.43*	.42*				
Frequency of using Review Goals											.51*	.51*		
Frequency of using Social Support													.57*	.57*

Note. *$p < .05$

Table 4 (expanded - Prompts / Cues BCTs)

Spearman Rank-Order Correlations between knowledge and confidence with Prompts / Cues BCTs at follow-up (T3) and frequency of Prompts / Cues BCT use at follow-up (T3)

	Knowledge of Rewards	Confidence with Rewards	Knowledge of Habit Formation	Confidence with Habit Formation	Knowledge of Adapting the Environment	Confidence with Adapting the Environment
Frequency of using Rewards	.23	.22				
Frequency of using Habit Formation			.43*	.37*		
Frequency of using Adapting the Environment					.43*	.39*

Note. *$p < .0$

Table 4 (expanded - Prompts / Cues BCTs)

Spearman Rank-Order Correlations between knowledge and confidence with Prompts / Cues BCTs at follow-up (T3) and frequency of Prompts / Cues BCT use at follow-up (T3)

	Knowledge of Rewards	Confidence with Rewards	Knowledge of Habit Formation	Confidence with Habit Formation	Knowledge of Adapting the Environment	Confidence with Adapting the Environment
Frequency of using Rewards	.23	.22				
Frequency of using Habit Formation			.43*	.37*		
Frequency of using Adapting the Environment					.43*	.39*

Note. $*p < .05$

Table 5 (expanded - Motivation BCTs)

Spearman Rank-Order Correlations between intention to use Motivation BCTs (T2) and frequency of Motivation BCT use (T3)

	Frequency of using Starting Conversations About Change	Frequency of using Pros & Cons	Frequency of using Looking to the Future
Intention to use Starting Conversations About Change	-.05		
Intention to use Pros & Cons		< .01	
Intention to use Looking to the Future			-.11

Table 5 (expanded - Action BCTs)

Spearman Rank-Order Correlations between intention to use Action BCTs (T2) and frequency of Action BCT use (T3)

	Frequency of using Outcome Goal Setting	Frequency of using Behaviour Goal Setting	Frequency of using Action Planning	Frequency of using If-Then Plans	Frequency of using Self-Monitoring	Frequency of using Review Goals	Frequency of using Social Support
Intention to use Outcome Goal Setting	.19						
Intention to use Behaviour Goal Setting		.21					
Intention to use Action Planning			.25				
Intention to use If-Then Plans				-.06			
Intention to use Self-Monitoring					.14		
Intention to use Review Goals						.11	
Intention to use Social Support							.11

Table 5 (expanded - Prompts / Cues BCTs)

Spearman Rank-Order Correlations between intention to use Prompts / Cues BCTs (T2) and frequency of Prompts / Cues BCT use (T3)

	Frequency of using Rewards	Frequency of using Habit Formation	Frequency of using Adapting the Environment
Intention to use Rewards	-.01		
Intention to use Habit Formation		.04	
Intention to use Adapting the Environment			< .01

Appendix 2. Research Question 6 – Expanded qualitative analyses results.

Table 11 (Barriers)

Barriers to using the MAP model: Summaries of each theme with illustrative quotes

Theme	Definition	Example quotes
Cognitive constraints of the healthcare professional	Learners commented on needing more practice with using the MAP model in order to make the approach more natural and less of a burden to use.	"Getting the information in your head so that you can work without referring to things [...] Also conversations take so many different shapes and forms and people are very different - practice is the only way to adapt to these situations."
		"Remembering - I am in such a habit of the way I do things!"
Limited time and lack of opportunity	Having a limited amount of session time and capacity with which to embed MAP was expressed by learners.	"Trying to think about a new way of questioning a patient while talking and listening to them and taking notes adds another level of things to think about."
		"It feels we are doubling our clinical administration documents. Fitting in the actual MAP paperwork around a conversation with the client. Clients often have other agendas they want to work from."

Theme	Definition	Example quotes
Making MAP work for the patient	Concerns were raised about recognising when the MAP model is appropriate, and when it is, how to tackle lack of openness or lack of motivation with patients.	"Not always being able to recognise which stage of MAP would be more appropriate for the patient. Also, certainly able to recognise that it might not be appropriate for somebody who isn't motivated." "Identifying patients who would benefit from an intervention."

Table 12 (Facilitators)

Facilitators to using the MAP model: Summaries of each theme with illustrative quotes

Theme	Definition	Example quotes
MAP materials increase the usability of the model	MAP worksheets and visual materials were seen to aid the use of the MAP model.	"The forms are great - having a clear template for e.g. Action Planning is so straightforward and efficient."
		"The worksheets provide a clear structure to go through with clients. Makes the process transparent and clear if done collaboratively."
MAP enhances current clinical work	The way in which the MAP model could be used alongside other approaches, facilitated starting and continuing conversations, and allowed for a more comprehensive assessment of a problem, increased its' ability to be used in practice.	"The simplicity of the model - it's very easy to pick up and add into consultations when appropriate."
		"In some cases it helps me break down the issues a client has and understand their priority."
The nature of MAP is supportive and flexible	Learners felt that they were able to dip in and out of using the MAP approach, making it a flexible approach, and also described the model as supportive in its' simplicity.	"I use little snippets, not the full model. [...] Ways of helping someone adhere to the recommendation of pumping more often per day. e.g. wish to increase milk supply but struggling to pump 8x per day. Goal setting has been useful for this."

Theme	Definition	Example quotes
		"Knowing you have a model/framework to use for supporting health improvement/HBC conversations particularly to help identify where a person is in terms of making HB Changes."
		"Knowing that it can be done in short chunks of time and can be revisited."
Wider use of MAP in the workplace supports its' delivery	In cases where MAP training had been delivered to a team, this was felt to facilitate a more consistent implementation of the MAP approach.	"Dietetics team that I work alongside are also MAP trained so hoping for a consistent team approach to behaviour change."
		"The most helpful thing for me is the fact that not only was this delivered by a HV member of staff but delivered to the team. As a team we will all start to use and implement MAP training. From formal conversations to informal suggestions shared. For me this feels more unified and will help our beneficiaries in the long run knowing that each team member they speak to (regardless of People, Families or Communities) we are in equal understanding of how MAP works and its benefits to the individual."

This resource may be made available, in full or summary form, in alternative formats and community languages. Please contact us on **0131 656 3200** or email **altformats@nes.scot.nhs.uk** to discuss how we can best meet your requirements.

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