Original Research

Integrating behaviour change counselling into chronic disease management: a square peg in a round hole? A system-level exploration in primary health care

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ABSTRACT

Objectives: The objective of this study is to evaluate the uptake of competency-based behaviour change counselling training within a primary healthcare setting. Specific questions concerning provider readiness for training, perceived importance of training in the context of service demands and perceptions of competence after training were addressed.

Study design: A process-focused study which adopted a complex systems approach to implementation. Each step was evaluated before the next step was developed. The design was guided by the RE-AIM (reach, effectiveness, adoption, implementation, maintenance) framework.

Methods: Four specific primary care services were identified and behaviour change counselling training tailored to each service was provided, based on a model of training built around competencies in establishing change-based relationships, assessing and promoting readiness to change, using evidence-based behaviour modification skills when ready and addressing psychosocial determinants of behaviour within scope of practice. Before training, a manager's readiness to facilitate training and identification of peer leaders to support ongoing practice of skills were completed.

Results: Two programs negotiated 8 h of formal training, one program received 10 h and one program received 12 h. All programs engaged in peer support activities. Despite willingness to support training, 90% of managers were ambivalent about training activities, relative to one half of healthcare providers (HCPs). Few HCPs and no managers self-identified as ready without ambivalence. Furthermore, HCPs were reluctant to be evaluated by an expert and preferred self-evaluation methods. In contrast, HCPs uniformly endorsed the relevance, value and professional commitment to all component skills of the behaviour change counselling model. At the end of the training, over 75% of staff reported receiving formal training (reach). Almost 80% of staff reported using change-based relationship skills daily, with less frequent use of skills associated with addressing psychosocial issues. The degree

of corrective feedback was generally low, however. An index of competency based on formal training, frequent use and receiving corrective feedback indicated that most HCPs did not meet these criteria.

Conclusion: Training in behaviour change counselling competencies was successfully implemented in this project. The vast majority of HCPs received training, despite ambivalence. Furthermore, HCPs strongly valued these skills and used them frequently. However, they were reluctant to accept corrective feedback. Future research is needed to evaluate innovative strategies to overcome obstacles to receiving corrective feedback in the use of behaviour change counselling skills.

Introduction

Disease management has shifted focus from acute to chronic conditions, where modifiable health behaviours are crucial to outcomes.[1—10] Current health delivery systems struggle to make the changes necessary to provide patients with effective behaviour change counselling. Behaviour change is challenging and healthcare providers (HCPs) can support health behaviour change by implementing theory-driven, evidence-based behaviour change interventions.[11—15] Yet most HCPs are trained to be the expert, who diagnose, determine treatment(s) and measure outcome(s), with the patient in a passive role.[16,17] However, with chronic conditions, outcomes are substantially under the control of the individual, not the clinician. Medication adherence, not smoking, maintaining a healthy weight, being physically active, consuming substances in moderation, eating healthily, getting adequate sleep and so on are all determined by the individual outside of clinic settings. Individuals can benefit from HCP support that enhances motivation, leads to behaviour modification and addresses psychosocial barriers.

HCP behaviour change counselling training programs are available[18—22] but are only attended by interested HCPs. Training needs to be spread across the population of HCPs/clinical services, addressing how much training is required to achieve competency; challenges such as lack of time, lack of confidence, lack of training opportunities and how learnings integrate into practice. An important aspect of ensuring behaviour change counselling competency within a public service is to involve the managers of the service so that the learning needs of HCPs are adequately addressed (sufficient time for training, skill acquisition and case review).

Because behaviour change is critical for chronic disease outcomes, ensuring behaviour change counselling competency within health services is necessary. This can be viewed as an issue of treatment integrity (see[23,24]), that is, adherence to, and competency in, the delivery of an intervention. Can behaviour change counselling training be integrated into primary care services such that fidelity (consistent implementation of interventions) and competency (skillful implementation of interventions) are achieved? This is the issue of interest in this article.

Behaviour change specialists are highly qualified to provide competent behaviour change counselling. This notwithstanding, primary care HCPs are appropriate providers to implement behaviour change counselling for two reasons. First, chronic disease management is complex and requires an integrated care team that addresses the whole person context. As such, behaviour cannot be separated from more traditional medical or educational activities and is consistent with stepped collaborative care within the Chronic Care Model (informed, activated patients with prepared proactive practice teams[25]). Our interest was to observe the uptake of competency-based training in this population. Second, behaviour change specialists are uncommon in the healthcare system, including primary care. The specialists who exist tend to function in urban academic settings and as such pose a problem of scalability. An associated factor is that behaviour change experts, such as psychologist, are not always the first choice of an individual with chronic disease; there are psychological barriers to accepting referrals to such providers. For instance, a recent article found that individuals with type 2 diabetes preferred traditional care models and did not prefer emotional support from a psychologist.[26]

The Nova Scotia context

Nova Scotia, Canada, faces numerous health challenges such as a rapidly ageing population, a heavy burden of high chronic disease/disability rates and lower life expectancy than the Canadian average.[27] Primary healthcare (PHC) in Nova Scotia has made chronic disease management a service priority. The Behaviour Change Institute (BCI) provides training in behaviour change counselling.[16,17,28,29] This study was conducted to better understand the outcomes associated with translating evidence-based principles and theories of behaviour change into practice across primary care services by non-behavioural HCPs.

This study addressed three questions

1) how ready or motivated are HCPs and managers of selected primary care programs to receive competency-based training in behaviour change counselling?

2) what is the perceived importance of behaviour change counselling training, in light of existing demands?
3) what is the perception of competence, and what level of competence was achieved by HCPs receiving training?

Methods

This project adopted the RE-AIM framework,[30] which evaluates program reach, effectiveness, adoption, implementation and maintenance. Funding was through a Turning Research Into Care (TRIC) Grant by NSHA (ethics approval: ROMEO file 1019463) the conditions of which mandated that the project protocol be integrated into ongoing organizational care. To facilitate the adoption, implementation and maintenance aspects of RE-AIM, we conducted this study in stages, such that we used the results of earlier stages to plan the delivery of later stages of the project.

Participants

HCPs and managers from four primary care services participated (all staff offered training): the Diabetes Management Centre (DMC, N = 14 staff), the Integrated Chronic Care Service (ICCS, N = 15 staff), the INSPIRED COPD Outreach program (N = 9 staff) and the Community Health & Wellness Centre (CH&WC; N = 7 staff). All HCPs were licenced health professionals in their professional domains, which included physician, nurse practitioner, social worker, dietitian, physiotherapist, occupational therapist and psychologist. All participants were consented into the study according to Research Ethics Board (REB) criteria, informing them of the purpose of the training, the surveys they were to complete and the training they were to receive. These primary care services address a range of disease states (diabetes, COPD, multimorbidity) and contexts of delivery (specialized units [ICCS, INSPIRED] as well as primary care chronic disease management [DMC, CH&WC]). The Community Health Team (CHT), which offers wellness programs, was also recruited to evaluate preferred methods of receiving feedback on skill acquisition, addressing the RE-AIM effectiveness criterion (N = 19). This project was funded from June 2015 to July 2017, and final data were obtained by fall of 2017.

Behaviour change counselling training

BCI training occurs at the system level: senior leadership is first consulted to determine buy-in for training; if engaged, program directors/managers participate in a readiness assessment protocol; if engaged, a peer leader(s) (program HCP interested in mentoring colleagues) is (are) identified and trained. Peer leaders help with the integration of skills into the program implementation and initiate ongoing learning opportunities as part of the day-to-day operation of the program; finally, a training protocol is implemented for all program HCPs.

Four skill sets form the training program (see[17]), establishing change-based relationships, assessing/enhancing readiness to change (getting to behaviour), implementing behaviour modification when ready and addressing psychosocial determinants of behaviour within scope of practice. The BCI has over 10 years of delivering training programs and has operationalized the knowledge and competencies of each skill set (including a validated a competency rating scale[29]).

Within each of the skill sets, we have operationalized the component knowledge and skills that underlie competency. Because chronic disease requires self-management and behaviour is under the control of the patient, not the clinician, a change-based relationship is required. This requires an understanding of the dangers of an expert, control-based relationship in which the provider falls into the role of 'teach and tell' and the adoption of a collaborative, empowering relationship. The associated skills involve motivational communication (ask, listen, summarize, invite) along with mastery of the interpersonal skills of non-judgemental curiosity, sitting with ambivalence and avoiding argument. Recognizing that behaviour rests within the patient, skills associated with getting to behaviour include defining/agreeing on the behaviour to be changed, assessing readiness to change (in our case using a traffic light metaphor developed by our group) and promoting readiness when it is low using the constructs of decisional balance and values clarification and reflection. Once readiness is established, the behaviour modification skills revolve around goal setting and behaviour shaping (internal drivers of behaviour) and stimulus control and reinforcement management (external drivers of control). Finally, in recognition of the psychosocial context in which self-management occurs, clinicians are trained to, within scope of practice, recognize emotional distress and unhealthy coping strategies and support the patient to replace the function of the unhealthy behaviour and address stress management (using an identify, educate, recommend and support dynamic to allow the provider to balance sensitively addressing psychosocial issues yet remaining within scope of practice).

The following steps describe how behaviour change counselling training within primary care chronic disease management was evaluated.

RE-AIM evaluation components

i) Manager readiness

Reach, implementation and maintenance require manager readiness (this readiness interview is available for review and use in Supplemental File 1). Managers of the primary care services recruited identified 1–2 staff members to become 'peer leaders', who were given time to train as mentors and adjusted the clinical schedule to accommodate staff training. Specific training details were individualized to programs.

ii) Peer leaders

Peer leaders mentored colleagues struggling with behaviour change concepts/skills (RE-AIM adoption and implementation) and were supported by a Community of Practice

Table 1 – Evaluation methodologies to assess knowledge and skills in behaviour change counselling introduction							
The primary purpose of the Behaviour Change Institute (BCI) is to provide training in theory-driven, evidence and competency-based behaviour change counselling strategies for health care providers who promote health behaviour change. Providing training is one aspect to what the BCI can offer — we recognize that there are a number of elements that can support the translation of behaviour change counselling skills into practice.							
Another element of equal importance is evaluation. The common statement 'you can't manage what you don't measure' applies to the attainment of behaviour change knowledge and skills. From a sustainability perspective, evaluation is an essential element to sustained success, uptake and spread. We are interested in receiving your feedback on what methods would be most preferable.							
We consider there to be <u>three</u> different evaluation methodologies that the BCI could support:							
1 Self-evaluation — e.g. knowledge and skills are described and you rate yourself.							
2 Live observation — e.g. demonstrate your attainment of knowledge and skills in front of your peers.							
3 Video evaluation — e.g. submit a video demonstrating the knowledge/skills.							
We appreciate your feedback on what evaluation methodology would best support you as your work to improve the translation of behaviour change knowledge and skills into practice.							
Questions	I would not be comfortable with this method		I might consider this method		I am very comfortable with this method		
	1	2	3	4	5	6	7
Self-evaluation							
Self-evaluation, self-reflection (no one sees)							
Self-evaluation, discussed with peer							
Self-evaluation, discussed with manager							
Self-evaluation, discussed with the BCI							
Live observation							
Live observation, discussed with peer							
Live observation, discussed with manager							
Live observation, discussed with BCI							
Video submission							
Video demonstration, self-reflection (no one sees)							
Video demonstration, viewed with peer							
Video demonstration, viewed with manager							
Video demonstration, viewed with the BCI							
BCI, Behaviour Change Institute.							

(BCI peer leaders from the organization) through bimonthly meetings. These meetings continue beyond the scope of this funded project.

iii) Staff training

The BCI introduced the project to program HCPs and co-created a training schedule. HCPs were open to behaviour change counselling training, but they were not interested in formal competency assessment that might involve submission of video demonstrations of skill. Therefore, we assessed preferred means of evaluation (see Table 1) by administering a questionnaire to HCPs from a program not involved in training but very experienced in behaviour change counselling (CHT). This alteration of the protocol addressed RE-AIM effectiveness, implementation and maintenance.

iv) Training protocol

Sequential training of the four core skillsets[17] began with formal workshops, supported by a website and peer leaders:

a) Change-based relationships: skills include facilitating collaborative and empowering relationships (understanding how change is hard, the dangers of a teach and tell and of the balance between bond, task and goal alliance) and using motivational communication (ask, listen, summarize, invite) skills in the context of nonjudgmental curiosity and comfort with ambivalence and resistance.

b) Getting to behaviour: skills include assessing readiness (defining behaviour, traffic light assessment) and enhancing readiness via health beliefs and promoting reasons to change (values clarification and decisional balance).

c) Behaviour modification: skills include goal setting, behaviour shaping, stimulus control and reinforcement management.

d) Psychosocial determinants of behaviour: skills include assessing disease-specific distress, encouraging self-efficacy, self-esteem, social connection and recommending emotion management using the interpersonal dynamic of identify, educate, recommend and support to facilitate self-management, while remaining within scope of practice.

v) Self-assessed outcome of training

Table 2 – Readiness assessment scale.
BEHAVIOUR CHANGE COUNSELLING
The four behaviour change counselling skills are:
1. **Change-Based Relationships**. Establishing a change based relationship through the use of patient-centred communication skills (collaborate and empower versus teach and tell) and the reliance on motivational communication principles (questioning, empathy, nonjudgmental curiosity, ambivalence, self-efficacy).
2. **Getting to Behaviour**. Specific assessment of readiness to change a specific behaviour followed by interventions to promote behaviour change that differ depending on readiness. When ready interventions are focused on behaviour modification. When ambivalent, enhancing personally meaningful reasons to change dominate. When not ready respecting choice and keeping the conversation going to understand barriers to change are used.
3. **Behaviour modification**. Behaviour modification refers to the use of first step goals (goal setting/action plans), next step goals (shaping), stimulus control to address the built environment and reinforcement management.
4. **Psychosocial determinants of behaviour**. These skills address self-efficacy, self-esteem, social support and stress issues as they impact on behaviour change.
What best describes where you are TODAY with respect to using behaviour change counselling skills, as defined above, in your practice:
Not using behaviour change counselling skills in managing chronic disease would be a problem for me, given the way I practice.   YES UNSURE NO
Not using behaviour change counselling skills in managing chronic disease would be professionally distressing for me, given the way I practice.   YES UNSURE NO
I am interested in implementing behaviour change counselling skills into my practice.   YES UNSURE NO
I am ready to take action now to implement behaviour change counselling skills into my practice.   YES UNSURE NO

Trained HCPs completed a series of competency-related scales assessing the principles of behaviour change counselling on dimensions that might be useful surrogates of competency (see below RE-AIM effectiveness, adoption and implementation).

Study outcomes[c]

The following measures were used for analysis.

Readiness assessment
We developed the Traffic Light Readiness interview based on the transtheoretical model[31,32] (Table 2). Sequential questions ask whether not engaging in the recommended behaviour would be considered to be a problem (engaging executive functions), whether not engaging in the behaviour would be a source of distress (engaging limbic functions), whether interested in working toward the behaviour goal and whether readiness to commit to the behaviour at the present time (yes, unsure and not yes). Consistent yes responses indicated ready to change (green light in our traffic light metaphor); a mix of yes and unsure/not yes indicated ambivalence (yellow light), and consistent not yes responses indicated not ready (red light). This self-assessment was completed by both managers and HCPs.

Preferred methods of evaluation
The BCI operates not as 'the experts' but as collaborators. As such, we sought an evaluation method acceptable to learners. Submitting a videotape to be evaluated was not acceptable, so we developed a scale assessing level of comfort (on a 1–7 Likert scale) with how to receive feedback. Three types of feedback, self-evaluation of skill, video demonstration and live demonstration and four types of evaluation, self-reflection, peer review, manager review and BCI review were rated.

Self-assessment of competency and attitude toward specific BCI skills
Two sets of ratings we obtained: attitudes toward the component skills and the perceived uptake and use (fidelity) of the skills.

Behaviour change counselling skills relevance assessment
Each skillset (change-based relationships, getting to behaviour, behaviour modification and psychosocial determinants of behaviour) was rated (7-point Likert scale; 1 = low, 4 = moderate, 7 = high) on relevance (how relevant to your work do you consider this knowledge/skill to be?), value (how valuable to your work do you consider this knowledge/skill to be?) and commitment (how committed are you to continue to work with the BCI to increase your competence and confidence in this knowledge/skill?). This assessment scale is available for review and use in Supplemental File 2.

Fidelity self-assessment
The rationale for this assessment was that someone who is competent would have received formal training and corrective feedback and would use the often and with complex patients. These rating were completed for each skill set of the BCI training model as defined previously. These include the following:

- The nature of training received: none, informal training (attending workshops or conferences), formal training (experiential supervision in the use of skills) not using the BCI training model and formal training with the BCI (RE-AIM reach and adoption).
- The percentage of patients with which the component skill is used on a daily basis.
- The extent (low, moderate, high) to which corrective feedback in the use of the skill has been received.
- The extent (low, moderate, high) to which the component skill is used with complex (self-defined) patients.

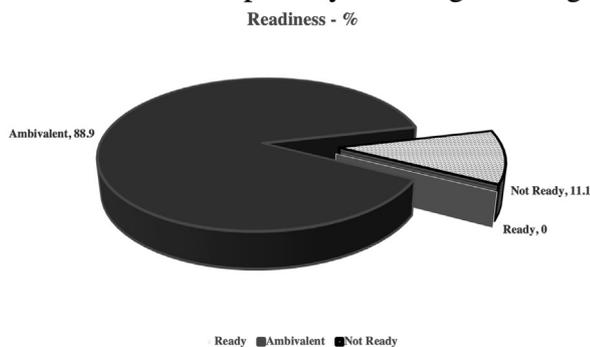
[c] It should be noted that a battery of questionnaires assessing general attitudes and perspective on self-management support were included in the project but are not reported here. Details can be obtained by contacting the corresponding author

Table 3 – Nature of training provided to services.

Program	Number of staff	Number of managers	Date training began	Number of training Sessions	Number of formal hours of training	All four BCI principles covered
ICCS	15	4	February 2016	6	12	Yes
DMC	14	2	September 2016	4	10	Yes
CH&WC	9	3	October 2016	4	8	Yes
INSPIRED	7	–	March 2016	4	8	Yes

BCI, Behaviour Change Institute; ICCS, Integrated Chronic Care Service; DMC, Diabetes Management Centre; CH&WC, Community Health & Wellness Centre.
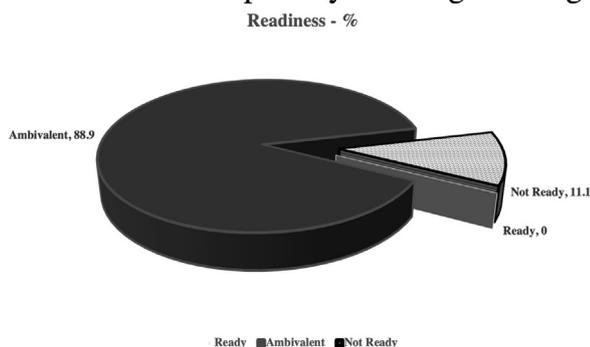
a

Readiness for Competency Training - Managers

Readiness - %

Ambivalent, 88.9

Not Ready, 11.1

Ready, 0

Ready ■Ambivalent ■Not Ready

b

Readiness for Competency Training - Managers

Readiness - %

Ambivalent, 88.9

Not Ready, 11.1

Ready, 0

Ready ■Ambivalent ■Not Ready

Fig. 1 – Stage of readiness for behaviour change counselling training in healthcare providers and managers of selected clinical programs. HCP, healthcare provider.

This rating scale is available for review and use in Supplemental File 3.

Results

Training program

Training sessions balanced the perceived needs of the team with ensuring that the four skill sets of behaviour change counselling were presented, understood and rehearsed. Table 3 illustrates that two programs received 8 h and one 10 h of training over four sessions, and one program received 12 h of training in six sessions with 12 h. The amount of time spent on each skill set varied depending on the service and the nature of the patients presenting within that service. The BCI ensured that sufficient time was spent on each skill set to establish competency, but programs were able to tailor training, within this framework, so that issues important to them were given adequate attention.

In addition, peer leaders arranged review opportunities (a mix of informal hallway conversations and clinical rounds) between and following formal sessions to discuss. Accessing the BCI website[33] and a Learning Module System (LMS) module (to view demonstration videos) were encouraged.

Readiness for behaviour change counselling training

Interestingly, very few respondents were categorized as ready (green light) before training, only 14% of HCPs (see Fig. 1b) and no managers (see Fig. 1a). Most HCPs and almost all managers were ambivalent (yellow light), and more HCPs than managers were not ready (red light; 30% versus 11%) for training.

Preferred method of evaluation

The CHT is a program where all staff have been trained in behaviour change counselling. These HCPs were thought to be able to assess methods of competency assessment, given their experience with the BCI. The 30 staff who work part- or full-time in the service were sent the survey. Results are shown in Table 4 (63.3% response rate). Comfort is least with receiving feedback live and by video, with a preference for self-evaluation. Furthermore, the greatest discomfort is receiving feedback from the expert BCI staff followed closely by managers (somewhat less from peers). Self-evaluation with the opportunity to discuss with a peer was most acceptable.

Self-assessment of competency and attitude toward specific BCI skills

HCP attitudes toward behaviour change counselling skills
In this survey (Table 5), the core aspects of knowledge and skill associated with change-based relationships, assessing/promoting readiness, behaviour modification and addressing psychosocial issues were defined, and for each skill set, HPCs were asked to rate, on a 7-point Likert scales, relevance, value and commitment to learning. These results show that the HCPs have overwhelmingly positive attitudes toward the relevance, value and their professional commitment to the

Table 4 — Preference for method of receiving evaluation feedback on skill competency.

	Live evaluation			Video evaluation			Self-evaluation		
	Comfort level (%)			Comfort level (%)			Comfort level (%)		
	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Self	—	—	—	21.00	31.50	46.50	0.00	10.50	89.50
Peer	5.25	52.75	42.00	26.25	31.50	42.25	0.00	10.50	89.50
Manager	21.00	63.25	15.75	31.50	53.75	15.75	5.25	26.25	48.75
BCI	15.75	58.00	26.25	26.25	36.75	37.00	0.00	26.25	73.75

BCI, Behaviour Change Institute.

Table 5 — HCP attitudes toward behaviour change counselling skills (N = 40).[a]

	Relevance		Value		Commitment	
	M (SD)	% ≥ 6	M (SD)	% ≥ 6	M (SD)	% ≥ 6
Change-based relationships						
Knowledge	6.68 (0.48)	100	6.60 (0.50)	100	6.47 (0.64)	92.5
Skill	6.65 (0.55)	97.5	6.58 (0.50)	100	6.45 (0.55)	97.5
Getting to behaviour						
Knowledge	6.63 (0.54)	97.5	6.60 (0.54)	97.5	6.55 (0.55)	97.5
Skill	6.37 (0.67)	90.0	6.40 (0.63)	92.5	6.37 (0.77)	97.5
Behaviour modification						
Skill	6.30 (0.79)	90.0	6.33 (0.76)	92.5	6.40 (0.78)	92.5
Psychosocial determinants						
Knowledge	6.65 (0.56)	96.2	6.65 (0.56)	96.2	6.54 (0.58)	96.2
Skill	6.65 (0.48)	100	6.65 (0.48)	100	6.50 (0.58)	96.2

HCP, healthcare provider; M, mean; SD, standard deviation.
[a] Results are from a 7-point Likert scale evaluation (1 = low, 4 = moderate, 7 = high).

Table 6 — Feedback on behaviour change counselling skills training.

	Training		Everyday use	Received corrective feedback (%)		
	% BCI trained	% no training	Mean percent of time	Low	Moderate	High
Change-based relationships						
Bond task goal alliance	75.0	12.5	73.1	75.0	21.9	3.1
Dangers Of teach/tell	75.8	6.1	78.2	59.4	34.4	6.3
Motivational communication	75.8	0.0	76.8	70.9	19.4	9.7
Non-judgemental curiosity	78.8	3.0	82.3	65.6	28.1	6.3
Mean	**76.35**	**5.40**	**77.60**	**67.72**	**25.95**	**6.35**
Getting to behaviour						
Defining behaviour	75.0	6.3	74.1	67.7	22.6	9.7
Readiness assessment	87.9	6.1	70.2	53.1	31.3	15.6
Assessing health beliefs	81.3	6.3	57.0	80.0	20.0	0.0
Decisional balance	78.1	3.1	56.8	63.3	26.7	10.0
Values clarification	67.9	17.9	47.4	82.8	17.2	0.0
Mean	**78.04**	**7.94**	**61.1**	**69.38**	**23.56**	**7.06**
Behaviour modification						
Goal setting	78.8	3.0	82.4	45.2	29.0	25.8
Behaviour shaping	74.2	12.9	64.2	68.7	15.6	15.6
Stimulus control	73.3	20.0	53.9	86.2	3.4	10.3
Reinforcement management	71.0	20.0	58.1	80.0	13.3	6.7
Mean	**74.32**	**11.18**	**64.65**	**70.02**	**15.32**	**14.60**
Psychosocial determinants						
Assessing distress	70.0	6.7	53.6	69.0	31.0	0.0
Supporting self-efficacy/autonomy	72.4	20.7	41.6	84.6	15.4	0.0
Replacing function of unhealthy behaviour	61.5	15.4	46.2	76.0	16.0	8.0
Stress management support	59.4	9.4	55.9	62.1	24.1	13.8
Mean	**65.82**	**13.05**	**49.32**	**72.92**	**21.62**	**5.45**
GRAND MEAN	**73.63**	**9.39**	**63.17**	**70.01**	**21.6**	**18.37**

BCI, Behaviour Change Institute.

component knowledge and skills of the behaviour change counselling. Means for all ratings were in the mid-6 range (out of 7) and over 90% of the respondents rated all items six or above.

Self-assessment of uptake specific BCI skills

Next, for each skill set and subskill, respondents reported on the nature of training received (BCI formal training, non-BCI formal training, informal training, no training), the extent to which they have received corrective feedback on the use of the skill and the percentage of patients; both in general and with complex patients, for which the skills are typically used.

The results (see Table 6) confirm the reach of behaviour change counselling training. Overall, three quarters report formal BCI training and few HCPs report not being trained. Results were consistent across the skill sets (change-based relationships, getting to behaviour, behaviour modification and psychosocial determinants) with the caveat that training in psychosocial determinants was somewhat lower, especially for replacing the function and stress management support. Uptake of training in change-based relationships and getting to behaviour was very high, with the note that exposure to values clarification and bond, task and goal alliance were slightly lower (but less than 20% report no training in these constructs).

The skills associated with change-based relationships were very well used, with almost 80% (77.6%) reporting daily use of these skills. Over 80% of the sample reported relying on the construct of nonjudgmental curiosity daily. Approximately 60% report using the skills of getting to behaviour and behaviour modification. Defining behaviour and using readiness assessment, along with goal setting, are common (>70% daily use). However, the use of psychosocial determinant constructs was relatively low, with approximately 50% of the sample reporting daily use.

Regarding corrective feedback, few HCPs report high levels of corrective feedback in their learning of behaviour change counselling skills. Less than 10% report high levels of corrective feedback for change-based relationships, getting to behaviour and psychosocial determinants. Slightly more (14.9%), but still few, report high levels of corrective feedback for behaviour modification skills.

Finally, a summary index of competency was computed as the percentage of HCPs meeting all of the following: formally trained by BCI, receiving a moderate or high degree of corrective feedback and using the skill with at least 75% of patients, both general and complex patients (Table 7). Approximately 20% of respondents (19.92%) met all of these criteria, with substantial variability across domains and skills. Almost 30% (28.78%) met these criteria for change-based relationships (especially awareness of the dangers of teach and tell relationship dynamics). In contrast, very few respondents met these criteria for the psychosocial determinants construct.

Table 7 – Percentage of HCPs formally trained, receiving corrective feedback and frequent users of skills.	
Behaviour change counselling skill	% meeting all criteria
Change-based relationships	
Bond task goal alliance	24.2
Dangers of teach/tell	39.4
Motivational communication	21.2
Non-judgemental curiosity	30.3
Mean	**28.78**
Getting to behaviour	
Defining behaviour	27.2
Readiness assessment	30.3
Assessing health beliefs	12.1
Decisional balance	27.2
Values clarification	6.1
Mean	**20.58**
Behaviour modification	
Goal setting	33.3
Behaviour shaping	21.2
Stimulus control	9.1
Reinforcement management	6.1
Mean	**17.42**
Psychosocial determinants	
Assessing distress	21.2
Supporting self-efficacy/autonomy	12.1
Replacing function of unhealthy behaviour	12.1
Stress management support	6.1
Mean	**12.88**
GRAND MEAN	**19.92**
HCP, healthcare provider.	

Discussion

Modifiable health behaviours play a pivotal role in the management of virtually all chronic diseases.[34,2,3,4,5,6,7,35,9,10] Yet base rates of health behaviours are low, and there are numerous barriers to sustained behaviour change that make relapse rates high.[36] The potential for health improvement through behaviour change is, therefore, limited. This is the context in which effective behaviour change counselling by HCPs has great potential. However, this potential rests on the integrity (fidelity, competency) of behaviour change counselling. Can HCPs develop competency in implementing effective behaviour change counselling strategies? Our study sheds light on this important issue. Consistent with the RE-AIM framework, the criteria of reach, effectiveness, adoption, implementation and maintenance will be reviewed.

Behaviour change counselling is not within the core competencies of most HCPs. Therefore, in order for the potential of behaviour change counselling to be realized, HCPs themselves must change their behaviour. Some HCPs seek out training, but the success of behaviour change is related to implementation at a service level, not the isolated HCP. Several years ago, the lead author wrote a article titled 'Are Behavioural Interventions Doomed to Fail?'[16] the premise being that behaviour change interventions require a HCP shift, from the typical role as expert to one of collaborator. In this study, despite an organization-level commitment to training, readiness to develop behaviour change counselling competency was less rather than more common. Among managers, no one scored in the ready category and only 13.9% of HCPs did so. Almost all managers expressed ambivalence and just over one

half of HCPs did so. As well, one third of HCPs were not ready. So, despite evidence on the value of behaviour change in chronic diseases, many providers are not sure they want to commit to the training required. This is a threat to the RE-AIM criteria of reach and adoption. Resolving this ambivalence will be important for health systems if behaviour change interventions are to reach their potential. It may be that systems will require an explicit commitment to behaviour change counselling training as part of the job description to overcome the ambivalence of HCPs and managers. We offer the conclusion that institutional change is required, whereby organizations make explicit the necessity of developing behaviour change counselling skills as part of health system delivery. We can offer an example of this from within Primary Care at the NSHA. The CHT service was created with the involvement of the BCI, such that behaviour change counselling training was mandatory for all staff. Staff are hired such that interest in behaviour change counselling training is incorporated into the selection interview. On a regular basis (typically twice/year), training sessions are offered to new staff, and there are regular follow-up competency review sessions that are part of the standard operating principles of the service.

Early in this project, we became aware that assessing the outcome of training by asking HCPs to submit videotapes of simulated patient encounters for expert rating was problematic. HCPs quickly responded negatively to this idea. The dominant perspective we came to understand was that individuals who are trained, licenced to practice in their field and with experience and confidence in their role perceived the submission of videotapes as threatening. To have maintained the initial plan of videotaped submissions would have severely limited adoption and implementation and was inconsistent with our principle of empowerment and collaboration. Our reworking from reviewer-based to self-assessment overcame this barrier.

In stark contrast to the ambivalence to begin training, post-training assessment of the relevance and value of, and the commitment to learning, behaviour change counselling skills was unequivocally positive. For all domains and across all ratings of relevance, value and commitment, ratings were consistently high (supporting RE-AIM adoption and implementation). We take this as a success of the training program. Furthermore, after funding ended, the primary care services remained committed to ongoing learning and review sessions, led by the peer leaders (supporting RE-AIM maintenance).

Our final survey assessed the impact of the training protocol and suggested success in reach. Very few HCPs reported not receiving training and three quarters received formal BCI training, across all skill sets. Furthermore, the daily use of these behaviour change counselling skills was high, with the majority reporting daily use. Change-based relationship skills were used the most, followed by behaviour modification skills, then getting to behaviour skills; with psychosocial management skills being used the least. Furthermore, there were within skill set differences in use. For getting to behaviour, non-judgemental curiosity was reportedly used the most. Within behaviour modification, goal setting was most frequently used. For getting to behaviour, HCPs relied upon defining behaviour and conducting readiness assessments.

Finally, within the psychosocial domain, assessing distress and stress management were more commonly reported.

These results are valuable in that they address the issue of uptake of training (RE-AIM adoption). Monitoring the use of these skills will be helpful to researchers trying to understand the more effective behaviour change strategies, to trainers in understanding the more challenging skills to learn and to clinicians in understanding what skills are more easily incorporated in practice. This type of assessment can also help advance patient-centred research by allowing us to assess the impact on individuals of specific behaviour change supports. Vis-a-vis the RE-AIM framework of adoption and implementation, this suggests that at least part of the behaviour change counselling skills were adopted and implemented consistently.

Survey results indicated that, despite the relevance, value and commitment of these behaviour change counselling skills, few HPCs report receiving corrective feedback on their use. The only skill where more than 15% of HCPs reported high levels of corrective feedback was goal setting for behaviour modification, and here only 25.8% received high level of feedback. This is obviously an important area to explore in future studies. Our group is interested in taking a process approach to feedback, using a peer and expert feedback model, in the form of structured case rounds, to discuss competency criteria.

The results of this study suggest that training can be successfully incorporated into primary care systems. Furthermore, the relevance of, and commitment to, these principles is very high and the uptake of the skills into daily practice is acceptable. The main issue where more attention is required is the achievement of competency criteria vis a vis corrective feedback.

Despite having developed a competency assessment scale with well-developed criteria for determining low, moderate or high competency level, this scale is dependent on the submission of a clinical interview. It became very clear that this was not an acceptable procedure in this study. We thought that a surrogate of competency might be operationalized as follows. A more competent HCP would be formally trained by the BCI, would receive at least a moderate level of corrective feedback and would use the skill at least 75% of the time, with general as well as challenging patients. Using these criteria, almost 30% achieved competency in change-based relationships (especially the concept of the dangers of teach and tell), where 20% achieved criteria in the getting to behaviour skills (in particular defining behaviour, readiness assessment and the use of decisional balance). Less than 20% met criteria for behaviour modification, although this reflected an imbalance between goal setting (33.3%) and shaping (21.1%), on the one hand, and stimulus control (9.1%) and reinforcement management (6.1%), on the other. Few HCPs met criteria for addressing psychosocial issues (with the exception of 21.1% meeting criteria for assessing distress). These results are useful in that they can guide follow-up training initiatives and provide a context for further development of competency assessment in behaviour change counselling training.

In conclusion, we believe that systematic behaviour change counselling training is possible within broad primary

care settings. The issue of corrective feedback can be addressed with the establishment of institutional commitment to training. We hypothesize that regular case-based follow-up sessions, in which discussion of how to address specific challenges, can form the foundation for corrective feedback leading to improved competency. Specifically, cases can be presented, and then various approaches to addressing the cases can be presented. These approaches can reflect low, moderate and high competency responses. In this way, without an explicit 'testing' environment, a group of providers can be supported to learn the differences between levels of competence and then model those in case review. Our group is planning to evaluate this hypothesis in our follow-up research.

Author statements

Ethical approval

This study was approved by the Research Ethics Board of the NSHA (ROMEO File: 1019463).

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Competing interests

None of the authors has conflict of interest in the conduct of this study.

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Appendix A. Supplementary data