Title: How Central Support Built Capacity to Deliver a Health Promoting Intervention for Older Adults

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Research

Abstract

Most implementation frameworks note that a central support unit (CSU) is key to successful implementation and scale-up of evidence based interventions (EBIs). However, few studies investigated core functions of CSUs— such as capacity building—to better understand their essential role in implementing EBIs at scale. Therefore, the aims of our study are to (1) describe the role that a CSU plays to build capacity in delivery partner organizations, to enable implementation and scale-up of a health promoting intervention (Choose to Move (CTM)) for older adults, and (2) identify elements within capacity building strategies deemed essential to effectively implement CTM in diverse community contexts

CTM is a flexible, scalable, community-based health promoting physical activity (PA) and social connectedness intervention for older adults. In 2018-2020, eight health and social service societies, rural or remote municipalities, or community based organizations delivered 22 CTM programs that served 322 older adults. We conducted in depth interviews with delivery partners (n=23), and a focus group with the central support system (n= 4).

CSU provided a sounding board to organizations to create buy-in (adoption) and plan ahead. Essential elements within capacity building strategies included: a support unit champion, enhance delivery partner skills, self efficacy and confidence; interactive assistance to answer questions and clarify materials.

There is a key role for capacity building under the stewardship of the CSU to promote implementation success. Investigating specific elements within capacity building strategies that

drive implementation success continues to be a relevant question for implementation science researchers, that deserves further attention.

Keywords: older adults, scale up, implementation, capacity building strategies

What is known about this topic:

- A central support unit (CSU) is key to successful implementation and scale-up of evidence based interventions (EBIs). Few studies investigate core functions of CSUs to better understand their essential role in implementing EBIs at scale.

What this paper adds:

- There is a key role for capacity building under the stewardship of the CSU to promote implementation success.
- Essential elements within capacity building strategies include: a support unit champion, the enhancement of delivery partner skills, self efficacy and confidence (organizational); technical assistance to answer questions and clarify materials (innovation specific).

Introduction

Community-based practitioners access an increasing menu of health promoting evidence based interventions (EBIs). Most implementation frameworks note that a central support unit (CSU) is key to successful implementation and scale-up of evidence based interventions (EBIs) (Meyers, Durlak, & Wandersman, 2012). However, few studies investigated core functions of CSUs—such as capacity building—to better understand their essential role in implementing EBIs at scale. (Damschroder et al., 2009; Simmons & Shiffman, 2007; Wandersman et al., 2008).

Evidence Based Interventions

EBIs include programs, policies, and practices that effectively promote health and prevent disease (Leeman et al., 2015). To implement more complex EBIs, stakeholders across levels of socioecological models (e.g., practitioners, organizations) need to be actively engaged. CSUs play the 'engagement' role, and with community practitioners adapt EBIs and guide implementation and evaluation to meet the needs of partner organizations (Atun, de Jongh, Secci, Ohiri, & Adeyi, 2010).

Implementation Strategies

Implementation strategies are defined as "methods or techniques used to enhance adoption, implementation, and sustainability of EBIs" (Powell et al., 2015). Strategies comprise five distinct categories: dissemination, implementation process, integration, capacity-building and scale up (Leeman, Birken, Powell, Rohweder, & Shea, 2017). In our study we focus on capacity building.

Capacity building

Capacity building is the provision of ongoing support to increase practitioners' awareness, knowledge, skills, self-efficacy, and motivation to adopt, adapt and implement EBIs (Flaspohler, Duffy, Wandersman, Stillman, & Maras, 2008). One key role of CSUs is to overcome implementation challenges (Leeman et al., 2015). This is consistent with studies of capacity building in public health and community-based practice that identified technical assistance, training and tools as central strategies to support effective implementation (Durlak & DuPre, 2008; Leeman et al., 2015; Wandersman et al., 2008). In our study we sought to fill a knowledge gap by describing the CSUs role in building (innovation specific and organizational general) capacity in the seniors' services sector to deliver health promoting EBIs (Mitton, Adair, Mckenzie, Patten, & Perry, 2007). Innovation-specific capacity includes stakeholders' knowledge, skills, and self-efficacy in relation to the selected EBI (Weiner, 2009). Organizational general capacity encompasses the infrastructure and resources of both the implementation settings (e.g., staff skill, equipment, etc.) and the wider economic and social context (e.g., Atun et al., 2010).

Framework(s) that guide capacity building

The Interactive Systems Framework for Dissemination and Implementation (ISF) identifies the 'systems' deemed essential to successfully implement an intervention's *core components* (Wandersman et al., 2008). *Core components* are fundamental aspects of the EBI (Fixsen, Naoom, Blasé & Friedman, 2005). Among systems that support effective implementation, the Prevention Delivery System comprises individuals, organizations, or communities that deliver the innovation (we use the term intervention throughout) (Wandersman et al., 2008). Delivery

systems vary and have different levels of capacity (Durlak & DuPre, 2008), so often require support to adopt and effectively implement an EBI (Leeman et al., 2015; Wandersman et al., 2008). The Prevention Support System—also called the *central support unit (CSU)*—(Simmons & Shiffman, 2007) may comprise a variety of individuals or institutions (e.g., non-governmental organizations, government, research teams) external to the Prevention Delivery System. In theory, the CSU promotes two kinds of capacity building (Flaspohler et al., 2008)—innovation-specific capacity building (e.g., training and technical assistance) and organizational capacity building (e.g., infrastructure, skills), that together *drive* effective implementation (Wandersman et al., 2008). CSUs select and adapt EBIs to fit with different contexts, or develop infrastructure needed to manage interdependency while planning, implementing, and sustaining an intervention (Leeman, Baernholdt, & Sandelowski, 2007; Scheirer, 2013; Snowden & Boone, 2007).

Although capacity building is considered the mechanism through which the CSU drives successful implementation, there is little evidence to support this (Leeman et al., 2015). Further, we know relatively little about how to build capacity within delivery systems (e.g., individuals, organizations, or communities that deliver the intervention).

Aims

Therefore, the aims of our study are to: (1) describe the role that a CSU plays to build capacity in delivery partner organizations, to enable implementation and scale-up of a health promoting intervention (Choose to Move (CTM))(McKay et al., 2018) for older adults, and (2) identify elements within capacity building strategies deemed essential to effectively implement CTM. We adopt Leeman et al's framework to identify intervention-specific (e.g., training, technical

assistance, tools) and organizational capacity building (e.g., skills, motivation) strategies

(Leeman et al., 2015). This structure helps to transfer successful strategies to new settings and to

develop new strategies that guide and facilitate capacity building (Leeman, Birken, et al., 2017;

Leeman, Calancie, et al., 2017).

Context

CTM addresses the epidemic of physical inactivity and the escalating trajectory of chronic

disease (Roberts, Rao, Bennett, Loukine, & Jayaraman, 2015), poor mobility (Guralnik et al.,

2000), loneliness (O'Rourke & Sidani, 2017), and social isolation that currently plague older

people in developed countries. CTM is a flexible, scalable, community-based health promoting

physical activity intervention for older adults (~ 65+ years), co-created with government and

community partners (McKay, Sims-Gould, Nettlefold, Hoy, & Bauman, 2017). We present *core*

components of the CTM **intervention** in Figure 1, and describe all aspects of CTM elsewhere

(Gray et al., 2020; McKay et al., 2018, 2017).

Figure 1. CTM core components and time points.
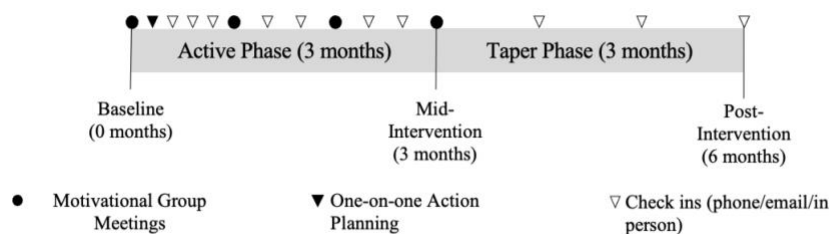
The time points for one Choose to Move program. Adapted with permission from
"Implementation of a co-designed physical activity program for older adults: positive impact
when delivered at scale," by McKay, Nettlefold, Bauman, Hoy, Gray, Lau & Sims-Gould, 2018,
BMC public health, 18 [1]:1289. CC BY 4.0

The time points for one Choose to Move program. Adapted with permission from "Implementation of a co-designed physical activity program for older adults: positive impact when delivered at scale," by (McKay et al., 2018)

CTM effectively enhanced physical activity, mobility, social isolation and diminished feelings of loneliness in older adults who participated (McKay et al., 2018). These physical and social health benefits are crucial to maintain older adult independence. CTM was effectively adapted to context (Sims-Gould et al., 2019) and implemented at scale by trained activity coaches in collaboration with two large community organizations that served older adults (McKay et al., 2018; Sims-Gould et al., 2019).

In 2018-2020 we engaged in 'horizontal scale-up' of CTM to expand and adapt to new contexts (Simmons & Shiffman, 2007). 'Horizontal scale-up' refers to "… strategies to implement, test, improve, and sustain an evidence-based intervention delivered to *new populations* and/or through *new delivery systems* …" (Aarons, Sklar, Mustanski, Benbow, & Brown, 2017). The *new population* in our study is marginalized older adults who meet at least one of the following criteria; (i) reside in rural or remote communities, (ii) have mobility limitations, and/or (iii) receive rental housing support (low socioeconomic status (SES)). *New delivery systems* are eight BC based health and social service societies, rural or remote municipalities, or organizations that serve marginalized community based older adults. They delivered 22 CTM programs to 322 community based older adults.

Methods

Study design

Participants

Choose to Move- Central Support Unit

Members of the Active Aging Research Team (AART) at the University of British Columbia

(UBC) comprised the CTM-CSU. The CSU engaged select CTM delivery partner organizations.

The CSU administered a 'pre-survey' to assess the delivery context (e.g., decision making

structure, overall capacity, resource fit, values fit and stakeholder unity). The CSU worked with

delivery partners to gauge setting level capacity (e.g., time, staff, computers, funding,

leadership). Together they adapted CTM to fit the local context, while maintaining fidelity to

core components of the CTM intervention. As part of CTM implementation strategies the CSU

applies central tenets of capacity building: i) *training* to advance knowledge and skills among

practitioners; ii) *technical assistance* to address problems and queries of health promoting

organizations; and iii) *peer networking* to promote cohesiveness and partnerships in the

community based health sector (Smith, Tang, & Nutbeam, 2006).

Delivery partners

The Prevention Delivery System was comprised of delivery partners across three levels.

Executive Directors/Organization Leaders (ED) made strategic and/or policy decisions for

partner organizations that delivered CTM. EDs identified organizational-level strategies for

implementation and informed implementation evaluation. *Coordinators* (CO) facilitated delivery

of CTM programs. *Activity coaches* (AC) were selected by delivery partners (EDs or COs) to

deliver CTM to older adults. ACs were external contractors, temporary staff, or secondary staff.

Ideally, ACs were familiar with the delivery organization, the needs and context of older adults,

and local opportunities to be active and socially connected in the community where they delivered CTM. All EDs, COs, and ACs worked in the not for profit sector serving marginalized older adults.

Data collection

Members of AART also comprised the Prevention Synthesis and Translation System (research team) (Wandersman et al., 2008). This systems' primary role is to conduct research and disseminate outcomes (Wandersman et al., 2008).

Recruitment

Approximately one month prior to the start of CTM, the research team contacted EDs of delivery partner organizations by e-mail and invited them to participate in the study. We sent COs an invitation e-mail just prior to the first CTM group meeting. Once organizations identified ACs who would deliver CTM, we contacted ACs via email to invite them to participate in the evaluation. We attached a consent form to the invitation email; the ED, CO and AC were asked to read, sign, scan and return the consent form via email at their earliest convenience. We then scheduled an interview. The UBC Behavioural Research Ethics Boards (H18-02202 (UBC) approved all study procedures.

Delivery partner interviews

We conducted semi-structured, audio-recorded interviews with ACs (n=7), COs (n=8) and EDs (n=8) who facilitated delivery of 21 CTM programs. ED interview questions addressed contextual factors that might influence capacity building. CO and AC interview questions

addressed facilitators and barriers to program implementation (Table 1. Interview questions –

sample). The research team designed all interview questions, and one researcher conducted all

30-60 minute interviews by phone.

Table 1. Interview questions – sample.

1. Has hosting Choose to Move via your organization influenced how your organization prioritizes older adults programming?
      o **Probe**: If so, how? (from your perspective); provide examples
      o **Probe:** Will you continue to find ways of offering PA programming for OAs in your community?

Central Support Unit focus group

A research team member (not associated with the CSU) conducted a 90-minute semi-structured,

audio-recorded focus group with four members of the CSU. CSU participants were asked to: 1.

describe implementation strategies used by each delivery partner (dose delivered); 2. delineate

implementation strategies they deemed essential for implementation success (quality), and 3.

describe specific aspects of implementation strategies that 'drove' implementation success

(Table 2. Focus group questions - sample).

Table 2. Focus group questions – sample.

1. Once sites are selected and the contract is developed and finalized, what parts of the CSU role in implementation pre-planning for delivery of CTM are essential to implementation success?   o E.g. recruitment/promotion support, tech assistance, online platform consultation?

o Are these essential to implementation success? If so, why?

2. What parts of the CSU role in planning are nice to have but do not drive implementation success?

3. What are some of the barriers to successfully implementing the planning process?

All audio files were stored using a unique eight-digit ID code. Interview recordings were transcribed verbatim by a professional transcriptionist. Data were deidentified and imported into NVivo 11 (QSR International, 2019) for data analysis along with field notes taken during the interviews and focus group.

Analysis

Data were analyzed using framework analysis (34), an appropriate analytic approach for qualitative studies with specific questions, a predesigned sample, and issues identified a priori (34). In framework analysis, data are sifted, charted and sorted based on key issues and themes using seven stages (Gale, Heath, Cameron, Rashid, & Redwood, 2013). Initially TF coded a subset of transcripts to get a sense of the interviews (stage 1- transcribe and familiarize). They conducted line-by-line coding of a few transcripts (stage 2 - code) to create a coding framework for the CSU and delivery partners (Leeman, Calancie, et al., 2017) (stage 3 - develop a framework). TF then coded interviews based on the coding framework. Through discussion among team members, we identified new codes and sub-themes (stage 4 - apply the framework). We coded full paragraphs so that contextual meaning was not lost. Data were summarized by charting illustrative quotes that best exemplified codes to develop the themes (stage 5 - chart). We hosted a series of team meetings to discuss common connections between codes and themes,

and to find similarities and differences between the CSU and delivery partner transcripts (stages

6 & 7. map and interpret).

A number of strategies reinforced rigor in our study: cross-checking full transcripts against

original audio files for quality and completeness; "member reflections" (e.g., re-iterating

interpretations of what was heard during the interview back to participants); and reflexive

memoing throughout data generation and data analysis processes (Smith & McGannon, 2018).

We created an audit trail of key procedural and analytical decisions made throughout the study

(Cutcliffe & McKenna, 2004; Koch, 2006).

Findings

We describe the role of the CSU to build capacity for delivery partner organizations to adopt,

adapt and implement CTM across four delivery phases; (1) pre-implementation planning, (2)

training, (3) recruitment, and (4) program delivery (Table 3). Delivery partners and the CSU

identified elements within capacity building strategies that supported effective implementation of

CTM.

Table 3. Outline of essential elements within CTM capacity building strategies used for each

delivery phase.

Phase	CB strategy (type)	Items used	Essential elements of implementation strategies that build capacity	CB strategy (structure)		
				Level of collaboration[1]	*Actors*[2]	*Dose*[3]
Pre-implementation planning	Site selection	Assessment of practice context	- A support unit champion - Familiarity with delivery partner	High	ED	Approx. two weeks

			resources and values			
	Marketing		- Create buy-in and plan ahead - Provided permission and guidance to adapt and tailor - Support, guide and re-direct	High	ED	Approx. two weeks
Training	Training	Self-directed online	- Enhance activity coaches' skills, self-efficacy and confidence	High	AC	Single time point
	Technical assistance	Phone/email check-ins	- 'Interactive' assistance to answer questions, provide detail and clarify materials	Med	AC	Ongoing
Recruitment	Tools	Screening tools	- Support organizations to leverage their own resources and strategies	Med	AC/CO	Single time point
	Technical assistance	Phone/email check-ins	- Support organizations to leverage their own resources and strategies	Med	AC	Monthly
Implementation	Tools	Presentation slides Scripts Checklists Community activity inventory Referral network	- Develop partnerships	Med	AC	Single time point
	Peer networking	Zoom meetings	- Learn from their peers	Med	AC/ED	Single time point

	Assessment & feedback	Phone/email check-ins	- Increase awareness of older adult needs - Increase capacity to offer physical activity and social connectedness programming for older adults - Inform future organizational practices and processes.	Low-med	AC	Ongoing
	Technical assistance	Phone/email check-ins	- Ongoing training and monitoring	Low-med	AC	Monthly
		Phone/email check-ins	- Ongoing training and monitoring	Low	AC	Ongoing

[1]Level of collaboration = when high CSU provided more CB (*dose*) than when lower (Leeman, Calancie, et al., 2017)

[2]Hierarchal centralized = focus on organizational leaders' (ED) capacity to adopt and support the intervention; middle managers (CO) capacity to implement and supervise and practitioners' (AC) capacity to deliver. Tailor and deliver CB to those working at different levels

[3]Dose = duration, frequency and amount of CB provided

Delivery partner organizations were small municipalities located in urban, suburban, rural, and remote areas across British Columbia (Table 4.).

Table 4. Community setting, organization type, target population, number of programs delivered and reach.

City/Town	Organization type	Target population	Number of programs run	Reach
Surrey	Non-profit registered charity	Chinese new immigrants	3	35

Agassiz	First Nations organization	Isolated Mental and physical health problems	5	18
Vancouver	Non-profit society	Immigrant Chinese seniors Low SES Living in social housing	2	26
Vancouver	Charitable, community-based organization	Low income Socially isolated At risk of mental health problems Chinese seniors	3	23
Hornby Island	Non-profit society and registered charity	Frail Isolated	3	36
Granisle	Municipality	Rural and remote Physical limitations Low income	3	34
Invermere	Charitable society	Rural and remote Physical limitations Low income	3	36
Nakusp	Non-profit society	Rural Isolated Limited mobility Lack transportation	3	29

Pre-implementation planning

Pre-implementation planning comprised working with delivery partners to adopt the EBI (CTM) and adapt intervention delivery and/or the intervention to context (population and setting) while retaining fidelity to core components (Bopp, Saunders, & Lattimore, 2013; Gray et al., 2020). Below we describe the role of the CSU in building an organization's general capacity. We outline elements within capacity building strategies that supported effective adoption and adaption of CTM.

Site selection

A support unit 'champion' was deemed essential for pre-implementation planning site selection. The champion was a member of the CSU, familiar with the community organization, and/or the senior services sector. Their knowledge base and familiarity built trust and provided easy access to different organizations. The champion identified organizations that were *'ready'* to deliver CTM.

> It's essential that the CSU understands the senior service sector and who the players are, who the delivery agents of seniors programming are. And who--or which agencies, which organizations might be in a good position to implement a program like CTM. – CSU

Lack of experience or awareness of sector needs can create challenges if the CSU is unaware of how organizations operate.

> I think the major takeaway for me … was the importance of understanding the non-profit sector and the senior serving organizations that we intend to work and partner with… to understand how the organizations operate and the constraints – 'cause that plays into how we can work with them to adapt and implement the program. – CSU

Familiarity with delivery partner resources and values aided the process of EBI adoption and adaptation. Adequate background information about organizations was essential prior to direct communication. The champion explained to organizations the value CTM could bring to their organizations, and how CTM aligned with the organization's mission, goals and programs.

These organizations are faced with more and more supporting the health and wellness of seniors…having something that's prevention and upstream focused that's feasible for them to deliver really satisfied that need or that role that they see for themselves or that others see they have to play in the wellness of seniors. - CSU

Marketing

An integral role of an effective CSU was to *create buy-in and plan ahead*. The CSU guided organizations as to CTM content and delivery that could be tailored to customize CTM. During pre-implementation planning, the CSU worked with EDs to explain and discuss CTM, create buy-in, assess capacity to deliver and plan ahead to adapt CTM if need be. This streamlined the implementation process.

We knew if primarily an organization was working with low-income seniors who were facing challenges with secure housing that the program would maybe have to show up in a place that enabled participation from those individuals. So maybe it would be more recruitment and tailoring to those who are living in supportive housing or -- low-income housing - CSU

The CSU *provided permission and guidance to delivery partners, to adapt and tailor the structured CTM program* so that it aligned with their organization, resources, values and target population.

Delivery partners will adapt a structured program to meet the needs of their site and community within the constraints of their local resources. But I believe that the CSU really does provide a central role in effectively planning for adaptation and implementation by initiating that conversation about adaptation early.. - CSU

The CSU acted as a sounding board *to support, guide and re-direct* delivery partners. They also contributed knowledge about factors known to support implementation success.

The CSU needs to be in place to navigate those adaptations and in some ways it's a bit confusing for organizations to say, hey, here's this program and it looks like this. But you can modify it if you need to and then, like, there's lots of questions on well, what can I modify, how much can I modify it. - CSU

Training

We define training as providing information, demonstrations, and rehearsal to enhance CTM delivery. ACs completed self-directed (online) training that provided an overview of CTM, described information sessions, group meetings, one-on-one consultations, check-ins and provided organizations with program-related information and materials. Interactive training comprised small group case studies that focussed on common challenges and situations. Below we describe the role of the CSU in building organizational and innovation specific capacity in the training phase. We also outline elements within organizational capacity building strategies that supported effective implementation of CTM.

Training

Enhancing AC skills (e.g., coaching and communication), self-efficacy and confidence through training, prior to implementing CTM, was considered essential to effective implementation.

> We've learned a lot around, like, program planning and implementation and encouraging seniors to seek out more opportunities to be physical – AC

Technical assistance

Technical assistance refers to guiding organizations to use an innovation in the practice setting (Wandersman et al., 2008). Technical assistance went beyond 'formal' online self-directed CTM training platforms. Interactive training encompassed feedback and consultation throughout the CTM program.

'Interactive' assistance was deemed essential for implementation success. The CSU helped ACs answer participants' questions, provided details about the CTM program and its delivery, and explained how to use materials effectively. Without assistance from the CSU, some ACs felt overwhelmed with online CTM content. The CSU helped build AC's skills, self-efficacy and confidence. Interactive assistance assured ACs and ensured that CTM was delivered as intended (with fidelity).

> ACs can then ingest [training] information, review it and come back with any questions that they have. And if I get a sense that during that one-on-one call they felt a little

overwhelmed I would go and email them or call them and say, hey, did you understand this and that? Do you have any questions on this? And just checking again. - CSU

Recruitment

Many delivery partners used their standard recruitment strategies to invite participants into CTM programs. The CSU provided resources to aid and facilitate the recruitment process. We describe the role of the CSU in building organizational a capacity during recruitment. We outline elements within capacity building strategies that supported effective implementation of CTM in diverse community contexts.

Tools and technical assistance

The CSU *supported organizations to leverage familiar resources and strategies* to facilitate the recruitment process. One example is a recruitment guideline document that provided: i. potential recruitment channels (e.g., shared online, in-person and mass media); ii. questions and answers for recreation centre staff related to recruitment inquiries; and iii. scripts for frontline staff to screen for eligible participants. The CSU also provided templates for poster, rack card, flyers, newspaper ads and newspaper articles, website banner, text for the community centre program guide and a CTM program PowerPoint presentation that recreation managers/coordinators presented to their frontline staff. The CSU helped delivery partners to meet their deliverables [e.g., recruitment, reach].

The role of the CSU is to really be a sounding board in how to be creative and to leverage the recruitment channels that they may have available for them. - CSU

The feedback that we've gotten is that they appreciate having all these resources that are created already that they can readily use. - CSU

Implementation

Here we describe the role of the CSU in building organizational and innovation capacity in the implementation phase. We also outline elements within capacity building strategies that supported effective implementation of CTM.

Tools

The CSU facilitate*d development of partnerships* to support delivery of CTM. CSU helped delivery partners develop a community activity inventory tool and a referral network. Partnerships were defined as any formal arrangement between CTM delivery partners and service providers.

We just built some new relationships there that we didn't necessarily have before. – ED

Peer networking

The CSU facilitated ACs and EDs to *learn from their peers.* The CSU hosted an annual round of peer networking meetings where ACs and EDs from different organizations came together to troubleshoot and learn from one another.

I think it's been a really different process … we also get a chance to connect with other

folks who are also hosting this program. And that has been really awesome to see the way

that CTM is being adapted differently. – ED

Assessment and feedback

The CSU were members of the larger AART team which comprised the Prevention Synthesis

and Translation System. AART comprehensively evaluated each CTM phase (pre-

implementation, training, recruitment implementation). This provided the CSU the opportunity

to feed data and information back to organizations to increase delivery partners' *awareness of*

older adult's needs in the community. For example, CSU shared de-identified/compiled data that

described ACs and participants perceptions of feasibility, acceptability and appropriateness of

the program and barriers to delivery/participation.

And we were much more aware of seniors' needs, newcomer seniors in

particular – ED

The CSU helped *increase delivery partner organizations capacity to offer physical activity and*

social connectedness programming for older adults. This relates to CSU providing information

about the benefits of CTM, facilitating program adaptation and delivery by ACs, consistently

checking-in and quickly responding to ACs' queries; also described below under *ongoing*

training and monitoring.

Now we have the capacity and the network to continue on and to do a program.

– CO

> CTM has broadened our knowledge base throughout our organization about
> this kind of service and the value that it plays. … the knowledge that we all
> have in our organization about the benefits of this kind of program will also
> improve our capacity to respond – ED

What organizations learned, *informed future organizational practices and processes.* The CSU helped organizations learn new ways to implement and deliver CTM programs; organizations were keen to apply implementation and delivery strategies to other programs.

> The whole program has a wonderful sort of basket of different tools that you're
> using, that really make a lot of sense when you're delivering programs like this.
> –ED

> We're already starting to wonder about ways that we can carry forward some
> of these activities into the future. – ED

[Please insert Table 3 here]

Technical assistance

Ongoing training and monitoring began during CTM planning stages and extended to the end of program delivery. The CSU guided delivery partner adaptation and implementation of CTM. The CSU also conducted monthly check in meetings with ACs and provided 'any time' email support.

We are supporting the implementation of the program so that hopefully the organization can implement [the EBI] and receive the benefits. – CSU

Discussion

We extend the sparse literature in implementation science focused upon key roles that central support systems play to enable organizational and innovative capacity building in delivery partner organizations (Wandersman et al., 2008). Many implementation and scale-up frameworks identify attributes of a CSU that are essential to implementation success (Durlak & DuPre, 2008; Meyers et al., 2012; Wandersman et al., 2008). However, few go beyond theory to clearly define actions (e.g., specific strategies, organizational and innovation specific) and essential elements within strategies that support implementation success (Simmons & Shiffman, 2007).

Guided by Leeman et al.'s (2017) framework, our findings underscore that practice context must be considered to effectively adopt, adapt and implement EBIs like CTM (Leeman et al., 2015; Leeman, Calancie, et al., 2017). Practice context includes resources (e.g., time, staff, computers, funding, leadership) and collective attitude or willingness (Leeman et al., 2015). Practice contexts with lower initial capacity to deliver, required more support from the CSU to effectively deliver CTM—this was shown elsewhere (Nargiso et al., 2013). To illustrate, remote/rural organizations that had not previously offered health promoting older adult programs required more training and ongoing technical assistance to gain the confidence and skills needed to effectively implement CTM. These organizations also required more CSU guidance to build a community network of support.

Delivery partner organizations became more aware of the needs of older adults in their communities. Strong partnerships built across organizations supported delivery of CTM. Systematic approaches to build community capacity was linked to sustainable health promotion (Lovell, Kearns, & Rosenberg, 2011). The CSU maintains a subtle balance between building capacity based on the different needs of organizations, while retaining fidelity to the EBI.

CSU provided access to a support system champion during pre-implementation planning (e.g., site selection, recruitment and marketing). This person was pivotal as they helped organizations adopt (Hanssen, Norheim, & Hanson, 2017) CTM in the first place and adapt it to their specific context which, ultimately, supported implementation success (Miech et al., 2018). Delivery partners represented different levels of influence as described within socioecological models of behavior change (Durlak & DuPre, 2008; Wandersman et al., 2008). They were more or less proximal to frontline delivery of CTM to participants (e.g., directors of large organizations, community coordinators, activity coaches) (Leeman, Calancie, et al., 2017). To illustrate, when the CSU initially contacted organizations, the organizational lead (ED) chose whether (or not) to implement CTM. The CSU champion established and sustained a critical relationship with the ED (and the entire delivery team) at each site. The champion became familiar with delivery partner resources and values to better understand an organization's current capacity to implement CTM. 'Blind invitations' to market CTM, without delivery partner organizations connecting with a CSU champion, were thought to undermine organizations' 'buy-in' and ultimate adoption of CTM. One positive characteristic of champions generally, is a 'participative leadership style' (Bonawitz et al., 2020). For CTM, effective champions facilitated collective action in decision-

making, and provided the tools needed (Metz, Burke, Albers, Louison & Bartley, 2020) to embed CTM into existing delivery systems; EDs and COs welcomed ongoing feedback. The CSU champion is a critical actor early on in pre-implementation planning, as it takes them time to establish communication and build trust (Tseng, Easton & Supplee, 2017). The champion guided adaptation to establish 'best fit' for different delivery organizations (Wandersman et al., 2008). Translating EBIs initially implemented as part of research studies into real world contexts can create an adaptation-fidelity 'tug-of war' between researchers and practitioners (Bopp et al., 2013). The CSU champion bridges this translation gap (Bopp et al., 2013)—they strike a balance between internal validity [delivery of the intervention as planned] and external validity [considering the priorities of local stakeholders and the implementation context] (Brook & McGraw, 2018; Glasgow, Lichtenstein, & Marcus, 2003).

Ongoing training and technical assistance/monitoring (e.g., phone or email check-ins) by the CSU, before and during CTM implementation, were key to implementation success. These two capacity building strategies are central components of many implementation and scale-up frameworks (Bonawitz et al., 2020; Durlak & DuPre, 2008; Simmons & Shiffman, 2007; Wandersman et al., 2008). Importantly, many of these frameworks portray training as an innovation specific capacity building strategy. However, the CSU built organizational and innovation specific capacity throughout the CTM program life cycle.

Delivery partners [ED, CO] noted that their organizational capacity to offer older adult health promoting programs increased. Thus, the CSU raised organizations' overall awareness and commitment to prioritize programs for older adults. This is important as, despite irrefutable

evidence that PA promotes health (Bauman, Merom, Bull, Buchner, & Fiatarone Singh, 2016),

older adults remain among the least physically active population (Tudor-Locke et al., 2011).

Also, given globally escalating levels of social isolation and loneliness (Catford, 2020),

increased awareness or re-prioritization of resources that favour older adult's physical, social and

mental health is a very positive outcome of capacity building strategies. As ACs used CTM

implementation and delivery strategies to more effectively implement other practices/programs,

capacity building proffered other long term benefits to delivery partners.

Our study is novel in its effort to articulate essential elements within capacity building strategies

that promoted implementation success. For example, ACs considered technical assistance during

the training phase essential. It provided them opportunities to ask questions and clarify content

and use of CTM materials. Leeman et al. (2017) urged researchers to describe not only the range

of implementation strategies used BUT how they are structured (e.g., dose, level of collaboration

between provider and recipient and target audience) (Table 3). It is otherwise not possible to

transfer successful strategies to new settings or to effectively facilitate capacity building.

Scale up models target different levels of influence (Durlak & DuPre, 2008; Wandersman et al.,

2008) and highlight the need for flexible interventions that can be adapted 'horizontally' for new

populations and diverse settings. While the CSU sought to sustain fidelity to central tenets of

program components, delivery partners confronted the inevitable need to adapt CTM to fit the

local context and reflect their population, setting and system (Tabak, Khoong, Chambers, &

Brownson, 2012).

Strengths and Limitations

We acknowledge that our study had several limitations. First, all organizations in our study were registered not-for-profits and were provided government grants to implement CTM in the short term. However, we had no data on their financial viability over the longer term. Financial constraints can perpetuate implementation gaps, although investments in building capacity within systems can mitigate future gaps and potentially lower long-term incremental costs (Ali et al., 2013). Second, we studied organizations that demonstrated capacity through their ability to enrol in the study. Our results, therefore, do not reflect all underserved organizations, marginalized communities and grassroots community organizations that provide important services and advocate for the health of older adults.

Conclusion

We addressed the need to better understand "whether implementation strategies operate via theorized mechanisms and how contextual factors moderate the causal processes through which implementation strategies operate" (Lewis et al., 2018). Among mechanisms that promote implementation success there appears to be a key role for capacity building under the stewardship of a CSU (Leeman, Calancie, et al., 2017). Investigating specific elements within capacity building strategies that drive implementation success continues to be a relevant question for implementation science researchers, that deserves further attention.

List of abbreviations

EBI: Evidence based intervention

ISF: The Interactive Systems Framework for Dissemination and Implementation

EBSIS: Evidence-Based System for Innovation Support

CTM: Choose to Move

BC: British Columbia

CSU: Central support unit

AART: Active Aging Research Team

ED: Executive director

CO: Coordinator

AC: Activity coach

UBC: University of British Columbia

Declarations

Ethics approval and consent to participate: The University of British Columbia (UBC)
Behavioural Research Ethics Boards (H18-02202 (UBC) approved all study procedures. All
participants provided informed written consent prior to providing data.

Consent for publication: We confirm that this manuscript has not been published elsewhere and
is not under consideration by another journal. All authors have approved the final manuscript

Availability of data and materials: The datasets used during the current study are not publicly
available as stipulated in our participant consent forms but are available from the corresponding
author on reasonable request.

using REDCap (Research Electronic Data Capture) electronic data capture tools hosted at the

University of British Columbia (Harris et al., 2009). REDCap is a secure, web-based application

designed to support data capture for research studies, providing: 1) an intuitive interface for

validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3)

automated export procedures for seamless data downloads to common statistical packages; and

4) procedures for importing data from external sources.

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