



Criteria for Prioritizing Best Practices to Implement in Cognitive Rehabilitation

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Abstract

Cognitive rehabilitation is a high priority area to address in acquired brain injury (ABI) care. A greater understanding of the criteria used by rehabilitation teams when prioritizing specific cognitive interventions for implementation could inform the development of effective strategies to move evidence into practice. Therefore, the objective of this qualitative study was to describe the criteria for prioritizing best practices to implement in cognitive rehabilitation post-ABI using a comprehensive implementation framework. As the first step in a multi-site integrated knowledge translation initiative, a consensus-building methodology, i.e., the Technique for Research of Information by Animation of a Group of Experts (TRIAGE), was used to prioritize practices to implement by three separate ABI rehabilitation teams ($n = 8, 12$ and 15 members). Transcripts of the teams' TRIAGE consensual group discussions were analyzed using the Framework Method and mapped across the domains of the Consolidated Framework for Implementation Research. The most important criteria guiding priority setting in all the teams were the characteristics of the inner setting, the interventions, the individuals involved, and patients' and families' needs and resources. Particularly critical in prioritizing best practices to implement in the view of all the teams appeared to be the characteristics of the inner setting (e.g., implementation climate, readiness for implementation). Overall, the teams tended to prioritize practices that were partially known and used by a few clinicians but needed more systematic implementation through inter-professional collaboration. Rehabilitation teams should monitor these factors throughout the process from prioritization to implementation of the selected best practices in order to guide the tailoring of implementation strategies.

Keywords Best practices · Cognitive rehabilitation · Implementation · Priority setting

Introduction

The management of cognitive disorders following acquired brain injury (ABI), such as traumatic brain injury (TBI) or stroke, is essential to foster engagement in therapy

(Skidmore et al., 2010), functional recovery (Leśniak et al., 2008; Park et al., 2017; Ponsford et al., 2012) and successful community reintegration for these populations (Institut national d'excellence en santé et en services sociaux (INESSS)—Ontario Neurotrauma Foundation

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(ONF), 2016; McDowd et al., 2003; Ownsworth & Shum, 2008; Ponsford et al., 2014). Over the last decade, growing research evidence in this area led to the development of best practice guidelines with specific recommendations for cognitive rehabilitation after TBI (Cicerone et al., 2019; INESSS-ONF, 2016; Tate et al., 2014) or stroke (Cicerone et al., 2019; Lanctôt et al., 2020). According to these guidelines, clinicians may use different treatment approaches, such as bottom-up retraining of specific cognitive functions (e.g., computer-based attentional training) and top-down training using internal strategies (e.g., metacognitive problem-solving) or external aids to enable participation in everyday activities despite cognitive impairments (Cicerone et al., 2019; INESSS-ONF, 2016; Lanctôt et al., 2020). Implementation and delivery of these complex interventions require advanced knowledge and skills (to tailor interventions to the patient's cognitive and communication profile, to foster the therapeutic alliance with patients whose awareness of deficits is impaired, etc.) on the part of team members from various disciplines who need to collaborate with patients and their families and with other community partners to achieve changes in areas of life the patient considers important and meaningful (Bayley et al., 2014; INESSS-ONF, 2016; Lanctôt et al., 2020).

Surveys of rehabilitation professionals have suggested that best practices in cognitive rehabilitation post-ABI are still not fully or uniformly implemented in various countries, including Australia, Canada and the United Kingdom (Downing et al., 2019; Kelly et al., 2017; Korner-Bitensky et al., 2011; Nowell et al., 2020; Poulin et al., 2021; Tang et al., 2017). Clinical practices appear to be broadly consistent with general cognitive rehabilitation principles, such as using functionally based and patient-centered approaches (Nowell et al., 2020; Poulin et al., 2021), but more substantial practice variations persist for the application of specific interventions targeting attention (Downing et al., 2019; Poulin et al., 2021), executive function (Korner-Bitensky et al., 2011; Poulin et al., 2021) or social cognition deficits (Kelly et al., 2017), as well as caregiver training (Downing et al., 2019). The rapidly growing body of published research in this area, coupled with perceived barriers to cognitive rehabilitation related to the client (e.g., lack of self-awareness, poor engagement and motivation, lack of social support), the clinician (e.g., lack of skills, knowledge, experience) and the rehabilitation setting and process factors (e.g., lack of time, early discharge, inter-professional collaboration challenges) (Nowell et al., 2020), may explain some of these gaps. These findings are also consistent with other data suggesting that a majority of clinicians do not use clinical practice guidelines on a regular basis to guide their rehabilitation interventions following ABI (Lamontagne et al., 2018; Nowell et al., 2020). This is especially true for the management of

cognitive disorders post-ABI, where international experts have identified a priority need for concerted knowledge translation (KT) efforts (Bayley et al., 2014).

To move this evidence into practice, researchers and knowledge users (e.g., clinicians, managers) are increasingly encouraged to work collaboratively, as part of integrated knowledge translation (iKT) initiatives where they co-generate and implement knowledge that is relevant to their context and needs (Canadian Institutes of Health Research, 2012; Kothari et al., 2017; Zych et al., 2020). Prior research suggests that stakeholders' involvement in identifying their knowledge needs and priorities is essential for building functional partnerships in the early phases of the iKT process (Graham et al., 2006; Zych et al., 2019, 2020), and may ultimately enhance the beneficial outcomes of these partnerships (Zych et al., 2019, 2020). Engagement in priority setting provides clinicians with an opportunity to "determine what evidence is relevant to implement, how best to do this, and where the greatest gains can be made in changing clinical practice" (Rankin et al., 2016, p. 1). Previous studies regarding stakeholder engagement in priority setting also emphasized the importance of documenting criteria for prioritization (Guisse et al., 2013; Rankin et al., 2016). Having a better understanding of the rationales underlying priority setting decisions may help to inform the design of the KT strategy in a way that is likely to foster the adoption of best practices.

Various criteria may be used to determine priorities for implementation, including but not limited to the strength of evidence concerning treatment effectiveness. Based on the results from literature searches and consensual group discussions, Rankin et al. (2016) identified four categories of criteria for prioritizing evidence-practice gaps in lung cancer care, namely: relevance to the local setting, magnitude of the issue, patient's burden of suffering, and extent to which the practice is amenable to change. More recently, an Australian survey of 146 allied health professionals identified ten reasons for prioritizing clinical areas for implementation of evidence into practice (Wenzel et al., 2020). These were "closing gaps between practice and policy/recommendation/guideline; closing research evidence to practice gaps; improving access to services; perceived cost-effectiveness of service delivery; improving effectiveness of allied health services; current imbalance between service supply and demand; amount of resources involved in service delivery; extent of the health problem; areas of allied health care futility; and equality of workload across allied health professionals" (Wenzel et al., 2020, p. 288). However, the extent to which these criteria comprehensively cover the factors influencing interdisciplinary teams' implementation priorities in cognitive rehabilitation as well as their relative importance in priority setting in this area remains unclear. To date, there has been little research exploring factors that influence

team-based decision-making when selecting priorities for implementation in rehabilitation, including cognitive rehabilitation practices.

To address this gap in knowledge, future studies should also use established implementation theories or frameworks, such as the Consolidated Framework for Implementation Research (CFIR) (Damschroder et al., 2009), to guide the identification and more consistent reporting of prioritization criteria for rehabilitation interventions. The CFIR is a comprehensive framework, which offers a typology of 37 constructs shown to influence implementation, based on a synthesis of previously published implementation theories (Damschroder et al., 2009). As suggested by various authors (King et al., 2020; Kirk et al., 2016; Waltz et al., 2019), theories or frameworks, such as the CFIR, could be used to inform pre-implementation assessment and help plan and select suitable implementation strategies, which would possibly increase the likelihood of best practices use. To date, however, the explicit use of theory to inform implementation studies in rehabilitation has been limited (Colquhoun et al., 2013; Holmes et al., 2020).

Therefore, the objective of this study, which was the first step in a multi-site iKT initiative, was to describe the criteria used by rehabilitation teams for prioritizing cognitive rehabilitation practices to implement in ABI care, using the CFIR framework.

Methods

Design

This study used a structured, consensus-building methodology, i.e., the Technique for Research of Information by Animation of a Group of Experts (TRIAGE) (Gervais & Pépin, 2002; Gervais et al., 2000), to guide the identification of implementation priorities in three separate interdisciplinary rehabilitation teams. The current qualitative descriptive study explores the criteria influencing priority setting decisions as part of the TRIAGE consensual group discussions. The TRIAGE method was selected because it has the potential to provide rich and relevant qualitative information concerning the rationales for priority setting decisions, and it also fosters participants' deep involvement in the group decision-making process (Gervais & Pépin, 2002; Gervais et al., 2000; Lamontagne et al., 2010, 2013). The CFIR was used to inform the analysis and reporting of prioritization criteria used by each rehabilitation team. The study was approved by the university at which the research was conducted (#CER-16-227-09.11) and by the research ethics committee of the rehabilitation centers where the participants were recruited (# EMP-2016-523).

Participants

Three interdisciplinary rehabilitation teams (Teams 1, 2 and 3 below) serving various populations with ABI from four different sociodemographic regions in the province of Quebec, Canada, were included in order to explore a variety of perspectives of clinicians working in different clinical contexts. Two teams with expertise in stroke rehabilitation (Team 1) or TBI rehabilitation (Team 2) worked in separate clinical programs at the same university teaching rehabilitation center located in a large urban area. Both offered inpatient and outpatient rehabilitation services. The third team (Team 3) provided inpatient rehabilitation services post-ABI, including stroke and TBI, in a healthcare center located in a smaller urban area in a different sociodemographic region.

The eligibility criteria to participate in the TRIAGE were to: (1) work as a clinician in a discipline involved in cognitive rehabilitation, or as a clinical coordinator or manager in a rehabilitation program providing services post-ABI (including stroke or TBI); (2) spend at least 25% of their position's time in the clinical program involved in this study; and (3) speak French. No exclusion criteria were applied. The procedures for recruiting participants are described elsewhere (Poulin et al., 2021).

Data Collection

The TRIAGE method (Gervais & Pépin, 2002; Gervais et al., 2000) consisted of an electronic survey, followed by consensual group discussions. In the electronic survey (described in a previous paper by Poulin et al., 2021), participants prioritized five practices from a list of evidence-based practices taken from two recent, internationally recognized guidelines for cognitive rehabilitation after stroke (Lancôt et al., 2020) and TBI (INESSS-ONF, 2016). Practices prioritized by at least two team members (a total of 13, 13 and 9 practices for Teams 1, 2 and 3, respectively; see Table 1) were discussed during the group meetings in order to reach a consensus on one practice to implement in each team.

These meetings consisted of face-to-face group discussions, facilitated by an experienced animator (VP), where participants were guided to sort the list of practices using a visual aid divided into six sections on the wall of the room (see Fig. 1).

At the beginning of the meeting, participants completed a sociodemographic questionnaire. Then, the animator explained the objectives and the procedures for the consensual group meeting: "As a first step in this implementation process, you are asked to select a common practice to implement as a team that you feel is relevant, important and feasible given your current reality. The visual aid will be used to sort the practices. You will be invited to share your

Table 1 List of best practices used in consensual group discussions

Cognitive rehabilitation best practices	Team 1 (Stroke rehabilitation) ^a	Team 2 (Traumatic brain injury rehabilitation) ^b	Team 3 (Acquired brain injury rehabilitation) ^c
1. Personalized life skills training protocol		X	X
2. Strategies to promote learning for patients with memory impairments		X	X
3. Metacognitive strategy training for executive functions	X	X	X
4. Functionally oriented cognitive rehabilitation		X	X
5. Additional support to foster the engagement in rehabilitation of patients with communication and cognitive issues (e.g., family involvement)	X		X
6. Personalized evidence-based interventions to facilitate resumption of desired activities and participation	X		X
7. Strategies for monitoring performance and feedback in patients with impaired self-awareness	^d	X	X
8. Interventions to improve generalization of skills (e.g., using meaningful activities, ecological environment)		X	X
9. Strategies for visual neglect (e.g., visual scanning, cueing)	X	^e	X
10. Cognitive rehabilitation services based on patient-centered goals	X		^e
11. Goals and interventions adapted to the patient's cognitive and communication profile	X		^e
12. Metacognitive strategy training using functional activities for patients with mild to moderate attention deficits		X	^e
13. Internal compensatory strategies for memory	X	X	^e
14. External compensatory strategies for memory	X	X	^e
15. Training in dual-tasking		X	^e
16. Inpatient rehabilitation interventions fostering patient involvement and effort		X	
17. Inpatient rehabilitation interventions targeting advanced cognitive functions		X	
18. Cognitive behavior therapy to improve attentional functioning		X	
19. Strategies to analyze and synthesize information		^e	
20. Structured and distraction-free environment		^e	
21. Remedial-based strategies for visual perceptual deficits (e.g., prisms)	X		
22. Strategies for apraxia (e.g., errorless learning, gesture training, graded strategy training)	X		
23. Referral to and management by mental health professionals for patients with evidence of changes in mood or other behavioral changes	X		
24. Focus on education and support for caregivers of patients with more severe deficits (e.g., moderate dementia)	X		
25. Computer-based working memory training	X		
26. Computerized skill training for attention	^e		
27. Aerobic exercise for treatment of cognitive impairments	^e		
28. Mirror therapy for unilateral inattention	^e		

From the lists of best practices considered by each team as part of the TRIAGE consensual discussions, three practices were ultimately selected: (1) interventions targeting self-awareness retraining in Team 1; (2) metacognitive strategy training for executive functions, using the Goal management training® in Team 2; and (3) interventions to improve generalization of skills to daily life in Team 3

^aThis list of practices was based on the Cognition module from the Canadian Stroke Best Practices Recommendations (Lancôt et al., 2020)

^bThis list of practices was based on the Institut national d'excellence en santé et en services sociaux—Ontario Neurotrauma Foundation Clinical Practice Guideline for the Rehabilitation of Adults with Moderate to Severe TBI (INESSS-ONF, 2016)

^cThis list of practices was based on a combination of similar practices for cognitive rehabilitation post-ABI selected from stroke and TBI guidelines (INESSS-ONF, 2016; Lancôt et al., 2020)

^dThis practice was added and combined with another practice, namely “Metacognitive strategy training for executive functions”, during the consensual group discussions in Team 1

^eThese practices were included in the guidelines for stroke or TBI rehabilitation but not retained for the consensual group discussions because they were not selected by at least two team members in the first step of the TRIAGE process, the electronic survey (see Poulin et al. (2021) for further details)

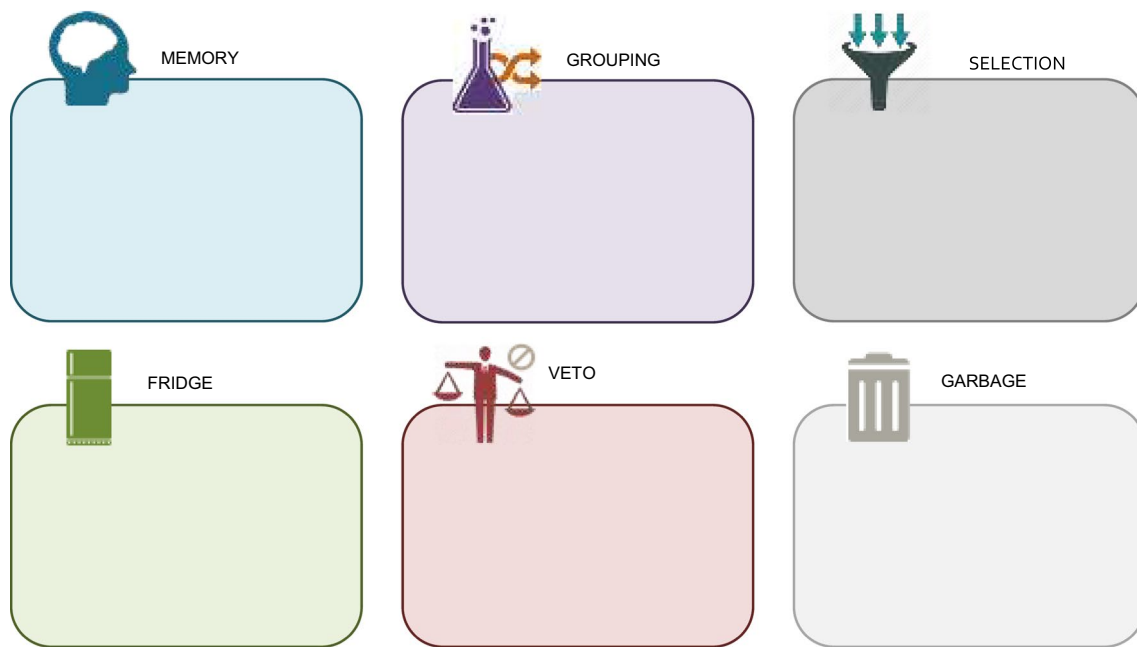


Fig. 1 TRIAGE visual set-up

opinion on the practices to be selected or discarded, as well as the reasons for your choices and preferences.” All practices were transcribed onto cards and initially grouped under the Memory section (see Fig. 1). The animator explained that participants should move practices to different sections depending on the team's consensus decisions: Grouping (practices grouped together, divided or modified to include additional relevant elements), Fridge (need for further discussion in order to make a decision), Veto (no consensus on this practice and need for advice from an outside expert), Garbage (practice rejected) or Selection (practice selected). After explaining the TRIAGE procedures (Gervais & Pépin, 2002; Gervais et al., 2000), the animator asked the participants to read the best practice recommendations as well as the strength of the evidence for each one (level A, B or C), and provided further explanations and clarifications in response to the participants' questions and comments. To help the team begin the prioritization process, the animator suggested: “One way to start the discussion might be to identify the practices you don't want to work on. Looking at the list of practices, are there any that you would eliminate? Why?” As the discussion proceeded, the animator facilitated the productive exchange of ideas in a positive climate (Gervais et al., 2000) by encouraging the participants to share the reasons for their preferences, by maintaining a balance regarding the contributions of each participant, and by summarizing key elements from the discussions but remained neutral with regard to the participants' decisions. It should be noted that the prioritization of practices was not explicitly guided by the CFIR, but the animator provided

some guidance for participants to take a holistic perspective, considering a variety of factors in prioritizing practices to implement in their team. By the end of the meeting, from the practices selected for implementation, one was consensually chosen by the participants as their final selection. This data collection process lasted about 90 to 120 min for each team.

Data Analyses

Descriptive statistics were used to document the participants' sociodemographic and clinical characteristics. All group discussions were audiotaped. The procedures for qualitative content analysis were based on the Framework Method (Gale et al., 2013; Ritchie & Lewis, 2003). This method has been widely used in previous multidisciplinary health research (Gale et al., 2013) and is “particularly suited to analysing cross-sectional descriptive data sets” (Smith & Firth, 2011, p. 55). It provides a systematic method for categorizing and organizing data in order to identify commonalities and differences between different parts of the data, and “to draw descriptive and/or explanatory conclusions clustered around themes” (Gale et al., 2013, p. 2). Following the seven stages recommended for this method, one research assistant first transcribed the interviews in full and verified all transcripts for accuracy. NVivo (version 12) was used to facilitate data management. Then, three co-authors (VP, AJ and MN) involved in data analysis read all the interview transcripts to become familiar with the data and took notes to record first impressions. Two of them (AJ and VP) independently coded the data for the first group transcript. The approach consisted

of a combination of deductive and inductive coding. The codebook's initial structure was defined deductively using the constructs of the Consolidated Framework for Implementation Research (CFIR), which offers a typology of 37 constructs shown to influence implementation (Damschroder et al., 2009). These constructs are organized into five domains, namely intervention characteristics ($n=8$) (e.g., complexity of cognitive rehabilitation practices), characteristics of individuals ($n=5$) (e.g., knowledge and beliefs), inner setting ($n=12$) (e.g., networks and communication), outer setting ($n=4$) (e.g., external policies and incentives), and process ($n=8$) (e.g., planning, engaging). Inductive coding was used to further define examples of prioritization criteria derived from the data during the consensual discussions about the various practices. This approach also allowed for all important or unexpected aspects influencing priority setting decisions to be identified and further specified. The two coders systematically compared their coding in order to agree on a common set of codes, which were grouped under the CFIR's five domains. Then, AJ coded the transcripts for the remaining two groups. Subsequently, another co-author (MN) systematically went through each transcript to revise the coding while applying this analytical framework. Any discrepancies in data coding were discussed and resolved by team consensus. Finally, three co-authors (AJ, MN and VP) were involved in summarizing the data and putting them into a framework matrix to make comparisons within and between the teams for all the categories, with relevant quotations from each transcript. Throughout the analysis process, weekly meetings were held to share any thoughts or clarifications. Finally, the framework matrix was submitted to the other co-authors to further validate the interpretation of the findings regarding key criteria influencing the selection of implementation priorities.

Results

Thirty-five clinicians participated in the group discussions, with 12, 15 and 8 participants, respectively, in Teams 1, 2 and 3. Table 2 presents the sociodemographic and clinical characteristics of the participants in each team. Most of the participants (89%) had participated in the electronic survey in the previous phase (described in Poulin et al., 2021). The participation rates for the consensual group discussions (i.e., percentage who participated in the group discussions from the list of targeted clinicians and managers in each team) were 92% for Team 1, 94% for Team 2, and 62% for Team 3. The vast majority of study participants were women, who worked as clinicians. Most participants from Teams 1 and 2 were occupational therapists (47–58%) or neuropsychologists (33–53%) while Team 3 participants covered a broader range of clinical backgrounds, including

Table 2 Participants' sociodemographic and clinical characteristics

	Team 1 ($n=12$)	Team 2 ($n=15$)	Team 3 ($n=8$)
Gender (n; %)			
Female	12 (100.0)	13 (86.7)	8 (100.0)
Male	–	2 (13.3)	–
Age (years) (n; %)			
20–29	1 (8.3)	2 (13.3)	3 (37.5)
30–39	5 (41.7)	3 (20.0)	1 (12.5)
40–49	2 (16.7)	8 (53.3)	3 (37.5)
50–59	3 (25.0)	2 (13.3)	1 (12.5)
60–69	1 (8.3)	–	–
Discipline (n; %)			
Occupational therapy	7 (58.3)	7 (46.7)	3 (37.5)
Speech and language therapy	–	–	2 (25.0)
Neuropsychology	4 (33.3)	8 (53.3)	1 (12.5)
Special education	1 (8.3)	–	1 (12.5)
Nursing	–	–	1 (12.5)
Education (n; %)			
College degree	1 (8.3)	–	1 (12.5)
Bachelor's degree	6 (50.0)	7 (46.7)	2 (25.0)
Master's degree	2 (16.7)	2 (13.3)	5 (62.5)
PhD	3 (25.0)	6 (40.0)	–
Job title^a (n; %)			
Clinician	12 (100.0)	14 (93.3)	7 (87.5)
Clinical coordinator	1 (8.3)	1 (6.7)	–
Manager	–	1 (6.7)	1 (12.5)
Rehabilitation setting^a (n; %)			
Inpatient	9 (75.0)	11 (73.3)	8 (100.0)
Outpatient	5 (41.7)	12 (80.0)	1 (12.5)
Years of clinical experience (mean; standard deviation)			
Total	14.9 (10.0)	16.2 (9.1)	11.6 (7.7)
With specific ABI	9.5 (9.7)	11.1 (8.9)	10.6 (8.6)
Confidence in ability to manage cognitive deficits post-ABI^b (n; %)			
Not at all confident	–	–	–
Slightly confident	–	–	1 (14.3)
Somewhat confident	5 (41.7)	7 (50.0)	4 (57.1)
Very confident	7 (58.3)	4 (28.6)	2 (28.6)
Extremely confident	–	3 (21.4)	–

^aSome participants fit in more than one category

^bManagers in Teams 2 and 3 did not answer these questions as they did not apply to their situation

occupational therapy (38%), speech and language therapy (25%), neuropsychology (13%), special education (13%), and nursing (13%). While the participation rates were lower for Team 3, the sample ($n=8$) still appeared to be broadly representative of the larger group of clinicians approached for the study ($n=13$) in terms of the proportions of participants from each discipline (i.e., 3 of the 7 occupational therapists, both of the speech-language pathologists, 1 of the

2 neuropsychologists, the educator, and the manager with a nursing background). The mean number of years of clinical experience ranged from 11.6 years (Team 3) to 16.2 years (Team 2). Most participants reported that they spent more than 75% of their position's time providing ABI rehabilitation services in the clinical program involved in the study, except for two participants in Team 1 and one in Team 2, who spent between 25 and 75% of their time. Concerning the clinicians' perceived self-efficacy in managing cognitive deficits post-ABI, a majority of participants from Team 1 (58%), half of Team 2 (50%) but only 29% of participants from Team 3 reported being very or extremely confident in their ability to treat patients with cognitive deficits post-ABI.

Criteria for Prioritizing Cognitive Rehabilitation Practices to Implement

From the lists of best practices considered by each team as part of the TRIAGE consensual discussions, three practices were ultimately selected: (1) interventions targeting self-awareness retraining in Team 1; (2) metacognitive strategy training for executive functions, using the Goal management training® (Stamenova & Levine, 2019) in Team 2; and (3) interventions to improve generalization of skills to daily life in Team 3.

The findings suggest that the criteria used by the rehabilitation teams for prioritizing which cognitive rehabilitation practices to implement were mostly related to four of the five CFIR domains, i.e., characteristics of the interventions, individuals, inner setting and outer setting (see Supplementary file). The most extensively discussed domain in all the teams was the inner setting. In contrast, some criteria related to the implementation process were brought up by only one team (Team 2) during their consensual discussions.

Inner Setting

Particularly critical in prioritizing best practices to implement in the view of all the teams appeared to be the characteristics of the inner setting, and especially the characteristics of the implementation climate and, to a lesser extent, the teams' readiness for implementation as well as their networks and communications.

First, in the implementation climate category, all teams considered the tension for change, compatibility, and relative priority of the implementation within their organization. Concerning the tension for change, they tended to select practices that were thought to be amenable to change and were partially implemented but needed to be applied more uniformly and systematically across various clinicians and disciplines:

It's not necessarily something that is being done systematically or that is necessarily being put in place. You can't say that it is necessarily unified throughout the practice, that everyone is working like that. (Team 2)

The compatibility of the practice with the clinicians' clinical context and current practices also emerged as an important consideration in all the teams, and especially for clinicians in Team 3, who extensively discussed the compatibility of various practices with their inpatient rehabilitation context. It is noteworthy that the practice prioritized by Team 3 (generalization of skills) was aligned with ongoing projects and plans for practice improvement, as explained by a clinician: "This is exactly what we want to work on, i.e., weekend passes [from in-patient rehabilitation] and everything that is associated with the family."

In terms of the relative priority of the practices, all teams expressed a need to work on a unifying project that would bring together clinicians from various disciplines to address a common issue.

Second, concerning readiness for implementation, clinicians from all the teams were concerned about access to training resources (i.e., available resources) and the development of implementation tools to support best practices implementation. They discussed various learning resources that might support the implementation of the practices they finally selected (for self-awareness retraining, goal management training, and generalization of skills). They also considered the feasibility of delivering the interventions with the staff resources currently available in each discipline: "Do we have the resources to do it at that intensity?" This was a particular concern for the neuropsychologists in Teams 1 and 3, who mentioned not having enough time to provide cognitive rehabilitation interventions as they were already busy with cognitive screening and assessments as well as managing patients with mood disorders.

Third, the networks and communications within the teams were also considered by the three teams during their prioritization process. They all expressed a need to prioritize practices that they believed would enhance inter-professional collaboration across various disciplines.

Finally, of the remaining characteristics in this domain, culture was only briefly mentioned in two teams (1 and 3), who noted the importance of client-centered values and functionally based interventions.

Intervention Characteristics

Three of the eight CFIR constructs related to intervention characteristics (i.e., evidence strength and quality, complexity and relative advantage) were discussed by all three

teams, while two other constructs (adaptability and cost) were considered by two of the teams.

Evidence strength and quality appeared to influence the teams' decisions in different ways. Team 1 initially rejected practices with limited perceived evidence of efficacy (e.g., computer-based working memory training), whereas Team 2 used this criterion to guide their final selection of evidence-based interventions, as noted by one participant: "The four [practices] in "Selection" are level of evidence A." In the third team, level of evidence was also discussed by one therapist but did not seem to play a major role in the prioritization process.

As for the relative advantage of the practices, it is noteworthy that all the teams considered their perceived ecological validity: "It's much better to be in concrete, daily activities than the computer" (Team 1). Two of the teams also considered the extent to which the implementation of a practice would enhance the effects of cognitive rehabilitation: "Our interventions are often not effective if there's a lack of self-awareness" (Teams 1 and 3), would generate long-term benefits following the discharge home: "When I see my clients again, I have the impression that they've often abandoned those things [external memory aids]" (Teams 1 and 2), or would have added value compared to previous practices (Teams 2 and 3).

Perceived complexity also appeared to influence decisions in different ways depending on the team. Team 1 thought that implementation efforts should focus on a relatively challenging area of cognitive rehabilitation (i.e., executive function and self-awareness retraining). Similarly, Team 2 expressed the need for a "just right challenge". In contrast, Team 3 tended to reject practices thought to be too complex and difficult to implement: "For memory, that process looks complex [internal strategies]." Furthermore, all three teams rejected some best practice statements that seemed too general or too broad in terms of the range and variety of intervention components involved: "Personally, when it's too broad, I find it hard to operationalize" (Team 2).

The adaptability of the practices also appeared to influence the practices prioritized by two teams (2 and 3). In particular, in Team 3, the participants commented on the adaptability of the interventions to promote the generalization of skills. They noted that this practice could be adapted to their inpatient clinical context, for professionals from various disciplines, to address clients' specific needs: "In some micro-objectives, I have to 'put on the brakes', i.e., say it out loud but without necessarily going into very complex problem-solving processes."

Finally, the cost of technologies, such as transcranial magnetic stimulation (Team 1) or electronic devices like tablets (Team 2), seemed to reduce the usability of some practices in their clinical context.

Characteristics of Individuals

Among the characteristics of the individuals involved, the choice of best practice to implement appeared to be influenced by two of the five constructs, namely the participants' knowledge and beliefs about the interventions (Teams 1, 2 and 3) and, to a lesser extent, their perceived level of self-efficacy (Teams 1 and 3). Concerning the participants' knowledge and beliefs, all the teams tended to prioritize practices that some clinicians were familiar with but which still involved a significant need for knowledge improvement: "There are some procedures, some approaches that we're not familiar with (concerning self-awareness). There are still lots of things we don't necessarily do. The multicontext approach. The CO-OP approach. We can videotape, there are lots of things we can do" (Team 1); "Identify a practice where we know what we're talking about, where we all understand the same thing" (Team 2); "Is there an opportunity to develop strategies or learn more strategies to help us intervene better in that regard [self-awareness]?" (Team 3).

The three teams also selected or rejected some practices depending on their perception of the value of the intervention. The practice retained in their final selection was usually an intervention that was highly valued by some team members: "Do you have anyone who followed the multicontext approach, apart from me and [name]? It was really good, there was a whole section on self-awareness" (Team 1); "I talked about Goal Management Training, which I love." (Team 2); "It's definitely something that interests me [generalization of skills] because we could develop more, to be more functional, more meaningful" (Team 3).

Finally, the level of self-efficacy in managing specific cognitive problems also seemed to influence the participants' priorities. For example, Team 1 rejected a practice concerning apraxia because the participants felt very confident in their ability to provide these interventions, whereas Team 3 preselected one practice related to managing unilateral spatial neglect since they felt moderately confident about treating these problems.

Outer Setting

For the outer setting domain, the most important construct, considered by all the teams, was patient needs and resources. More specifically, all the teams tended to select or reject practices according to their clients' most prevalent and pressing problems or needs: "It's often the reason for the referral. It's often our clients' only complaint [i.e., memory]. Yes. With executive functions; executive functions and memory" (Team 1).

Participants from the three teams also expressed a desire to select a practice that would support family involvement in rehabilitation and transitions to the community:

The clients, they forget their daily planner! Where we are, it's the family, that's it. Things are going well here in rehabilitation because they are being monitored but afterwards, we must be replaced by someone outside, or an educator. (Team 1)

Process

Finally, concerning the implementation process domain, only one team (Team 2) considered these factors as part of their priority setting process. More specifically, support from the research team (external change agent) as part of this iKT initiative was seen as an opportunity to address more challenging practices, such as the implementation of a complex executive function intervention (Goal Management Training (Stamenova & Levine, 2019)). Also, Team 2 expressed a concern about evaluating the effects of practice implementation. In this regard, it was suggested that some practices might be easier to operationalize, such as “dual task training, which is a lot more specific and would be easier to measure”, compared to other practices involving a large number and variety of intervention components (e.g., strategies to promote learning for patients with memory impairments).

Discussion

This study analyzed the criteria for prioritizing best practices to implement in cognitive rehabilitation, according to CFIR constructs. Four of the five CFIR domains influenced priority setting in all the teams, i.e., characteristics of the interventions, individuals involved, inner setting and outer setting, whereas only one team (Team 2) considered factors related to the implementation process. A majority of CFIR domains and constructs (19 of the 37 constructs) were considered by the teams as part of the prioritization process, which suggests that this framework may be useful in guiding rehabilitation teams' consensual discussions about priority setting for best practices implementation. The CFIR provides the structure for a systematic and comprehensive analysis of the most important criteria to consider when prioritizing best practices to implement. Understanding these criteria will help to guide the selection of suitable implementation strategies (King et al., 2020). As suggested by Fernandez et al. (2019), using a systematic “implementation mapping” process to plan implementation strategies may also provide a structure to link these factors to the selection and development of implementation strategies that fit local contexts and needs.

Interestingly, the prioritization criteria identified in the present study also show some similarities with determinants of knowledge implementation in rehabilitation described in previous studies. In a recent systematic review

of determinants influencing knowledge implementation in occupational therapy (Pellerin et al., 2019), the seven CFIR constructs most frequently reported were largely related to the characteristics of the inner setting (learning climate in the organization, leadership engagement from the manager, and available resources to sustain knowledge implementation), as well as some other characteristics of the intervention (adaptability of the practice), individuals (knowledge and beliefs about the intervention, individual stage of change) and implementation process (executing the knowledge implementation strategy). As in our study, the characteristics of the inner setting appeared to be the most documented domain in the 22 studies reviewed (Pellerin et al., 2019). More specifically, our findings suggest that the subconstructs related to the implementation climate as well as the teams' readiness for implementation and their networks and communications were particularly important when prioritizing best practices to implement in cognitive rehabilitation. Overall, the teams tended to prioritize practices that were already partially used by clinicians but needed more consistent and systematic implementation through inter-professional collaboration. When planning the implementation of clinical practices in rehabilitation, it may be helpful for interdisciplinary team members to reflect collectively on the alignment of common practices considered to be within an optimal “zone of proximal development” (Chaiklin, 2003) (i.e., skills close to being mastered) by the clinicians involved. These clinician implementation team meetings may also be useful for building networks and promoting good inter-professional communication, as suggested by a previous study which aimed to identify which implementation strategies would best address specific CFIR-based contextual barriers (Waltz et al., 2019).

Among other key characteristics of the inner setting, the compatibility of the best practices implementation with the team's clinical context and available resources appeared to be another critical criterion for priority setting. These findings are consistent with those of Rankin et al. (2016), who showed that perceived capacity to change practices was the most important criterion for prioritizing evidence-practice gaps in lung cancer care. Since these determinants may potentially affect future adoption and use of the selected practices, it may be important to monitor them on an ongoing basis and adapt the implementation strategies to changes in the local context, emerging needs or opportunities in the inner setting (Wensing & Grol, 2019).

The present study also indicated that other determinants related to the characteristics of the interventions, the individuals involved and the outer setting may interact to influence decision-making about implementation priorities. Concerning the characteristics of the interventions, the results point to some differences in how these factors seemed to influence the selection or rejection of a practice. For example, Teams

1 and 2 tended to select practices deemed to be sufficiently challenging to implement (e.g., self-awareness retraining or goal management training), whereas Team 3 rejected practices they thought were too complex to use in their inpatient rehabilitation setting (e.g., internal strategies for memory). In addition, the adaptability of the practice emerged as a key criterion for priority setting in Team 3 and, to a lesser extent, in Team 2, but this did not seem to be the case in Team 1. In fact, Team 3 differed from the other two on a number of characteristics, such as the variety of disciplines involved, characteristics of their inpatient setting, type of ABI client treated, number of years of clinical experience and, possibly, less confidence in their ability to provide-specific cognitive interventions. Using strategies that build the clinicians' self-efficacy, knowledge and skills may enhance this team's chances of implementation success and may influence their future choice of implementation priorities. These strategies might include making training more dynamic and providing ongoing consultations or training (Waltz et al., 2019). Also, to promote the adaptability of cognitive rehabilitation interventions across a variety of clinical settings, future research should attempt to identify the active intervention components in complex cognitive rehabilitation protocols (Engel et al., 2019) so that clinicians can incorporate these key components when they adapt interventions to their clients' specific needs and context.

While the outer setting did not appear to be a key domain influencing knowledge implementation in the review by Pellerin et al. (2019), some characteristics of the outer setting specific to the patients' and families' needs and resources seemed to play a role when prioritizing practices to implement during the TRIAGE process in our study. More specifically, the teams tended to select practices that addressed prevalent and pressing patient problems and needs and could foster family involvement. The perceived importance of considering patients' and families' problems and resources as part of the prioritization process reflects a need for more emphasis on these constructs in the CFIR framework. Interestingly, this was also proposed in a recent study documenting application of the CFIR for the evaluation of a patient-centered care transformation within a learning health system (Safaeinili et al., 2019). Safaeinili et al. (2019) explained that "promoting the patient needs and resources construct to its own sixth domain in the [CFIR] framework recognizes the fact that health care interventions increasingly put patients and their families front and center, a focus that is given sparse attention in many implementation science frameworks" (p. 7). In a future study, involving patients and their family members in the TRIAGE process may also be considered in order to get their views concerning the relative importance of various priority setting criteria.

Finally, concerning the implementation process, only one team (Team 2) discussed this domain and did so minimally,

which may suggest that most participants did not have a clear vision of the implementation process or how it might influence the prioritization of best practices to implement. The prior involvement of some Team 2 participants in implementing TBI guidelines may have made them more aware of key considerations related to the implementation process (e.g., engagement of the research team leaders as external change agents, evaluation of implementation outcomes). In order to document potential determinants related to the implementation process, therefore, it may be useful to consider each team's prior experience with best practices implementation and ask them explicit questions regarding how they would like this process to take place. In the next phase of our iKT study, this was done using focus group discussions with each team, which enabled us to document their perceptions of various implementation strategies to support the adoption and use of the selected practice.

Strengths and Limitations

This qualitative study provides a comprehensive description of the factors influencing team priority setting regarding best practices to implement in cognitive rehabilitation post-ABI. The group discussions were facilitated by an animator (VP) who had experience with qualitative research methods as well as research expertise in cognitive rehabilitation. Specific training and guidance in the use of TRIAGE was also provided by an expert researcher (MEL) with extensive experience using this method. Qualitative data analysis followed the seven stages of the Framework approach (Gale et al., 2013), including independent coding by several co-authors and consensus meetings to refine the framework matrix and validate the interpretation of the findings. Use of the CFIR framework (Damschroder et al., 2009) also supported a comprehensive and systematic analysis of the factors influencing the choice of implementation priorities in rehabilitation, which is an original contribution to expanding knowledge in this area.

Nevertheless, the results should be interpreted with caution given the study limitations. The qualitative data were collected from a limited number of ABI rehabilitation teams ($n=3$), which may limit the potential transferability of the findings to other settings. In addition, although a relatively high proportion of eligible clinicians from each team participated in the TRIAGE process, it was not feasible to include all disciplines potentially involved in cognitive rehabilitation (physical therapists, nurses, rehabilitation assistants, etc.) because of each team's clinical and organizational contexts. If additional disciplines had been included, factors influencing priority setting may have differed. In addition, it should be noted that the CFIR could have been introduced earlier in the research process to guide data collection. Indeed, the findings may have differed if the teams received information about CFIR, as they could

have possibly addressed even more CFIR constructs in their consensual discussions.

Conclusion

This study provides further insights into how various determinants from the CFIR framework may inform clinicians' choice of implementation priorities specific to cognitive rehabilitation practices. The factors most commonly considered as part of the teams' priority setting process were the: (1) characteristics of the inner setting, (2) interventions to be implemented, (3) individuals involved, as well as (4) patients' and families' needs and resources, which are part of the outer setting. It could be helpful for rehabilitation teams to monitor these factors throughout the process from prioritization to implementation of the selected best practices in order to optimize implementation strategies. In the next phase of our iKT initiative, it will also be interesting to document how these factors influence the adoption and use of the selected practices, and to explore whether the perceived importance of these determinants evolves over the course of the implementation process.

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Author Contribution VP designed the study protocol and obtained funding for this project. MEL, MAP, MCO and AVG also contributed to the concept and design of the research. VP and AJ collected the data. All seven authors made substantial contributions to the analysis and interpretation of data, drafting and revising the manuscript for important intellectual content, and approving the final version to be submitted.

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Declarations

Conflict of interest The authors have no relevant financial or non-financial interests to disclose.

Ethical Approval The study was approved by the university at which the research was conducted (#CER-16-227-09.11) and by the research ethics committee of the rehabilitation centers where the participants were recruited (# EMP-2016-523).

Informed Consent Written informed consent was obtained from all individual participants included in the study.

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