

REVIEW

Communication partner training with familiar partners of people with aphasia: A systematic review and synthesis of barriers and facilitators to implementation

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Abstract

Background: Factors influencing the implementation of communication partner training (CPT) with familiar partners of people with aphasia (PWA) have previously been documented using disparate approaches. To date there has been no synthesis of these factors using a common theoretical framework. Investigating CPT implementation factors using a common theoretical framework may further our understanding of universal barriers and guide future development of tailored, theoretically informed implementation strategies.

Aims: (1) To determine the perceived and/or observed barriers and facilitators to implementing CPT with familiar partners of adults with aphasia; (2) to map extracted barriers and facilitators to a common theoretical framework; (3) to synthesize extracted barriers and facilitators; and (4) to identify potential implementation strategies to address the most frequently identified barriers and facilitators.

Methods & Procedures: A systematic review was conducted in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Four electronic databases (MEDLINE, EMBASE, CINAHL, Web of Science) were systematically searched in April 2021. Empirical qualitative and/or quantitative research studies reporting barriers/facilitators to speech–language therapists (SLTs) implementing CPT with familiar partners of adults with aphasia were included. The search was limited to English or French articles with no date limit applied. Methodological quality of included studies was assessed using the Mixed-Methods Appraisal Tool (MMAT). A framework and content analysis was then conducted to extract and synthesize the implementation factors in alignment with the Theoretical Domains Framework (TDF), followed by a theoretically informed mapping exercise to identify potential implementation strategies.

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Results & Main contribution: The database searches yielded 2115 studies. Following screening, 17 studies were included in the review. Overall, the included studies had good methodological quality. Extracted implementation factors were classified as barriers, facilitators or mixed (i.e., both) and aligned with 13 of the 14 TDF domains, plus two additional domains: ‘carer perspectives on the CPT intervention’ and ‘patient/carers characteristics’. Synthesized data revealed eight key theoretical domains: Environmental context and resources; Social influences; Beliefs about consequences; Skills; Memory, attention and decision-making; Knowledge; Beliefs about capabilities; and Reinforcement. Within each domain, the research team identified common categories and developed illustrative examples of theoretically informed implementation strategies.

Conclusions & Implications: This systematic review and theory-informed synthesis of previously reported CPT implementation factors enabled the identification of key barriers to SLTs delivering this best practice. This led to proposed implementation strategies that should be validated, refined and evaluated in future research involving stakeholders who have contextual understanding of implementing CPT.

KEYWORDS

aphasia, barriers and facilitators, communication partner training, implementation, systematic review

What this paper adds

What is already known on the subject

- CPT of familiar partners of PWA is an effective intervention that is inconsistently used in clinical settings. Factors influencing CPT implementation have previously been identified, but using disparate approaches and frameworks. A synthesis of these factors articulated around a common framework is currently not available.

What this paper adds to existing knowledge

- This paper provides a theory-informed synthesis of previously reported barriers and facilitators to SLTs implementing CPT with familiar partners of PWA. It highlights key factors influencing the uptake of this best practice and includes suggestion of implementation strategies to address them.

What are the potential or actual clinical implications of this work?

- The key influencing factors and proposed implementation strategies reported in this paper may support stakeholders in the future design of tailored and theoretically informed implementation strategies aiming to improve the delivery of familiar CPT in their setting.

INTRODUCTION

Aphasia, a language disorder that affects up to 38% of stroke survivors (Berthier, 2005), leads to disrupted communication and relationships between people with aphasia (PWA) and their significant others, including family and friends (Bakas et al., 2006; Croteau et al., 2020; Grawburg et al., 2013; Hallé et al., 2011; McGurk & Kneebone, 2013). For instance, conversations can be perceived by significant others as less elaborated or enjoyable (Blom Johansson et al., 2012), may generate negative emotions including stress or irritation (Grawburg et al., 2013; Le Dorze & Brassard, 1995), and have significant negative impacts on relationships including intimate relationships (Ford et al., 2021; McGrath et al., 2019). To adjust to these changes, significant others sometimes adopt behaviours (e.g., 'speaking for') which are intended to be helpful, but are nonetheless correlated with decreased participation of the person with aphasia (Croteau & Le Dorze, 2006). Additionally, significant others may avoid conversations, which can also negatively affect their relationship with the person with aphasia (Hallé et al., 2011).

Communication partner training (CPT) is a type of environmental intervention provided by speech–language therapists (SLTs) that involves training communication partners to use supportive communication strategies during interactions with PWA (Simmons-Mackie et al., 2016). CPT recognizes that communication is a 'two-way street' with at least two participants who influence one another and are thus both responsible for ensuring the success of a communicative exchange (Kagan et al., 2001). CPT can be provided to familiar partners of those with aphasia, including family and friends (e.g., Beeke et al., 2014; Rautakoski, 2011), or unfamiliar partners such as healthcare providers or volunteers (e.g., Kagan et al., 2001). CPT can address the needs of both communication partners and improve overall communication success (Simmons-Mackie et al., 2016). For PWA, CPT has been shown to be effective in improving functional communication in addition to improving communication-related participation and activity (Simmons-Mackie et al., 2016). For familiar partners, CPT can lead to improved partner communication, participation and well-being (Simmons-Mackie et al., 2016). Additionally, CPT was one of only 10 aphasia-specific recommendations identified in a systematic review of high-quality national clinical practice guidelines (e.g., originating from Australia, New Zealand, the UK and Scotland) with a high strength of evidence rating for aphasia management (Shrubsole et al., 2017). Given the benefits of CPT for PWA and their communication partners, it is a priority for implementation.

Increasing the provision of CPT will enable more families to facilitate communication with the person with

aphasia and maximize their adaptation to life with post-stroke aphasia. Researchers have documented extensive evidence of significant others' need for improved communication with the person with aphasia (Brown et al., 2012; Halle & Le Dorze, 2014; Le Dorze & Signori, 2010; Paul & Sanders, 2010). Unmet communication needs complicate relational adjustment to stroke and its impacts (Hallé et al., 2011) and can contribute to carer isolation and burden (Bakas et al., 2006). With the majority of stroke survivors returning home after their hospital admission (Stroke Foundation, 2020), it is critical to optimize communication so that PWA and their loved ones experience frequent, enjoyable and significant conversations. Successful communication is likely to foster improved language function by establishing an enriched communication environment (D'Souza et al., 2022) that enhances neuroplasticity (Hannan & Nithianantharajah, 2006), enabling family caregivers to maintain their carer role in the long-term and support the person with aphasia's community participation.

However, despite being a strongly recommended treatment approach, clinical implementation of CPT is inconsistent. Moreover, there is a lack of objective audit data to describe CPT practices, with self-reported practice likely to be an overestimation (Adams et al., 1999). For example, fewer than half of 122 Australian SLTs reported providing CPT according to best practice (Chang et al., 2018). In the UK, a mixed-methods study involving 50 clinicians found conversational therapies such as CPT were widely used in practice, but there was considerable variation in the approaches used (Sirman et al., 2017). In Sweden, 17% of SLTs reported training families in using communication strategies, with only 6% of the total treatment time allocated to CPT (Johansson et al., 2011). Similarly, in Hong Kong, caregiver training was rarely the primary focus of inpatient (9.3%) or outpatient (10.7%) SLT sessions (Kong, 2011). In Canada, two qualitative studies highlighted that SLTs delivered CPT only occasionally, such as when significant others were interested and available (Gauvreau et al., 2019; Hallé et al., 2014). Although reported CPT provision is higher in some countries—for instance, 71% in the United States (Rowe, 2010); 91% in Scotland (Law et al., 2007); 50% in Singapore (Guo et al., 2014)—the overall inconsistency in CPT practice highlights an evidence–practice gap that needs to be addressed.

While SLTs may acknowledge the benefit of CPT (Sirman et al., 2017) and want to provide more frequent and comprehensive CPT (Rose et al., 2013), a number of challenges to implementing CPT have been documented. These challenges include staffing and resource barriers such as not having access to published programs or the time to deliver programmes as intended (Shrubsole et al., 2019; Sirman et al., 2017), patient and family barriers such

as lack of access to family and their perceived reluctance for CPT (Beckley et al., 2017; Shrubsole et al., 2019), and a lack of clinician confidence and self-perceived skill in delivering CPT programmes (Chang et al., 2018; Sirman et al., 2017). Moreover, there is a lack of specific guidance for clinicians about how to provide CPT, with the majority of CPT interventions insufficiently reported to enable replication (Cruice et al., 2018), which may act as an additional barrier to clinical implementation.

Implementation science and the use of theoretical tailoring in CPT implementation research

Implementation science investigates the process of implementing evidence-based practices into real-world settings (Glasgow et al., 2012), and seeks to bridge 'evidence-practice gaps' by assessing implementation barriers and facilitators and designing and testing implementation strategies (i.e., strategies to improve implementation) (Grimshaw et al., 2012). Implementation strategies are more effective when they are tailored to overcome previously identified barriers and enhance facilitators (Baker et al., 2015). In addition, it is recommended that implementation strategies are systematically informed by theory to facilitate understanding of implementation outcomes (Eccles et al., 2005; French et al., 2012; Powell et al., 2015) and to ensure that implementation efforts are replicable (Lewis et al., 2018). The Theoretical Domains Framework (TDF) (Cane et al., 2012) is one example of a theoretically informed framework that is useful (Phillips et al., 2015) for identifying implementation barriers and facilitators and designing tailored implementation strategies (Atkins et al., 2017).

While tailored and theoretically informed implementation strategies are most likely to be effective in bridging research-practice gaps, studies investigating CPT implementation have not consistently used theoretical approaches. For example, two studies used the TDF to identify CPT implementation barriers (e.g., Chang et al., 2018; Shrubsole et al., 2019), while other studies identified barriers without explicitly using theory (e.g., Blom Johansson et al., 2012; Sirman et al., 2017). An implementation strategy developed for a Dutch CPT study (Wielert et al., 2018) was informed by a process-driven framework (using Graham et al.'s, 2006, Knowledge to Action framework) but was not explicitly tailored to previously identified barriers. However, a number of clinician-reported barriers (including a lack of time, leadership and suitable clients) that emerged during the study (Wielert et al., 2018) were similar to those identified in other theory-informed studies, highlighting the potential to retrospectively apply

theory and develop an understanding of implementation barriers using a common framework. A common understanding could potentially streamline the often time-consuming and resource-intensive process of developing theoretically informed and tailored implementation strategies (Phillips et al., 2015), and lead to improved provision of CPT in practice.

In summary, a number of disparate approaches and frameworks have been used to identify factors influencing CPT implementation with familiar partners, and to date there has been no synthesis of available research of these factors using a common framework. Investigating factors influencing CPT implementation using a common theoretical framework may be beneficial to further our understanding of universal CPT barriers, which in turn could allow for the development of a tailored and theoretically informed implementation strategy to guide future implementation efforts. Therefore, the aims of this review were:

1. To identify the perceived and/or observed factors (i.e., barriers and facilitators) influencing implementation of CPT with familiar partners of adults with aphasia from published original research.
2. To map all extracted barriers and facilitators from the included studies to a common theoretical framework (i.e., TDF).
3. To synthesize the extracted barriers and facilitators and explore similarities/differences between healthcare settings.
4. To provide initial recommendations of potential strategies to address the most frequently identified implementation barriers and facilitators for the key TDF domains.

METHODOLOGY

Design

A systematic review with a framework and content analysis was conducted to address aims 1–3, followed by a theoretically informed mapping exercise to address aim 4.

Systematic review (aims 1–3)

Search strategy and selection criteria

The systematic review was preregistered with the Center to Open Science on the 12/05/2021 (registration doi: 10.17605/OSF.IO/5VUGW) and conducted in accordance with the Preferred Reporting Items for Systematic Reviews

and Meta-Analyses (PRISMA) guidance (Page et al., 2021); the completed PRIMSA checklist is presented in Supplementary file 1. We searched MEDLINE, EMBASE, CINAHL and Web of Science electronic databases in April 2021 and hand-searched bibliographies of relevant articles. Selection of search terms were informed by the Simmons-Mackie et al. (2016) review of CPT treatment studies in addition to a systematic review of implementation barriers in a different healthcare field (Atkins et al., 2020), and related to the Population (aphasia OR dysphasia OR stroke OR cardiovascular) AND the Intervention ((partner OR family OR spouse OR support team OR significant other OR dyad OR caregiver) AND (conversation OR communication OR language OR interaction OR social OR pragmatics OR relationship) AND (therapy OR treatment OR intervention OR training OR coaching OR education)) AND the Outcome/Experience (barrier OR facilitator OR enabler OR lever OR influence OR driver OR determinant OR factor OR process OR experience OR uptake OR use OR implementation). The search was limited to English or French articles with no date limit applied.

We included empirical qualitative and/or quantitative research studies reporting barriers and facilitators to SLTs implementing CPT with familiar communication partners of adults with aphasia. The Simmons-Mackie et al (2016) definition of CPT was used, that is, 'a form of environmental intervention in which people around the person with aphasia learn to use strategies and communication resources to aid the individual with aphasia' (p. 2202). Familiar communication partners were defined as friends, family and partners/spouses of the person with aphasia. Full eligibility criteria and search strategy information is shown in Supplementary file 2.

Study selection and quality assessment

Using the inclusion and exclusion criteria, two reviewers (KS and MCH) independently screened titles and abstracts, then screened full-text articles that met the criteria. Where there was disagreement between the two reviewers, a third reviewer (EP) decided whether the article met the inclusion criteria. Covidence systematic review software (Veritas Health Innovation, Melbourne, VIC, Australia; www.covidence.org) was used to manage the data. The quality of the included articles (qualitative, quantitative and mixed-methods studies) was independently evaluated by the Mixed Methods Appraisal Tool (MMAT) (Hong et al., Version 2018) by two raters (KS and MCH). Discrepancies in the ratings were independently reassessed by the third author (EP). For articles where any rater had a conflict of interest as the study's author, final decisions

were made by group consensus. The MMAT is a reliable quality assessment tool (Crowe & Sheppard, 2011; Simera et al., 2010) and includes scales for several different study designs, including mixed-method studies (Crowe & Sheppard, 2011). The scale for mixed-methods studies has a maximum possible score of 15, while the scales for quantitative non-randomized and descriptive study designs have a maximum possible score of 5 (Hong et al., Version 2018). The MMAT authors discourage excluding studies based on their scores, advising that ratings for relevant criterion are described to inform the quality of the studies and provide insights into the research topic (Hong et al., Version 2018).

Data extraction

The following study characteristics were extracted from the included articles by author KS: country where the study was conducted, healthcare setting, study design, participants (including SLTs, patients and carers if applicable), how barriers/facilitators were identified and whether a theoretical framework was used to guide interpretation, and whether the identified barriers and facilitators were specific to familiar partners (or combined with unfamiliar partners) and specific to CPT (or generally related to working with families). Following this, KS extracted data, quotes and author interpretations of barriers and facilitators into a spreadsheet, then coded these extractions to the TDF (Cane et al., 2012) and the Capability, Opportunity, Motivation and Behaviour model (COM-B) (Michie et al., 2014) according to the data analysis procedure below. The TDF was selected as all authors had expertise in using this framework, and it is useful in both identifying implementation barriers and designing interventions (Atkins et al., 2017). The COM-B was used alongside the TDF as it forms the basis of the Behaviour Change Wheel (Michie et al., 2014) and has clear linkages with the 'behaviour change taxonomy' (Michie et al., 2013). The COM-B is therefore useful for selecting BCTs and designing successful behaviour change interventions (Barker et al., 2016; Michie et al., 2014). All theoretical coding was checked by MCH and disagreements were resolved by discussion with the authorship team.

Data analysis

The methods for data analysis and synthesis were informed by Atkins et al.'s (2020) review of catheter-associated urinary tract infections, and involved the following:

- Deductive coding of extracted barriers and facilitators into the most appropriate TDF and COM-B domains using framework analysis (Ritchie & Lewis, 2003).
- Inductive grouping of similar barriers/facilitators within each TDF domain using content analysis (Hsieh & Shannon, 2005) to generate categories.
- Ranking the relative importance of the TDF domains according to the number of studies, number of categories and evidence of conflicting beliefs within domains (e.g., if some participants reported a lack of resources whereas others reported sufficient resources).

Recommendations of potential strategies to address the most frequently identified implementation barriers (aim 4)

We also sought to establish, of the key domains identified in the systematic review, potentially relevant behaviour change techniques (BCTs) (Michie et al., 2013), and to provide examples of implementation strategies to guide future tailoring to localized barriers. Suggested implementation strategies were informed by an evidence-based mapping approach undertaken by members of the research team, who all have expertise in implementation science and CPT. First, the research team reviewed the key TDF domains (and associated COM-B elements) identified in the synthesis and analysis phase outlined above and considered appropriate evidence-based BCTs listed in the BCT (Michie et al., 2013). This mapping was facilitated by the process outlined in the Behaviour Change Wheel workbook (Michie et al., 2014), whereby a list of the most frequently used BCTs was generated for the most frequently identified TDF domains. For example, if the TDF domain 'beliefs about consequences' was considered important, potential BCTs could include information about social and environmental consequences, feedback on behaviour and use of a credible source. The research team then collectively proposed potential strategies to address the common categories of barriers/facilitators ($n \geq 2$ studies) for key TDF domains, and brainstormed examples of how these strategies could hypothetically be operationalized.

RESULTS

Systematic review (aims 1–3)

In total, 1297 studies were screened and 17 studies met the inclusion criteria (see Figure 1 for the PRISMA flowchart). The included studies are summarized in Table 1. The majority of studies ($n = 12$) were published in the past 10 years, and only three (Chang et al., 2018; Shrubsole et al.,

2019; Wielaert et al., 2016) used explicit theory to determine the barriers and facilitators to implementation. The majority of studies were conducted in Canada ($n = 4$) and the UK ($n = 4$), followed by Sweden ($n = 3$) and the Netherlands ($n = 3$). Most studies were conducted in a mixture of healthcare settings involving acute, rehabilitation and/or community services (9/17 = 53%), whereas some related to rehabilitation (5/17 = 29%) or community settings only (3/17 = 18%). There were a range of study designs; most were exploratory studies of SLTs' practice (11/17 = 65%, e.g., Gauvreau et al., 2019) and some were CPT treatment studies that explored implementation perspectives at the study's completion (5/17 = 29%, e.g., Sorin-Peters & Patterson, 2014). One included study was a CPT implementation study with barriers identified post-implementation but not pre-implementation (1/17 = 6%; Wielaert et al., 2018).

Five studies used qualitative designs involving interviews (Gauvreau et al., 2019; Hallé et al., 2014; Shrubsole et al., 2019; Sorin-Peters, 2004; Wielaert et al., 2017) and four studies used primarily quantitative survey designs (Blom Johansson et al., 2012; Chang et al., 2018; Guo et al., 2014; Wielaert et al., 2016). The remaining eight studies used mixed-methods approaches of varying types, including: a survey followed by one or more focus groups (Beckley et al., 2017; Law et al., 2010; Sirman et al., 2017), a focus group followed by a survey (Turner & Whitworth, 2006), a survey with detailed qualitative and quantitative components (Johansson et al., 2011), and studies that integrated qualitative and quantitative elements within a case study or case series (Blom Johansson et al., 2013; Sorin-Peters & Patterson, 2014) or implementation evaluation (Wielaert et al., 2018). Of the 17 included studies, the majority ($n = 11$) related to SLT perspectives on implementation, while the remaining six included information on the carer/PWA perspectives (Blom Johansson et al., 2012, 2013; Sorin-Peters, 2004; Sorin-Peters & Patterson, 2014; Wielaert et al., 2016; Wielaert et al., 2017).

Methodological quality

Study quality details are presented in Tables 2–4. In line with the recommendations of the MMAT authors (Hong et al., Version 2018), no studies were excluded. All qualitative studies ($n = 5$) scored the highest possible score of 5, indicating they included the key elements of qualitative research. The ratings for quantitative descriptive studies ($n = 4$) showed that two studies obtained the highest possible score of 5, with one study scoring 4/5 (Chang et al., 2018) and another scoring 3/5 (Wielaert et al., 2016). For the small number of quantitative studies that scored fewer than 5 points, items that were absent or unclear included

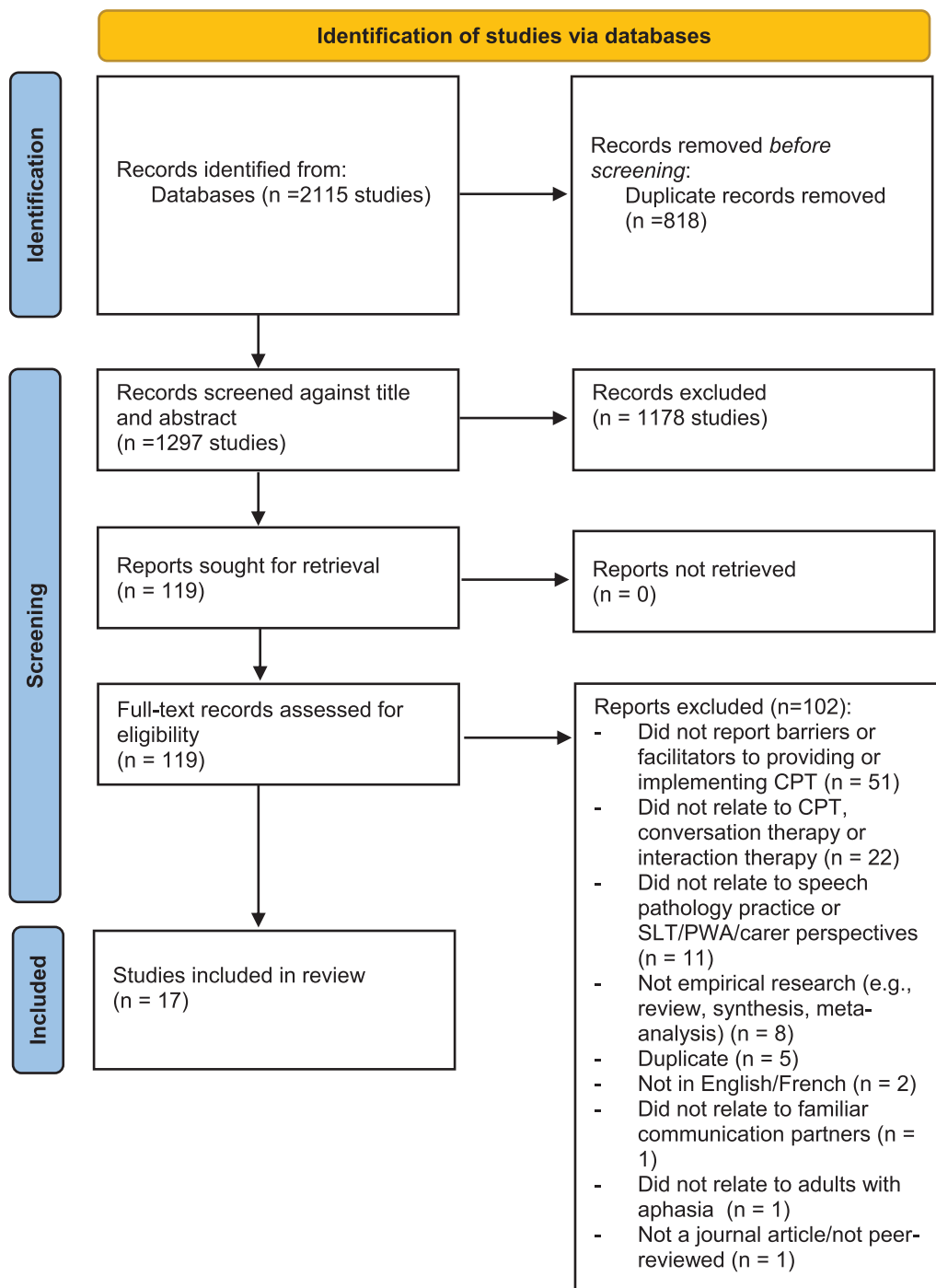


FIGURE 1 PRISMA 2020 flow diagram of database search results and included studies [Colour figure can be viewed at wileyonlinelibrary.com]

reporting of a low ‘risk of non-response bias’ and a ‘sample representative of the target population’. The total scores for the mixed-method studies ($n = 8$) ranged from 11 to 14 out of the possible 15, with four studies not reporting or having a high risk of non-response bias, and four studies not providing a clear rationale for the mixed-methods design.

Barriers and facilitators to CPT

The ranked importance of the barriers and facilitators according to TDF domain and COM-B component is presented in Table 5. Supplementary file 3 in the additional supporting information includes the full synthesis of results for each TDF domain. Table 6 illustrates a

TABLE 1 Summary of studies reporting barriers and facilitators to implementing CPT with familiar partners of people with aphasia

Reference and country	Healthcare setting	Study design and description	Participant characteristics for clinicians (sample size)	Participant characteristics for patients/carers (sample size)	How were barriers identified?	Theoretical approach to identify the barriers?	Were data specific to familiar partners or combined?	Were data extracted specific to CPT or general to working with families?
Beckley et al. (2017), UK	Mixed: community, acute, other	Mixed methods: quantitative survey followed by qualitative focus group	37 SLTs for survey, 8 SLTs in focus group	n.a.	Question in focus group based on survey result, analysed using deductive and inductive approach	None reported	Familiar partners/dyads	Specific to CPT
Blom Johansson et al. (2011), Sweden	Mixed: acute, early and late rehabilitation	Mixed methods: survey with 27 fixed response questions and 46 open-ended questions	758 SLTs	n.a.	Survey: open-ended questions coded using content analysis	None reported	Familiar partners/dyads	Not CPT specific (CPT-adjacent)
Blom Johansson et al. (2012), Sweden	Community	Survey (primarily quantitative): 74 fixed response items and 6 open-ended	n.a.	173 SOs	Survey: open-ended questions coded using content analysis	None reported	Familiar partners/dyads	Specific to CPT
Blom Johansson et al. (2013), Sweden	Rehabilitation: inpatient and home-based	Mixed methods: multiple CPT case study: qualitative video-recordings and surveys	n.a.	3 dyads (PWA and SOs)	Survey and interviews post-intervention	None reported	Familiar partners/dyads	Specific to CPT
Chang et al. (2018), Australia	Mixed: acute, inpatient rehabilitation, OP rehabilitation	Survey (primarily quantitative): Y/N questions, multiple choice, Likert scale, open-ended text boxes	122 SLTs	n.a.	Survey: analysed using descriptive statistics and content analysis	Theoretical Domains Framework (TDF) (Cane et al., 2012)	Combined familiar and unfamiliar but some specific information	Specific to CPT

(Continues)

TABLE 1 (Continued)

Reference and country	Healthcare setting	Study design and description	Participant characteristics for clinicians (sample size)	Participant characteristics for patients/carers (sample size)	How were barriers identified?	Theoretical approach to identify the barriers?	Were data specific to familiar partners or combined?	Were data extracted specific to CPT or general to working with families?
Gauvreau et al. (2019), Canada	Mixed: acute, inpatient rehabilitation, outpatient rehabilitation	Qualitative: interview study (exploratory study: no implementation or treatment provided)	17 SLTs	n.a.	Semi-structured interviews, grounded theory	No, used grounded theory	Familiar partners/dyads	Specific to CPT
Guo et al. (2014), Singapore	Mixed: acute, rehabilitation, private practice	Survey (primarily quantitative); included some open-ended questions	36 SLTs	n.a.	Survey	None reported	Some detail specific to partners	Not CPT specific (CPT-adjacent)
Hallé et al. (2014), Canada	Rehabilitation	Qualitative: semi-structured interviews	8 SLTs	n.a.	Semi-structured interviews, grounded theory	No, used grounded theory	Familiar partners/dyads	CPT specific data extracted
Law et al. (2010), Scotland	Mixed: acute and community	Mixed methods: survey of SLT practice and a series of focus groups with clinicians and people with aphasia	121 SLTs in survey, plus 21 aphasia professionals in focus groups	14 service users with aphasia	Questionnaire: coding and statistical analysis, focus groups analysed thematically	None reported	Some detail specific to partners	CPT adjacent
Shrubsole et al. (2019), Australia	Mixed: acute and rehabilitation	Qualitative: interview study (exploratory study: no implementation or treatment provided)	20 SLTs	n.a.	Semi-structured interviews, content and saliency analysis	TDF (Cane et al., 2012)	Combined familiar and unfamiliar but some specific data	CPT specific (but not specific to familiar partners)
Sirman et al. (2017), UK	Mixed: acute, in-/outpatient rehabilitation, community	Mixed methods: survey and focus groups	50 SLTs completed survey and 6 participants in focus group	n.a.	Data analysed using descriptive statistics and thematic content analysis	None reported	Familiar partners/dyads	CPT adjacent

(Continues)



TABLE 1 (Continued)

Reference and country	Healthcare setting	Study design and description	Participant characteristics for clinicians (sample size)	Participant characteristics for patients/carers (sample size)	How were barriers identified?	Theoretical approach to identify the barriers?	Were data specific to familiar partners or combined?	Were data extracted specific to CPT or general to working with families?
Sorin-Peters (2004), Canada	Community	Qualitative: multiple case study method	n.a.	5 dyads	Semi-structured interviews and questionnaire	None reported	Familiar partners/dyads	Specific to CPT
Sorin-Peters and Patterson (2014), Canada	Community	Mixed methods: series descriptive design	case n.a.	4 dyads	Interviews and questionnaire	None reported	Familiar partners/dyads	Specific to CPT
Turner and Whitworth (2006), UK	Mixed	Mixed methods: focus group and questionnaires led to a candidacy profile that was piloted in a case study	12 SLTs in focus group, 31 SLTs in questionnaire	1 PWA and 1 carer	Focus group and questionnaire	None reported	Familiar partners/dyads	Specific to CPT
Wielandt et al. (2016), The Netherlands	Rehabilitation	Quantitative: pre-treatment design of outcome measures for dyads, plus partner experience scales	n.a.	34 dyads	Partner experience explored using quantitative scales of intrinsic motivation inventory	Intrinsic motivation inventory	Familiar partners/dyads	Specific to CPT
Wielandt et al. (2017), The Netherlands	Rehabilitation	Qualitative: interview study	n.a.	17 partners of PWA	Semi-structured interviews, qualitative content analysis	None reported	Familiar partners/dyads	Specific to CPT
Wielandt et al. (2018), The Netherlands	Rehabilitation	Mixed-methods: before and after implementation study	18 SLTs and 14 doctors or managers completed questionnaire	n.a.	Questionnaires with Likert scale and open-ended responses plus notes and informal feedback	Implementation guided by the Knowledge to Action framework (Graham et al., 2006), but unclear if theory used to determine barriers	Familiar partners/dyads	Specific to CPT

Note: CPT, communication partner training; n.a., not applicable; PWA, people with aphasia; SLT, speech-language therapists; SO, significant others.

**TABLE 2** Methodological quality rating for qualitative studies using the Mixed Methods Appraisal tool (MMAT)

Study component	Methodological quality criteria	Gauvreau et al. (2018)	Hallé et al. (2014)	Shrubsole et al. (2019)	Sorin-Peters (2004)	Wielaeert et al. (2017)
Screening questions	Clear research question?	Yes	Yes	Yes	Yes	Yes
	Data address research questions?	Yes	Yes	Yes	Yes	Yes
Qualitative	Sources of data relevant to research questions?	Yes	Yes	Yes	Yes	Yes
	Analysis process relevant to research questions?	Yes	Yes	Yes	Yes	Yes
	Findings adequately derived from data?	Yes	Yes	Yes	Yes	Yes
	Interpretation sufficiently substantiated by data?	Yes	Yes	Yes	Yes	Yes
	Coherence between data, collection, analysis and interpretation?	Yes	Yes	Yes	Yes	Yes
Qualitative score (/5)		5	5	5	5	5

Note: Yes (1 point), no (0 point), ? = unsure (0 point).

TABLE 3 Methodological quality rating for quantitative studies using the Mixed Methods Appraisal tool (MMAT)

Study component	Methodological quality criteria	Blom Johansson et al. (2012)	Chang et al. (2018)	Guo et al. (2014)	Wielaeert et al. (2016)
Screening questions	Clear research question?	Yes	Yes	Yes	Yes
	Data address research questions?	Yes	Yes	Yes	Yes
Quantitative (quantitative descriptive studies)	Is sampling strategy relevant to address research question?	Yes	Yes	Yes	Yes
	Is sample representative of the target population?	Yes	Yes	Yes	No
	Are measurements appropriate?	Yes	Yes	Yes	Yes
	Is the risk of non-response bias low?	Yes	No	Yes	?
	Is the statistical analysis appropriate to answer the research questions?	Yes	Yes	Yes	Yes
Quantitative score (/5)		5	4	5	3

Note: Yes (1 point), no (0 point), ? = unsure (0 point).

summary of which TDF domains were identified as barriers, facilitators or both (i.e., mixed) for CPT implementation according to the healthcare setting in which the studies were conducted. A domain was considered both a barrier and facilitator, or mixed, when there was evidence of conflicting data within one study (e.g., if some SLTs stated they found CPT easy to implement, and others found it difficult). Overall, the extracted and synthesized data mapped to 13 of the 14 TDF domains (all except 'optimism'), and all three COM-B components (i.e., Capability, Opportunity and Motivation). In mixed healthcare settings (i.e., acute, rehabilitation and/or community), 10 TDF domains were classified as 'mixed' barriers and facilitators, with two domains classified as barriers (*goals* and

behavioural regulation), and one classified as a facilitator (*intentions*). In rehabilitation-only settings, five TDF domains were classified as facilitators, three TDF domains were classified as 'mixed' barriers and facilitators (*beliefs about consequences*, *social influences* and *environmental context and resources*), and one domain was classified as a barrier (*memory, attention and decision-making processes*). Two TDF domains were identified as having a 'mixed' influence on practice in the community-only setting (*social influence* and *environmental context and resources*).

The authors considered TDF domains as 'important' if they occurred in four or more studies (approximately a quarter of included studies) in order to be as inclusive as



TABLE 4 Methodological quality rating for mixed-methods studies using the Mixed Methods Appraisal tool (MMAT)

Study component	Methodological quality criteria	Beckley et al. (2017)	Blom Johansson et al. (2011)	Blom Johansson et al. (2013)	Sirman et al. (2014)	Weilaert et al. (2018)	Law et al. (2010)	Turner and Whitworth (2006)	Sorin-Peters and Patterson (2014)
Screening Questions	Clear research question?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Qualitative	Data address research questions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Sources of data relevant to research questions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Analysis process relevant to research questions?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Findings adequately derived from data?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?
	Interpretation sufficiently substantiated by data?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quantitative	Coherence between data, collection, analysis and interpretation?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	Qualitative score (/5)	5	5	5	5	5	5	5	3
Mixed methods	Is sampling strategy relevant to address research question?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Is sample representative of the target population?	?	Yes	Yes	?	Yes	Yes	?	Yes
	Are measurements appropriate?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Is the risk of non-response bias low?	No	Yes	Yes	?	Yes	?	?	Yes
	Is the statistical analysis appropriate to answer the research questions?	Yes	Yes	Yes	Yes	Yes	?	Yes	Yes
Quantitative score (/5)	3	5	5	3	5	3	3	5	
Integration of qualitative and quantitative data or results relevant to the research questions?	Adequate rationale for MM design relevant to research question?	Yes	No	?	Yes	No	Yes	Yes	No
	Are outputs of integrated qualitative and quantitative components adequately interpreted?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Are divergences between qualitative and quantitative components adequately interpreted?	Yes	Yes	Yes	?	Yes	Yes	Yes	?
	Do different study components adhere to quality criteria?	Yes	Yes	Yes	No	Yes	No	Yes	Yes
	Mixed-methods score (/5)	5	4	4	3	4	4	5	3
TOTAL score /15	13	1414	13	12	13	11	11	11	

Note: Yes (1 point), no (0 point), ? = unsure (0 point).

TABLE 5 Ranking of theoretical domains framework (TDF) domains

Ranking	TDF domain (COM-B component)	Frequency (number of studies identified in; maximum n = 17)	Elaboration (number of categories)	Evidence of barriers and/or mix of barriers/facilitators within domains (yes/no)
1	Environmental context and resources (Opportunity: physical)	15	15	Yes, mixed barriers/facilitators
2	Social influences (Opportunity: social)	13	4	Yes, mixed barriers/facilitators
3	Beliefs about consequences (Motivation: reflective)	8	9	Yes, mixed barriers/facilitators
4	Skills (Capability: physical)	5	4	Yes, mixed barriers/facilitators
5	Memory, attention, and decision processes (Capability: psychological)	5	3	Yes, mixed barriers/facilitators
6	Knowledge (Capability: psychological)	4	5	Yes, mixed barriers/facilitators
7	Beliefs about capabilities (Motivation: reflective)	4	3	Yes, mixed barriers/facilitators
7	Reinforcement (Motivation: automatic)	4	3	Yes, mixed barriers/facilitators
9	Intentions (Motivation: reflective)	3	1	No, facilitators only
10	Social/professional role and identity (Motivation: reflective)	2	2	Yes, mixed barriers/facilitators
11	Emotions (Motivation: automatic)	2	1	Yes, mixed barriers/facilitators
12	Goals (Motivation: reflective)	1	1	Yes, barriers only
13	Behavioural regulation (Capability: psychological)	1	2	Yes, barriers only
14	Optimism (Motivation: reflective)	0	0	No
n.a.	Carer perspectives on CPT ^a	4	7	Yes, mixed barriers/facilitators
n.a.	Patient/carers characteristics ^a	1	3	Yes, mixed barriers/facilitators

Note: ^aNot included in the ranking because the influence on SLT implementation unclear, and unable to be mapped to TDF/COM-B.

TABLE 6 Classification of Theoretical Domains Framework (TDF) domains as barriers, facilitators or both across care settings ($n = 17$)

TDF domain	Mixed (acute, rehabilitation and/or community) (n = 9)	Rehabilitation only (inpatient or outpatient) (n = 5)	Community (n = 3)
Knowledge	Mixed (n = 3)	Facilitator (n = 1)	
Skills	Mixed (n = 4)	Facilitator (n = 1)	
Beliefs about capabilities	Mixed (n = 4)		
Beliefs about consequences	Mixed (n = 6)	Mixed (n = 2)	
Reinforcement	Mixed (n = 3)	Facilitator (n = 1)	
Intentions	Facilitator (n = 2)	Facilitator (n = 1)	
Goals	Barrier (n = 1)		
Social professional role and identity	Mixed (n = 1)	Facilitator (n = 1)	
Social influences	Mixed (n = 5)	Mixed (n = 4)	Mixed (n = 3)
Optimism			
Emotions	Mixed (n = 2)		
Environmental context and resources	Mixed (n = 8)	Mixed (n = 4)	Mixed (n = 3)
Memory, attention, and decision processes	Mixed (n = 4)	Barrier (n = 1)	
Behavioural regulation	Barrier (n = 1)		
Carer perspectives on CPT (non-TDF domain)		Mixed (n = 2)	Facilitator (n = 2)
Patient/carers characteristics (non-TDF domain)		Mixed (n = 1)	

possible. These eight most frequently identified domains are summarized below:

- **Environmental context and resources** (n = 15 studies): 15 categories were identified within this domain. The most commonly occurring category within this domain was 'variable access to or attendance of family members to provide CPT', where the familiar partners' time and availability to participate in CPT was both a barrier and facilitator. Other categories in this domain included: 'lack of time to provide CPT', including time to provide general information to carers and time to analyse conversations; 'presence/lack of physical CPT resources', where lack of access to freely accessible resources was generally a barrier and available resources were perceived positively; and perceptions that the 'acute setting was more difficult to provide CPT in comparison with rehabilitation or community' due to acute phase pressure; and 'competing organizational demands' with services deprioritizing CPT for other therapy types and caseloads.
- **Social influences** (n = 13 studies): Four categories were identified in this domain. The most commonly occurring was 'patient and family goals, expectations and preferences for therapy', where SLTs identified perceptions that family and patients frequently did not want CPT or did not value CPT (identified as a barrier in three studies, and a mixed barrier/facilitator in six studies). Other categories included 'patient and family feedback on outcomes and experience of CPT' (identified as a facilitator in five studies), a 'lack/presence of peer and collegial support and buy-in', that is, mixed levels of engagement amongst non-SLT colleagues in CPT provision (identified in three studies); and positive 'social norms with colleagues providing CPT' (identified as a facilitator in three studies).
- **Beliefs about consequences** (n = 8 studies): Nine categories were identified with most of these identified in a single study. The most commonly identified category was 'mixed beliefs about improved communication for familiar partners', which was classified as a facilitator in two studies, and both a barrier and facilitator in two studies, as some perceived CPT to be helpful and valuable for those who received it, whilst others perceived it has potentially having limited benefit or carry-over for families. There was a specific 'lack of perceived benefit in acute setting' to providing CPT as patients were seen as not ready or rapidly improving in this setting (identified in two studies). In addition, there was 'variable perception of benefit to videoing conversations' (identified in three studies), and 'mixed beliefs about the impact of CPT on patient/family stress' (identified in two studies), with some believing CPT could be stressful for patients/families, and others believing CPT removed stress.
- **Skills** (n = 5 studies): Four categories were identified in this domain. The most common category was SLTs' 'mixed perception of skills/ability to provide CPT', which was linked to the 'presence/lack of formal training opportunities' category, indicating that the opportunity for formal training facilitated skill development and the lack of training was a barrier.
- **Memory, attention and decision-making** (n = 5 studies): Three categories were identified. Of these, there were two common categories: 'lack/presence of routine integration of CPT into practice', whereby many SLTs did not remember to provide CPT routinely; and 'SLT decision-making regarding candidacy for CPT', where SLTs decided that some carers were not good CPT candidates based on perceived carer characteristics such as a lack of motivation.
- **Knowledge** (n = 4 studies): Five categories were identified, including sufficient 'theoretical knowledge about CPT evidence' which was classified as a facilitator in two studies. Additional facilitators were SLTs' 'education about CPT, and the 'procedural knowledge of using videos during CPT', identified in one study each. 'Lack of procedural knowledge and familiarity with CPT programmes' was a barrier to CPT implementation in one study, and 'lack/presence of knowledge of resource availability and how to access them', which was both a barrier and facilitator in a single study.
- **Beliefs about capabilities** (n = 4 studies): Three categories were identified in this domain including 'presence/lack of self-confidence in providing CPT'. that is, that some SLTs reported a lack of self-confidence (identified in two studies). Two other barriers were present in single studies only: 'perceived behavioural control in overcoming workplace barriers' and a 'lack of self-efficacy in videoing during CPT'.
- **Reinforcement** (n = 4 studies): Three categories were identified in this domain including 'disincentive to provide CPT due to negative outcomes', that is, that lack of family attendance or lack of positive outcomes reinforced the SLT in not providing CPT (identified as a barrier in two studies). Two other subcategories were present in single studies: 'positive experience of CPT' was a facilitator, and the 'presence/absence of workplace recognition of CPT' was both a barrier and a facilitator.

In addition to the 14 TDF domains, analysis revealed a number of barriers/facilitators that related to the carers' perspectives of the CPT intervention they received; the authors categorized this data as 'carer perspectives on the CPT intervention'. Data in this domain included carer feedback on specific programme elements such as



the length, number and type of CPT sessions. A final domain labelled 'patient/carer characteristics' was identified from one paper (Wielert et al., 2016) that included quantitative data on the impact of client factors such as age, aphasia severity and motivation on their CPT experience. Through discussion, the authorship team initially decided to include any factor that could be considered as having an impact on SLTs' implementation of CPT in practice in the data extraction phase. Therefore, the authors included these 'carer perspectives' and 'patient/carer characteristics' as these factors could have an indirect influence on SLT's practice, and also serve to reinforce the SLT reports regarding their 'social influences'. However, these two domains were not included in this study's next phase of proposing implementation strategies, as they do not clearly link to the BCT through the TDF and COM-B mapping process.

Recommendations of potential strategies to address the most frequently identified implementation barriers (aim 4)

For the eight important TDF domains, the authors reviewed relevant BCTs listed in the BCT (Michie et al., 2013), then considered these BCTs with reference to the 'common categories' that occurred in more than a single study. A summary of these domains, their categories and selected BCTs is presented in Table 7. The 'environmental context and resources' domain had the highest number of common categories (eight), whereas the 'beliefs about capabilities', 'knowledge' and 'reinforcement' domains had the least number of common categories (one each). The research team then proposed an illustrative example of a strategy to address each common category that aligned with at least one of the selected BCTs; these are presented in Table 8. These suggested strategies are tailorable to specific contexts depending on local barriers.

DISCUSSION

This systematic review of 17 studies identified key barriers and facilitators to implementing CPT with familiar partners of PWA using a theoretical framework, which led to the development of suggested implementation strategies. The included studies used a range of mixed-methods, qualitative and quantitative research designs, and were generally of a high methodological quality. The majority were published within the last 10 years, in line with the general increase of implementation science literature in healthcare more broadly (Sales et al., 2019), likely reflect-

ing the increased recognition of the evidence-practice gap for CPT.

Our synthesis identified eight key implementation factors that incorporated a number of categories and aligned with all three COM-B components. The most frequently identified domain, 'Environmental context and resources' (related to physical opportunity within the COM-B), has been consistently identified as a common implementation barrier in other aphasia management practices such as collaborative goal-setting and provision of aphasia-friendly information (Shrubsole et al., 2019; Young et al., 2018), and in other healthcare topics more broadly (e.g., reducing urinary tract infections, Atkins et al., 2020; self-managing spinal pain, Eilayyan et al., 2019). This finding emphasizes that implementation success not only depends on individual clinicians, but that partnerships with decision-makers and managers is essential to address organization-level and resource barriers. In our review, the prevailing category in this domain for CPT was 'variable access to or attendance of family members', indicating the need to be provided access to asynchronous and/or non-face-to-face CPT options such as e-modules, telehealth or after-hours services. Similarly, other key domains such as 'social influences', 'beliefs about consequences' and 'beliefs about capabilities' in our review are commonly reported barriers to implementing other aspects of aphasia management including Intensive and Comprehensive aphasia programmes (Shrubsole et al., 2022; Trebilcock et al., 2019) and CPT with healthcare professionals (Shrubsole et al., 2021).

In contrast, the 'memory, attention and decision-making' and 'reinforcement' domains were identified as keys barrier in our synthesis, but have rarely been identified as implementation in other areas of aphasia practice. This may indicate that there are unique implementation challenges for CPT due to the nature of this treatment approach, where engagement with both family members and PWA is necessary. As such, the candidacy decisions highlighted in several studies, and the lack of observed benefits for some families, appear to influence routine CPT integration into clinical practice more than other aphasia treatment approaches. In other words, SLTs' decision to provide CPT (or not) may be related to anticipated challenges for carers in changing their communication behaviours. Additional research into the mechanisms of changing communication behaviours through CPT would be valuable. Furthermore, SLTs' decision-making about whether to provide CPT is likely linked to the 'social influences' of patient and family members who may not expect or understand that rehabilitation can include family members directly. In order to address these mixed expectations of what rehabilitation involves, strategies that promote CPT benefits to clients with aphasia and families are

TABLE 7 Summary of common barriers and facilitators ($n \geq 2$) within the most frequent ($n \geq 4$) Theoretical Domains Framework (TDF) domains identified across healthcare settings nested according to COM-B (Capability, Opportunity, Motivation and Behaviour model) components

COM-B component	Category (frequency— n = 17 studies maximum)	Healthcare settings: mixed, rehabilitation or community	Barrier/ facilitator/ mixed	Example quotation(s) or study finding (study ID, country)
Opportunity (physical)	TDF domain: Environmental context and resources (n = 15 studies; 8 frequent categories)			
	Lack of time to provide CPT (n = 6)	Mixed	Barrier	I have too little time to describe and explain thoroughly to families (S2, Sw)
		Rehab	Barrier	Participants thought they did not have the time to ... meet regularly (S8, Ca)
		Mixed	Barrier	I certainly haven't given as much time to the person who has got aphasia (S11, UK)
		Mixed	Barrier	I think we struggle as well, even in hospital, to support carers and to give the carers adequate information and advice about communicating (S9, UK)
		Mixed	Barrier	I don't find that I ever have enough time (S10, Au)
		Rehab	Barrier	Problems fitting in module with stroke pathway, big time investment, time to conduct video analysis (S17, Ne)
	Lack/presence of physical resources to provide CPT (n = 5)	Mixed	Mixed	Access to resources versus lack of access to freely accessible, manualized resources (S5, Au)
		Mixed	Mixed	Mostly refer to some of the general strategies on our aphasia handouts (S10, Au)
		Rehab	Mixed	Local folder, care pathway in the making, partner interview versus video and data management (S17, Ne)
		Community	Facilitator	The learning tools were helpful (S13, Ca)
		Community	Facilitator	Materials and resource kit useful (S12, Ca)
		Rehab	Facilitator	Handouts were appreciated by most partners, as they provided a lovely structure (S16, Ne)
	Acute setting difficult to provide CPT in comparison with rehabilitation or community (n = 4)	Mixed	Barrier	In a more acute situation you have more pressure (S01, UK)
		Mixed	Barrier	Pairwise comparisons showed that communication partner training was significantly less common in the acute phase (S2, Sweden)
		Mixed	Mixed	CPT will be provided more so in a rehabilitation setting where clinicians can work closely with familiar CPs (S5, Au)
		Mixed	Mixed	I think actually in the community there is more opportunity, its more functional therapy you're doing (S11, UK)

(Continues)

TABLE 7 (Continued)

COM-B component	Category (frequency— n = 17 studies maximum)	Healthcare settings: mixed, rehabilitation or community	Barrier/ facilitator/ mixed	Example quotation(s) or study finding (study ID, country)
	Variable access to or attendance of family to provide CPT (familiar partners' time and availability to participate in CPT) (n = 10)	Mixed	Mixed	The partner was present most of the time (S01, UK)
		Mixed	Barrier	Increased contact with families is needed (S2, Sw)
		Mixed	Barrier	Lack of availability for familiar partners (S5, Au)
		Mixed	Mixed	They need to learn new communication strategies, but only when the family was present. (S6, Ca)
		Mixed	Barrier	Inability to involve family members who have other commitments for home practice out of therapy time (S7, Si)
		Rehab	Barrier	Sometimes we see them once or twice (S8, Ca)
		Mixed	Barrier	I suppose one big barrier is trying to get the family (S10, Au)
		Rehab	Facilitator	Partner available during working hours in elderly care (S17, Ne)
		Community	Barrier	CPT would require too much time, they did not have sufficient time to participate (S3, Sw)
		Rehab	Barrier	The number of sessions and their planning were also practical issues for partners, in order to fit (CPT) in their already busy lives. (S16, Ne)
	Timing of offering CPT in rehab journey: perception that CPT programme should be offered earlier but not too early (n = 3)	Community	Barrier	They felt that such training could have been useful closer to the stroke event (S3, Sw)
		Rehab	Barrier	Participants commented that intervention offered too late in relation to stroke onset (S4, Sw)
		Rehab	Mixed	Most partners reported that (CPT) would not have been feasible at an early stage of inpatient rehabilitation, but some wanted training earlier (S16, Ne)
	Lack of funding/reimbursement for CPT services (n = 2)	Mixed	Barrier	Im a private practitioner and I have trouble being paid for this. (S2, Sweden)
		Rehab	Barrier	Unclear financial arrangements, no reimbursement for outpatient care in nursing homes (S17, Ne)
	Competing demands with services prioritizing other needs over CPT (n = 4)	Mixed	Barrier	The ward prioritises other things. (S2, Sweden)
		Mixed	Barrier	Service delivery emphasis on dysphagia management over communication treatment (S5, Au)

(Continues)

TABLE 7 (Continued)

COM-B component	Category (frequency— n = 17 studies maximum)	Healthcare settings: mixed, rehabilitation or community	Barrier/ facilitator/ mixed	Example quotation(s) or study finding (study ID, country)
		Mixed	Barrier	There's a lot of pressure on us to do lots of impairment based therapy (S11, UK)
		Rehab	Barrier	Many competing projects in our centre (S17, Ne)
	Presence/lack of supportive organizational culture (n = 2)	Mixed	Mixed	Support from management vs lack of support from management (S5, Au)
		Rehab	Mixed	Support from management vs frequent management changes and organizational inefficiencies (S17, Ne)
Opportunity (social)	TDF domain: Social influences (n = 13 studies; 4 frequent categories)			
	Patient and family goals, expectations and preferences for therapy (n = 9)	Mixed	Barrier	Many partners are not into doing the actual tasks (S01, UK)
		Mixed	Barrier	The attitude is that the patient should be trained, not the family (S2, Sw)
		Mixed	Mixed	Potential CPs were usually willing to be involved versus they don't value it (S5, Au)
		Rehab	Mixed	If the significant other was solely focused on the recovery of the person with aphasia, participants considered this a barrier (S8, Ca)
		Mixed	Mixed	Then they (client and partner) accept but if you just focus on just the chatting bit I don't think that would go down very well (S11, UK)
		Mixed	Mixed	Sometimes the family don't see it as therapy (S10, Au)
		Rehab	Barrier	Dyads deciding they did not want to take part in CPT (S17, Ne)
		Community	Mixed	They felt that such training could have been useful closer to the stroke event versus They felt too exhausted to accomplish such a demanding task (S3, Sw)
		Rehab	Mixed	Training was new to partners and sometimes met with hesitance, as they did not know what to expect . . . Carers would have appreciated more nudging from the SLT (S16, Ne)
	Patient and family feedback on outcomes and experience of CPT (n = 5)	Rehab	Facilitator	Participants felt their conversations had improved as a result of CPT (S4, Sw)
		Community	Facilitator	Participants felt their conversations had improved as a result of CPT (S13, Ca)
		Community	Facilitator	But it's easier—that's the progress we did (S12, Ca)
		Rehab	Facilitator	CPT seen as useful/beneficial, a positive experience and they could participate (S15, Ne)
		Rehab	Facilitator	It (CPT) had improved the communicative abilities of his wife (16, Ne)

(Continues)

TABLE 7 (Continued)

COM-B component	Category (frequency— n = 17 studies maximum)	Healthcare settings: mixed, rehabilitation or community	Barrier/ facilitator/ mixed	Example quotation(s) or study finding (study ID, country)
	Lack/presence of peer and collegial support and buy-in (n = 3)	Mixed	Mixed	Staff being receptive versus access to staff for training is difficult (S5, Au)
		Mixed	Mixed	I think the team are very aware of what we do as speech therapists versus feeling the need to justify the use of conversation therapy (S11, UK)
		Rehab	Facilitator	Doctors and managers are open to innovation in general, Doctor mentions CPT (S17, Ne)
	Social norms with colleagues providing CPT (n = 3)	Mixed	Facilitator	A third agreed CPT was routinely provided by fellow colleagues (S5, Au)
		Mixed	Facilitator	The level 1/2 (SLT) that I have is fantastic, and a really strong advocate and is very passionate about conversation partner training. (S10, Au)
		Rehab	Facilitator	Good communication between SLT and planning (S17, Ne)
Motivation (reflective)	TDF domain: Beliefs about consequences (n = 8 studies; 4 frequent categories)			
	Lack of perceived benefits in acute setting (n = 2)	Mixed	Barrier	I think in that (stroke unit) setting, often patients aren't quite ready to engage (S1, UK)
		Mixed	Barrier	We hope that person is not going to need the same supports in even two days' time (S10, Au)
	Variable perception of benefit to videoing conversations (n = 3)	Mixed	Barrier	And they're distressed and their families are distressed, to say, do you mind if we filmed you? (S1, UK)
		Mixed	Barrier	I think it can be really confronting for some people. (S10, Au)
		Rehab	Facilitator	17/18 SLTs agreed that video supplied relevant information which they would not have obtained from their clinical observations (S17, Ne)
	Mixed beliefs about improved communication for familiar partners (n = 4)	Mixed	Facilitator	Participants emphasized importance of training families in communication strategies (S2, Sw)
		Mixed	Mixed	It has always previously been helpful for those attending versus no carry over (S5, Au)
		Mixed	Mixed	I've had a lot of family members that aren't able to use the recommendations (S10, Au)
		Rehab	Facilitator	17 SLTs judged CPT to be user friendly and an invaluable addition ... providing knowledge and training opportunities for partners (S17, Ne)
	Mixed beliefs about the impact of CPT on stress on PWA and families (n = 2)	Rehab	Barrier	The activity should not stress the dyad (S8, Ca)
		Mixed	Facilitator	I think it takes away that stress on the person (S10, Au)

(Continues)

TABLE 7 (Continued)

COM-B component	Category (frequency— n = 17 studies maximum)	Healthcare settings: mixed, rehabilitation or community	Barrier/ facilitator/ mixed	Example quotation(s) or study finding (study ID, country)
Capability (physical)	TDF domain: Skills (n = 5 studies; 2 frequent categories)			
	Mixed perception of skills/ability to provide CPT (n = 3)	Mixed	Barrier	The reasons for not providing were primarily lack of skills (S2, Sw)
		Mixed	Mixed	One quarter reported having formal training and skills to provide CPT (S5, Au)
	Presence/lack of formal training opportunities (n = 2)	Mixed	Barrier	The majority had no formal training (S5, Au)
		Rehab	Facilitator	Skilled SLTs (S17, Ne)
		Rehab	Facilitator	Competency in delivering CPT grew with each training session (S17, Ne)
Capability (psychological)	TDF domain: Memory, attention, decision making (n = 5 studies; 2 frequent categories)			
	Lack/presence of routine integration of CPT into practice (n = 2)	Mixed	Barrier	I haven't got it into my way of working (S2, Sweden)
			Mixed	41% remembered to provide CPT while the majority forgot to do it (S5, Au)
	SLP decision-making regarding candidacy for CPT (n = 2)	Rehab	Barrier	Partners were not considered good candidates by the SLT when they showed signs of excess burden, or have no motivation for training (S17, Ne)
		Mixed	Mixed	Eight primary traits deemed important by SLTs (S14, UK)
Capability (psychological)	TDF domain: Knowledge (n = 4 studies; 1 frequent category)			
	Theoretical knowledge about evidence for CPT (n = 2)	Mixed	Facilitator	There is strong evidence for CPT (S5, Au) I did one of my research projects on CPT (S10, Au)
Motivation (reflective)	TDF domains: Beliefs about capabilities (n = 4 studies; 1 frequent category)			
	Presence/lack of self-confidence in providing CPT (n = 2)	Mixed	Mixed	having plenty of experience versus a lack of confidence (S5, Au)
		Mixed	Barrier	I would like a bit more support around structuring it (S11, UK)
Motivation (automatic)	TDF domain: Reinforcement (n = 4 studies; 1 frequent category)			
	Disincentive to provide CPT due to negative outcomes (n = 2)	Mixed	Barrier	Some families did not come to meetings when invited—there is a lack of engagement from families (S2, Sw)
		Mixed	Barrier	I did it for a couple. It did not give very good results; the partner lacked empathy (S6, Ca)

(Continues)

TABLE 7 (Continued)

COM-B component	Category (frequency— n = 17 studies maximum)	Healthcare settings: mixed, rehabilitation or community	Barrier/ facilitator/ mixed	Example quotation(s) or study finding (study ID, country)
Not linked to com-B	Non-TDF domain: Carer perspectives on CPT (n = 4 studies; 3 frequent categories)			
	Number of CPT sessions in programme acceptable (n = 3)	Rehab	Facilitator	Participants were satisfied with the number of sessions but some desired an increased number of sessions or a follow-up session (S4, Sw)
		Community	Facilitator	They would have appreciated more sessions to maintain and/or further improve conversation (S12, Ca)
	Home practice helpful but not feasible (n = 2)	Rehab	Facilitator	Found the planned ahead 1 h sessions, once a week, feasible. (S16, Ne)
		Community	Facilitator	Home practice helpful (S12, Ca)
	Practical role plays and feedback useful (n = 3)	Rehab	Barrier	Carrying out home assignments was not feasible (S16, Ne)
		Community	Facilitator	Reflective learning questions made him more aware of how he was communicating (S13, Ca)
		Community	Facilitator	One-on-one coaching in the groups was extremely helpful as well as the feedback and reinforcement from other spouses in the group (S12, Ca)
		Rehab	Facilitator	Carers found the role plays provided useful and direct feedback, making it painfully clear what could be done differently (S16, Ne)

Note: Au, Australia; Ca, Canada; CPs, communication partners; CPT, communication partner training; n.a., not applicable; Ne, the Netherlands; PWA, people with aphasia; Si, Singapore; SLT, speech-language therapist; SO, significant others; Sw, Sweden; UK, United Kingdom.

suggested (Table 8). The development of a shared decision-making tool (Stacey et al., 2017) may serve a dual-purpose benefit of addressing ‘decision-making’ barriers for SLTs and consumers alike.

Interestingly, although the ‘knowledge’ domain was a key influencing factor, the single common category within this domain was a facilitator, indicating that SLTs have generally good theoretical knowledge about the evidence supporting CPT. This finding is worth noting as the majority of implementation interventions targeted at allied health professionals (Scott et al., 2012) and stroke rehabilitation practices (Cahill et al., 2020) include educational components, which will likely be of limited benefit in changing practice if there is adequate pre-existing knowledge. We therefore propose that training should be interactive to improve SLTs’ ‘skills’ and ‘beliefs about capabilities’ in providing CPT, and should be persuasive to harness positive ‘beliefs about consequences’, rather than focussing on knowledge alone.

Overall, six included studies reported on carer and patient perspectives of CPT, with findings integrated with the clinician-reported implementation factors where possible. From these studies, a new domain—‘carer

perspectives’—was identified as important. This domain indicated that particular CPT programme elements such as the number of sessions, home practice tasks and practical role plays, generally facilitated carer involvement. As a lack of ‘reinforcement’ was often a barrier to implementation (as discussed above), this positive feedback may serve to encourage SLTs that CPT is often viewed favourably by clients, and to seek more feedback about CPT from their service-users to guide their practice.

In addition to the ‘carer perspectives’ domain, the extracted data from the carer and patient studies mapped to three other domains (i.e., ‘environmental context and resources’, ‘social influences’ and ‘patient/carers characteristics’) and provided perspectives that both aligned and diverged from clinicians. For example, some clinicians reported they lacked the resources and skills to video-record conversations, and that videoing could be ‘really confronting for some people’ (Shrubsole et al., 2019) and may add to clients’ distress (Beckley et al., 2017). Although consumers agreed that videoing conversations was ‘challenging for families’ and ‘hardly ever met with enthusiasm’ (Wielaelert et al., 2017) they also reported that video-recording was ‘helpful’ (Sorin-Peters & Patterson,

TABLE 8 Suggested behaviour change techniques (BCTs) and implementation elements for frequent TDF domains with example strategies

TDF domain (COM-B) -Frequent categories (n > 2 studies)	Relevant BCTs and suggested implementation intervention elements (i.e., types of strategies to address identified barriers)	Suggested example of an implementation strategy that uses a relevant BCT to address a key barrier (i.e., ways in which the barriers could be addressed)
Environmental context and resources (Opportunity) <ol style="list-style-type: none"> 1. Variable access to or attendance of family to provide CPT 2. Lack of time to provide CPT 3. Lack/presence of physical resources to provide CPT 4. Competing demands with services prioritizing other needs over CPT 5. Acute setting difficult to provide CPT in comparison with rehabilitation or community 6. Timing of offering CPT in rehab journey: Perception that CPT programme should be offered earlier but not too early 7. Presence/lack of supportive organizational culture 8. Lack of funding/reimbursement for CPT 	BCTs: Restructuring physical/social environment, adding objects to the environment – Service redesign initiatives <ul style="list-style-type: none"> – Persuasive communication to families, services and SLTs – Tailorable physical resources to provide CPT – SLT champions – Standardized electronic or printed materials to facilitate family education 	<ol style="list-style-type: none"> 1. Provide access to asynchronous and/or non-face-to-face CPT options such as e-modules, telehealth or after-hours services [service redesign] 2. Encourage SLTs to allocate time within treatment for CPT informed by patient goals [persuasive communication] 3. Provide access to CPT resources for SLTs to use with families (e.g. handouts, instructions) to reduce time burden [resource provision] 4. Seek organizational support to provide CPT through demonstrable benefits/outcomes [champions/persuasion] 5. Promote CPT early to all clients with aphasia and families by providing educational materials (paper based and e-pamphlets) that summarize key components and benefits [educational materials/persuasion] 6. Identify local champions to promote CPT and encourage SLTs to discuss timing of CPT with families in consideration of available services across continuum of care [champions/persuasion] 7. Identify local champions to advocate for CPT within service to garner organizational support and a culture that reinforces CPT provision [champions/persuasion] 8. Consider service redevelopment and funding opportunities by: partnering with universities for student placements or research projects; conducting quality improvement project; developing a business case for increased funding; using AHA support to provide aspects of CPT [service redesign]
Social influences (Opportunity) <ol style="list-style-type: none"> 1. Mixed patient and family goals, expectations and preferences for therapy 2. Positive patient and family feedback on CPT outcomes and experience 3. Lack/presence of peer and collegial support and buy-in 4. Positive social norms with colleagues providing CPT 	BCTs: Social support, social comparison, restructuring the social environment, identification of self as a role model <ul style="list-style-type: none"> Clinical networks SLT champions Persuasive communication to families, services and SLTs 	<p>Note: some overlap with elements of environmental context and resources</p> <ol style="list-style-type: none"> 1. Promote benefits of CPT to clients with aphasia and families (consider videos of patient success stories or peer-to-peer support) [persuasion/credible source] 2. Collect positive feedback from patients and families to encourage SLTs regarding patient preferences [persuasion/credible source] 3. Identify local champions to promote CPT and to encourage SLTs providing CPT [champions/persuasion] 4. Provide social support through supervision or local clinical network including discussion about perceived challenges and successes [social support]
Beliefs about consequences (Motivation) <p>SLTs have mixed beliefs about:</p> <ol style="list-style-type: none"> 1. Benefits of CPT on partner communication, particularly in the acute setting 2. Whether CPT has a positive or negative impact on patient and family stress 3. The impact of videoing conversations on patients and families 	BCTs: Persuasive communication (credible source), anticipated regret, salience of consequences, information regarding behaviour/outcomes <ul style="list-style-type: none"> - Persuasive communication and information regarding behavioural outcomes 	<ol style="list-style-type: none"> 1. Develop community of practice where clinicians can speak to other SLTs who have been successful in a similar context [persuasion/credible source] 2. Create patient/family videos to share stories on successful CPT, incorporate persuasive positive communication about how CPT could transform outcomes for patients and families [persuasion/credible source] 3. Incorporate persuasive information about consequences of using video feedback into education or training from credible sources (e.g. video testimonials, patient and clinician quotes) [persuasion/credible source]

(Continues)

TABLE 8 (Continued)

TDF domain (COM-B) -Frequent categories (n > 2 studies)	Relevant BCTs and suggested implementation interventions elements (i.e., types of strategies to address identified barriers)	Suggested example of an implementation strategy that uses a relevant BCT to address a key barrier (i.e., ways in which the barriers could be addressed)
Skills (Capability) 1. Presence/lack of formal training opportunities 2. Mixed perception of skills/ability to provide CPT	BCTs: Behavioural instruction/demonstration/practice, goal-setting – Training involving interactive skill development, practice opportunities and feedback	1. Provide training opportunities on key CPT elements (including assessment, goal-setting and how to use specific resources) with demonstration, active practice elements such as role-play, and feedback, targeted at current skill level [interactive training] 2. Provide support to set goals and develop actionable tasks during training and encourage ongoing maintenance of skills [goal-setting/supervision]
Memory, attention and decision-making processes (Capability) 1. Lack/presence of routine integration of CPT into practice 2. SLT decision-making regarding candidacy for CPT	BCTs: Action planning, prompts and cues, self-monitoring of behaviour – Self-reflection – Reminders – Provision of information	1. Provide prompts/reminders on routine provision of CPT and subsequent action planning through supervision and/or staff meetings with CPT as an agenda item [reminders/action-planning] 2. Encourage: (a) SLT self-reflection on candidacy decisions through team meetings and/or supervision [self-reflection/self-monitoring]; and (b) patients to be actively involved in the decision-making process for CPT through providing educational CPT resources [education/resource provision]
Knowledge (Capability) 1. SLTs have generally good theoretical knowledge about evidence for CPT	BCTs: Information regarding behaviour, consequences/outcomes – Standardized materials to introduce/reinforce the evidence and outcomes of CPT on patients, services and SLTs	1a. Provide access to webinars/online modules to provide education about health outcomes of providing CPT for patients and familiar communication partners [education/resource provision] 1b. Distribute educational materials to clinicians and services summarizing the components of CPT, and emphasizing the consequences of not providing it [education/resource provision]
Beliefs about capabilities (Motivation) 1. Presence/lack of self-confidence in providing CPT	BCTs: Persuasion to boost self-efficacy, focus on past success, behavioural self-monitoring and goal-setting – Persuasive support to SLTs – Self-reflection – Action plans	1a. Incorporate persuasive positive feedback about how implementing CPT was/is possible and reframe perceived challenges into achievable steps through training or supervision [self-reflection/support] 1b. Encourage trainers/champions to help SLTs develop an action plan for implementation [action planning] 1c. Create video to share stories on successful strategies on how CPT was implemented into other services [support]
Reinforcement (Motivation) 1. Disincentive to provide CPT due to negative outcomes	BCTs: Anticipation of future rewards, incentive – Persuasive communication and information regarding behavioural outcomes – Acknowledge/reward success	1a. Create persuasive patient/family videos to share stories on successful CPT to highlight future rewards [persuasion/credible source] 1b. Promote successful CPT implementation through methods such as direct feedback or featuring in service-based newsletters [reward]

2014), and they would have ‘appreciated more nudging’ from the SLT (Wielaeert et al., 2017), which may encourage SLTs to include video-recording as part of their CPT with more confidence. Similarly, some clinicians noted that some patients ‘aren’t quite ready to engage’ in CPT, particularly in the acute setting (Beckley et al., 2017) and many family members agreed that CPT would ‘not have been feasible at an early stage of inpatient rehabilitation, because their “heads were full of other things”’ (Wielaeert et al., 2017). However, some family members reported that CPT was offered ‘too late in relation to stroke onset’ (Blom Johansson et al., 2013), and they would have liked training earlier (Blom Johansson et al., 2012; Wielaeert et al., 2017). The ideal timing of CPT within the rehabilitation journey needs further examination, as currently there is limited evidence to guide practice. So that patients and families can be involved in this decision-making about CPT timing, we propose that SLTs routinely promote CPT to all clients with aphasia and their families early in their aphasia rehabilitation journey (Table 8).

Our review indicated a number of gaps in the existing literature. First, there was a lack of prospective integration of behaviour change theory overall, with only three included studies (Chang et al., 2018; Shrubsole et al., 2019; Wielaeert et al., 2016) using explicit theory to determine implementation factors (TDF and Intrinsic Motivation Theory). While it was possible to retrospectively apply the TDF to synthesize the findings from all included studies, it is important for future CPT research to use implementation theory to facilitate transparent and efficient development of implementation interventions. In addition, there were few studies conducted in specific healthcare settings; most studies were conducted in a mixture of healthcare settings (e.g., acute, rehabilitation and/or community services) which made it difficult to develop context-specific implementation strategies. There is a need for future research in CPT implementation barriers in specific settings that were underrepresented in this review, including community settings and acute services. Finally, all included studies were conducted in developed countries, primarily in Canada and the UK, indicating the need for further research on CPT practices in developing countries.

Clinical implications, limitations and next steps

We have identified key implementation barriers for CPT with familiar partners of PWA, and developed proposed theory-informed implementation strategies to address these. However, we recognize that future context-specific tailoring and stakeholder input is required to operationalize these suggested strategies. There are numerous oppor-

tunities for further intervention design and refinement, such as using a conjoint analysis method to produce an implementation blueprint with collaboration from stakeholders (see Lewis et al., 2018, for an example). Although generation of strategies has been found to be largely similar between stakeholder groups such as researchers and healthcare professionals (Huntink et al., 2014), stakeholder involvement is important to promote transparency in implementation design and to facilitate stakeholder buy-in (Lewis et al., 2018).

Overall, given the large number of barriers identified within many different domains in this review, it is necessary to consider which barriers may be addressed quickly (such as those relating to individual autonomy, for example, the provision of a ready-to-go handout) and which barriers may be more time-consuming and effortful to address (such as organizational and policy changes), and prioritize these barriers accordingly. Moreover, individual SLTs and/or SLT departments still need to consider their own context when selecting which implementation strategies to use. Although some domains (such as ‘behavioural regulation’ and ‘goals’) were not identified as being frequently occurring in our review, these barriers may still be present in particular settings that have not yet been identified in published research.

One limitation of this review is that the inclusion of mixed study designs did not always allow for sufficient understanding of how factors influenced SLT practice. For example, although ‘patient/carer characteristics’ such as carer motivation and patient age may be important to the outcomes of CPT (Wielaeert et al., 2016), identifying these factors was not useful in designing an implementation strategy for clinicians, as it was unclear how these factors influenced practice from the study design. Further research into the impact of patient and carer characteristics on clinical implementation would be beneficial.

This review provides further justification for ensuring theory be used in future barriers research relating to CPT implementation. Importantly, these results should encourage informed discussion for the future delivery of CPT for familiar partners of PWA and the necessary components to improve SLT practice in this area. Overall, our review and synthesis of common implementation barriers could lead to more streamlined and efficient CPT implementation approaches, and is a starting point for researchers and stakeholders of different countries to work together to drive change.

CONCLUSIONS

From our systematic review of CPT with familiar partners of PWA, key factors influencing implementation

included 'environmental context and resources', 'social influences', 'beliefs about consequences', 'skills', 'memory, attention and decision-making processes', 'knowledge', 'beliefs about capabilities' and 'reinforcement'. Mapping specific categories within these domains to BCTs led to the development of suggested implementation strategies. Validation and further refinement of these implementation strategies should be undertaken with stakeholders who have contextual understanding of implementing CPT using explicit criteria, then evaluated in future research.

ACKNOWLEDGEMENTS

The authors acknowledge the support of the Collaboration of Aphasia Trialists, which is funded by COST, and The Tavistock Trust for Aphasia in fostering this international aphasia research collaboration. In addition, we acknowledge Jill Dombrow, librarian at Southern Cross University, for guidance and support in developing the systematic search strategy.

Open access publishing facilitated by Southern Cross University, as part of the Wiley - Southern Cross University agreement via the Council of Australian University Librarians.


CONFLICT OF INTEREST

All co-authors were involved in authoring at least one study included in this review. During the appraisal process, for articles where any rater had a conflict of interest as the study's author, final decisions were made by group consensus.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available in the additional supporting information of this article.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Shrubsole, K., Power, E. & Hallé, M.-C. (2022) Communication partner training with familiar partners of people with aphasia: A systematic review and synthesis of barriers and facilitators to implementation. *International Journal of Language & Communication Disorders*, 1–28. <https://doi.org/10.1111/1460-6984.12805>