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Measuring successful conversations in couples with and without aphasia: A scoping review

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Abstract

Background: Aphasia impacts communication and relationships. While counselling is increasingly recognised as a component of the speech-language therapy role, the success of conversation partner training is typically measured in terms of communication alone. This scoping review aimed to describe how successful conversation is currently measured with couples—with and without aphasia, to inform the development of an ecologically valid measure for couples with aphasia.

Methods and Procedures: The scoping review was reported in alignment with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Extensions for Scoping Reviews (PRISMA-SCR). MEDLINE, EMBASE, CINAHL and PsycINFO databases were searched for conversation treatment studies for couples with and without aphasia. Patient-reported outcome measures (PROMs) were extracted from included studies and screened against the three-tier model of situated language to shortlist those that measure everyday communication. Items within shortlisted PROMs were further described using the refined International Classification of Functioning, Disability and Health linking rules.

Results: Following screening and full-text review, 46 studies were included, consisting of 24 studies conducted with couples with aphasia and 22 studies conducted with couples without aphasia. For couples with aphasia, 13 PROMs were identified that measured everyday communication. Of these, 23% were dyadic (i.e., measured from the perspectives of both members of the couple); however, they usually only appraised the communication behaviours of the person with aphasia. For couples without aphasia, eight PROMs were identified that measured everyday communication; all were dyadic and measured both attitudes and communication behaviours of both partners.

Conclusion: Conversation relies on the interaction of two people, and success in conversation is best rated by those having the conversation. The use of PROMs is recommended as part of person and relationship-centred practice; however,

there is currently no validated PROM for conversation in aphasia that considers the perspectives and behaviours of both the person with aphasia and their communication partner. The PROM items identified in this study will form the basis of future research to develop a PROM for couples' conversations in aphasia.

KEYWORDS

aphasia, communication partner training, conversation, couples, couple behaviour therapy, outcome measurement

WHAT THIS PAPER ADDS

What is already known on the subject

- Communication partner training (CPT) for couples, where one person has aphasia, can improve conversation skills and enhance relationships. Clinician-rated measures, such as conversation analysis, have been used to measure the outcomes of CPT. However, there is a lack of person-centred or self-rated outcome measurement instruments. that is, patient-reported outcome measures (PROMs) for couples' conversations in aphasia.

What this paper adds to existing knowledge

- We have identified outcome measurement instruments used in conversation treatment studies for couples with and without aphasia. We found that most PROMs used in aphasia treatment studies were not dyadic, that is, they did not include the self-report of both communication partners. In contrast, the PROMs used with couples without aphasia were dyadic and contained items that measured a more complex range of both partners' emotions, behaviours and attitudes.

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

- This study provides insights into the content and characteristics of PROMs for couples' conversation therapy and may assist clinicians in selecting outcome measurement instruments in their practice.

INTRODUCTION

Conversation occurs between two or more people, where there is an exchange of ideas, feelings, and opinions, and it occurs in various contexts and situations (Clark, 1996). Conversations most often occur with the people we live with, and naturally, some of the most important relationships in life are with close family members and spouses/partners (Borisoff & McMahan, 2017). Conversations are key to building relationships and have been referred to as the 'backbone of relationships' (Boxer, 2002). Good communication in relationships is an essential component of health and relationship function (Owen et al., 2013) and is a strong predictor of long-term relationship

success and marital satisfaction (Crenshaw et al., 2017; Heinrichs et al., 2012). Conversely, stress in couples is a dyadic experience that negatively impacts marital satisfaction (Bodenmann et al., 2006). Therapy programmes often address relationship stressors by focusing on conversation and communication skills (Baucom et al., 2015; Benson et al., 2011; Owen et al., 2013).

Impact of aphasia on conversation and relationships

Aphasia disrupts interaction and conversation, with psychosocial consequences that affect the quality of life for

both the person with aphasia (Baker et al., 2018; Cruice et al., 2010) and their significant other (termed 'third-party disability'; Grawburg et al., 2013). Aphasia results from a focal brain lesion, most commonly a stroke (Flowers et al., 2013). The four modalities of language—speaking, comprehension, reading and writing—can all be affected to varying degrees (Papathanasiou & Coppens, 2022). While the ability to participate in conversation with different speakers has been reported as important for people with aphasia, couples, in particular, may experience immense changes in their relationship when their ability to converse is disrupted (Grawburg et al., 2013). Spouses have reported taking on all aspects of shared decisions, having fewer discussions (Gillespie et al., 2010) and feeling a loss of control and withdrawal from their partner (Christensen & Anderson, 1989). In worst-case scenarios, this can lead to divorce and further severe consequences with social and economic impacts (O'Halloran et al., 2017). The impact of aphasia on relationship satisfaction has been explored. In couples where one person has aphasia, lower levels of marital satisfaction have been identified after the onset of aphasia, an expected response after a crisis event such as a stroke (Rasmus & Orlowska, 2020; Schreck, 2013).

Aphasia therapies should focus on relationships and life participation (Chapey et al., 2000) and speech-language pathologists have a role in stepped psychological care for families and couples affected by aphasia (Baker et al., 2024). Facilitation of successful conversations is essential for quality of life, participation in everyday activities and engagement in life roles (Armstrong et al., 2012; Damico et al., 2015; Kagan et al., 2001). Conversation therapies and conversation partner training (CPT) support improved conversations for people with aphasia and their conversation partners (Simmons-Mackie et al., 2014, 2016). Such training usually has a strong focus on communication strategies for the conversation partner. There is limited agreement, however, on the best way to measure the desired outcomes of CPT programmes for couples with aphasia, which are reported to span both conversation and long-term relationship success (Kagan et al., 2018; Simmons-Mackie et al., 2014; Wallace et al., 2022).

Measuring conversation

Measuring successful conversations in a dyad is complex. Aligning treatment goals with appropriate outcome measurement instruments, particularly where goals relate to feelings and emotions associated with aphasia and communication, is challenged by a lack of suitable measures (Saldert et al., 2018; Sirman et al., 2017; Wallace et al., 2018). Many aphasia outcome measurement instruments measure language in isolation, for example, by using naming tasks and monologues in picture descriptions. Such measures do not consider the co-construction of all participants in the conversation or 'real-world' communication (Barnes & Bloch, 2018; Doedens & Meteyard, 2020; Wallace et al., 2019). In studies of language and conversation in sociology, psychology and psycholinguistics, establishing 'common ground' is discussed as a critical precursor for communication success (Brennan & Hanna, 2009; Garrod & Pickering, 2004). Common ground also refers to the co-construction of a conversation, understanding a degree of givenness in the context of the conversation, and sharing information and knowledge between communication partners where people, items and topics are referred to with the same names and meanings. Conversation success relies on interpersonal skills and is achieved by aligning with topics of interest as we establish common ground (Garrod & Pickering, 2004; Mills, 2014), thus supporting the inclusion of real-world communication models in aphasia conversation therapies.

Using theoretical models and frameworks can assist in decisions around the best measurement instruments for conversation. The first framework considered is *situated language*, which complements the alignment and common ground theory (Garrod & Pickering, 2004; Mills, 2014). The situated language model incorporates three categories of interaction, multi-modal communication and common ground (Doedens & Meteyard, 2018), it is based on work by Clark (1996) and was used to assess a range of functional aphasia outcome measurement instruments to ascertain if they measure real-world communication (Doedens & Meteyard, 2020). This framework is an ideal match for developing an aphasia patient-reported outcome measure (PROM) for dyadic conversation. The International Classification of Functioning, Disability and Health (ICF; World Health Organisation, 2001) is a further framework used for mapping functional communication and conversation to the activity and participation components (Howe, 2008; Worrall et al., 2011); however, more detailed mapping using the ICF linking rules (Cieza et al., 2019) enables further analysis of outcome measurement instruments for their main concept, the responder's perspective and the nature of the response options. These linking rules enable a more in-depth understanding of the instrument's suitability to measure the intended construct—for example, having successful conversations in aphasia.

Measuring conversation success in couples with aphasia is complicated because informal methods are often employed to elicit conversation assessment (Thomson et al., 2018). Conversation analysis (CA) is regularly used as an outcome measure in clinical practice and research. However, there is little evidence of the psychometric properties of CA and discourse analysis methods, limiting their use in clinical trials and research (Pritchard et al., 2017;

Wallace et al., 2018). Finally, heterogeneity in outcome measurement instruments is also problematic for aphasia researchers and clinicians (Wallace, 2017; Wallace et al., 2022). While an aphasia core outcome set has been established, there continues to be a gap for conversation-based therapies, in particular, dyadic conversation in aphasia (Wallace et al., 2022). A further example of heterogeneity in outcome measurement was highlighted in a recent scoping review of conversation as an outcome of aphasia treatment, where 211 outcome measures were used across 64 studies (Azios et al., 2022), which did not include the large number of discourse measures for aphasia identified in a review by Bryant et al. (2016). There continues to be a vast amount of outcome measurement instruments used in research and clinical practice for aphasia and conversation therapies, and a clear gap has been identified for dyadic conversation, in particular, self-reported experiences of conversation (Wallace et al., 2022).

PROMs are used with people with aphasia to measure aspects of conversation or communication that are not observable, such as emotions and attitudes (Saldert et al., 2018). The benefits of PROMs are that they are person-centred, efficient to administer and can measure aspects of lived experience that are not observable by clinicians or researchers (Williams et al., 2016; Yorkston & Baylor, 2019). However, a recent scoping review of outcome measurement instruments reported a lack of PROMs for dyadic conversation in aphasia (Wallace et al., 2022). Development of PROMs is a priority for aphasia rehabilitation (Breitenstein et al., 2022), as is the development of psychometrically robust measures of couple's conversation success (Black, 2013; Leaman & Edmonds, 2019; Saldert et al., 2018).

Insights from couples without aphasia

Given the desired outcomes of conversation partner training include improvements in both communication and relationships, insights may be gained from the outcome measurement instruments used in couple behavioural therapy programs. Couple behavioural therapy programmes teach specific communication skills such as active listening, problem-solving and awareness about communication patterns (Owen et al., 2013). Such programs also target a range of dyadic processes where improvements in communication are associated with gains in relationship satisfaction (Owen et al., 2013). The outcome measurement instruments used within these programmes focus on positive (e.g., engagement and active listening) and negative (e.g., withdrawal, negative escalation) communication patterns (Jenkins & Saiz, 1995). Positive communication patterns tend to be asso-

ciated with more collaborative engagement and higher marital satisfaction, while negative patterns are associated with relationship distress and adverse engagement (Sanford, 2010). These same critical dyadic processes occur in couples with aphasia, and negative communication patterns may lead to relationship distress and compound communication breakdowns in couples with aphasia.

Measuring successful conversation in a couple, with or without aphasia, is complex, and it remains unclear how to conceptualise 'successful conversation' (Leaman & Edmonds, 2019; Saldert et al, 2018; Sirman et al., 2017). Research outside the field of speech-language therapy may shed light on ways to measure conversation success that consider both communication partners' interaction skills, behaviours and emotions. This may benefit aphasia outcome measurement practices and, specifically, the development of a PROM for dyadic conversation in aphasia.

The questions used to guide this scoping review are:

- How are conversation and communication measured in treatment studies with couples with and without aphasia?
- What do conversation and communication PROMs measure?

Aims

1. To identify published treatment studies that aim to improve conversation or communication in (a) couples where one person has aphasia or (b) couples who do not have aphasia or any other communication or neurological disability.
2. To identify outcome measurement instruments for conversation or communication used within identified treatment studies.
3. To describe the content and format of identified PROMs that measure conversation or communication using two conceptual models (ICF and three-tier model of situated language).

METHOD

Study design

This scoping review is the first stage of a larger body of work to develop a PROM for couples' conversation in aphasia. A scoping review methodology following the Joanna Barnes Institute Scoping Reviews Methodology Group (Munn et al., 2022; Tricco et al., 2018) has been

chosen to explore key characteristics and to map the breadth of evidence available related to the construct of successful conversation for couples with and without aphasia (Munn et al., 2022). As per the scoping review methodology, a quality assessment of the included studies was not required. (Munn et al., 2022). This review is reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) (Tricco et al., 2018). There is no registered protocol.

Information sources

A comprehensive literature search was performed on 17 April 2020, using four electronic databases: MEDLINE (PubMed), EMBASE, CINAHL and PsycINFO. Citation searches of treatment studies were conducted on two existing reviews of aphasia conversation therapy and communication partner training (Simmons-Mackie et al., 2014, 2016), and secondary searches of individual outcome measurement instruments cited in the included studies were conducted between October 2020 and February 2021. Title and abstract screening and full-text review were conducted using the Covidence systematic review software Veritas Health Innovation, Melbourne, Australia (available at www.covidence.org). Data extraction was managed within Microsoft Office.

Search terms

The framework of population, concept and context were applied to the search terms as follows:

Keywords included in the literature search were:

1. Aphasia (population).
2. Conversation or interaction or discourse (concept).
3. Couple therapy or behavioural couple therapy (context).
4. Outcome or measure or assessment (concept).
5. Couple or dyad or partner or significant other (population).

Details of the search are below.

1. Search aphasia Sort by: [pubsolr12]
2. Search (conversation OR interaction OR discourse) Sort by: [pubsolr12]
3. Search (couple therapy OR Behavioural couple therapy) Sort by: [pubsolr12]
4. Search (outcome OR measure OR assessment) Sort by: [pubsolr12]
5. Search ((couple[Title/Abstract] OR dyad[Title/Abstract] OR partner[Title/Abstract] OR significant other)[Title/Abstract]) Sort by: [pubsolr12]
6. 1 AND 2 AND 4
7. 5 AND 3 AND 4
8. 6 OR 7

Eligibility criteria

Studies were included if they met the following criteria: participants were adult dyads or couples in a close relationship, such as spouses or adult family members (CPT in aphasia treatment studies may focus on family member dyads as well as couples). The couples either had one person with aphasia (aphasia could be from stroke or other aetiology) or couples without aphasia with no neurological condition or communication disability. Studies were included if they reported treatments or provided protocols for treatments that aimed to improve couples' conversations or communication and included a measure of conversation or communication. Studies were included if they were reported in full-text peer-reviewed publications in English. Outcome measure instruments needed to have an English version available. No restrictions were placed on the year of publication.

The following exclusion criteria were applied: Other designs that did not include primary treatment studies (i.e., reviews) were excluded, studies where one member of the dyad' was a child under 18 years, and treatment studies where the aim did not include improved communication, for example, the aim was to reduce alcohol intake or measure fertility or sexual issues in couples.

For this review, the following definitions were used:

1. 'Couple' was defined as two adult people with a close relationship, such as a spouse.
2. 'Conversation therapy' and 'couple behavioural therapies' were defined as interventions for a couple that focuses on conversation or communication strategies to improve communication in couples. Conversation therapy is described in aphasia as actively targeting the communication skills required to have conversations (Simmons-Mackie et al., 2014). In couple behavioural therapy, communication skills and a broad range of relationship skills are targeted, which can lead to improved relationship satisfaction (Baucom et al., 2011; Roesler, 2019).
3. 'Conversation outcome measurement instruments' were any outcome measurement instruments used to assess outcomes that focused specifically on communication patterns or behaviours, conversation strategies or dyadic/couple interaction.

Selection of evidence sources

One author (A.R.) independently assessed titles, abstracts and full-text articles. A second author (H.W.) screened 30% of full-text articles. These were randomly selected. Title and abstract screening and full-text review were conducted using Covidence systematic review software. A third author (S.W.) resolved conflicts in the full-text review stage. The first author (A.R.) carried out the secondary citation searches.

Data extraction

Data extraction occurred at three levels. (1) Study data and the communication outcome measures: title, author, year of publication, country, setting, study design and level of evidence according to the NHMRC (2009), outcome measure instruments, participant information such as couples' marital status, sex and clinical characteristics where appropriate, for example, intervention and presence of stroke and aphasia in the couple. (2) PROMs were identified from extracted outcome measure instruments and assessed by the first author to ensure they contained items relevant to conversation or communication. PROMs needed to have a main concept of measuring communication or conversation-related constructs. PROMs were excluded if they measured constructs such as quality of life or carer burden. Psychometric testing was noted, and non-validated PROMs were still included if they contained relevant items for the analysis. (3) The items and characteristics of PROMs were extracted (i.e., the number of items, scaling and scoring methods, response options, content domains and whether they were validated or not).

Analysis

The Three-Tier model of Situated Language (Doedens & Meteyard, 2018), a model of everyday communication (of which conversation is an essential component), was used to shortlist PROMs that measured the construct of interest, that is, conversation. The model describes situated language and communication as occurring between two people and has the core characteristics of (1) interaction, (2) multi-modal communication and (3) context (common ground). These tiers/categories also reflect the construct of successful conversation from the common ground and alignment theory (Garrod & Pickering, 2004) and consider the perspective of both communication partners. PROMs were mapped to the Three-Tier Model of Situated Language (Doedens & Meteyard, 2018) at an item level.

Items within shortlisted PROMs were then mapped to the ICF using established linking rules from Cieza et al. (2019). The steps undertaken were: (1) coding of each item and categorisation of the main concept/s within each PROM to identify what is measured; (2) description of the perspective of the responder; and (3) categorisation of the response options: (a) intensity, (b) frequency, (c) duration, (d) confirmation or agreement, (e) qualitative attributes. See Table 2 for definitions and examples. The first author (A.R.) completed the mapping, and authors S.W. and K.S. independently categorised 50% of the items to ensure rigour.

RESULTS

Results in relation to Aim 1

From the database search and following the removal of duplicates, 2758 studies were identified. After title and abstract screening and full-text review, 37 studies were eligible for inclusion. Citation searches resulted in the identification of a further 10 studies, with nine included following the screening. Ultimately, a total of 46 studies were included in the review. Figure 1 shows the study selection process.

The included studies relating to couples with aphasia will be reported first, followed by the studies of couples without aphasia.

Treatment studies with couples with aphasia

Twenty-four aphasia treatment studies, reporting findings for $n = 184$ participant dyads, met the criteria for inclusion. The study designs were mainly single case studies or case series designs ($n = 21$) with post-outcomes reported, comparative studies ($n = 2$), and one treatment protocol for a randomised controlled pilot study with people with primary progressive aphasia. The interventions included couples/dyads and were described as either conversation therapy or communication partner training. The study characteristics and outcome measurement instruments used are presented in Table 3.

Treatment studies with couples without aphasia

Twenty-two publications reporting 19 studies met the criteria for inclusion. These studies reported findings for $n = 3478$ participant dyads. The study designs included seven

TABLE 1 Example of mapping items to the Three-Tier Model of Situated Language (Doedens & Meteyard, 2018).

Example item	**Interaction**: Conversation is achieved by two or more people who coordinate their actions to achieve a common goal. Every decision made during a conversation will depend on the actions of the other.	**Multimodal communication**: A number of different modalities or channels of expression are used during communication, such as facial expressions, gesture, prosody, speech and body movements. These channels interact and are interdependent: they integrate into a single composite message.	**Common ground**: 'Common ground provides communication partners with context that allows them to assume a degree of "givenness" of information, or directly use physical referents during communication. This relieves the communicative burden'.
I have strategies to be successful in talking to people with aphasia	•	•	•
I tell my partner that his/her stress is not that bad and help him/her to see the situation in a different light.	•		•

TABLE 2 Refined ICF linking rules with examples (Cieza et al., 2019).

ICF linking rule	Example test item or response option	Example of target
1. The main concept of the outcome measure—what is measured?	Example: 'How satisfied are you with opinion-giving/debating topics in your conversations?'	Conversation
2. The perspective of the responder (PWA or PCP)		
Appraising refers to the extent a person's expectations have been met or satisfied.	'How satisfied are you with opinion giving/debating topics in your conversations?' (PWA)	Satisfaction
Descriptive performance- refers to what a person does in their environment. Can refer to their lived experience.	'To what extent do you perceive that the person with aphasia shows interest in having conversations?' (PCP)	Shows interest in having a conversation.
Descriptive capacity- refers to the ability to perform a task at the highest level.	'In the past week or so, how well could your relative follow a change of subject in a conversation?' (PCP)	How well can they follow the subject?
Need or dependency- refers to the kind and level of need a person has due to their problem or disability, including the extent of dependence on any environmental factor.	Descriptions of levels of need, for example, Level of assistance needed. Full, partial, supervision, independent (no examples available from current sample)	Levels of independence and or assistance required and described
3. Categorisation of response options		
a) intensity	Likert scale: no problem-impossible	
b) frequency (how often?)	Likert scale: Not at all—I use a lot.	
c) duration (how long?)	Likert scale: 5 min–2 h	
d) confirmation or agreement	Yes/no responses	
e) qualitative attributes	Describe features of the construct, for example, how 'comfortable' you are when communicating with a family member or friend. It will vary depending on the individual's experiences and questions asked.	

Abbreviations: ICF, International Classification of Functioning, Disability and Health; PCP, primary conversation partner; PWA, people with aphasia.

randomised control studies, nine comparative studies with and without control groups, and three case studies or case series. The interventions were described as variations on couple behavioural therapy; some focused on preventative treatments, for example, Prevention and Relationship Enhancement Program (Owen et al., 2019), while others had a specific focus, for example, couple therapy for abusive behaviour (Hrapczynski et al., 2012). Details of the studies and outcome measurement instruments used are presented in Table 4.

TABLE 3 Included records/studies of couples with aphasia (*n* = 24).

Study/record	Design/level of evidence (NHMRC)	Participants	Intervention	Conversation/communication outcome measurement instruments[a] and classification[b]
Barnes and Nickels (2018)	Case series with post-outcomes/IV	*n* = 3 couples (where one person has aphasia)	Interaction focussed therapy	1. Conversation analysis- ClinROM[b]
Beeke et al. (2007)	Case series with post-outcomes/IV	*n* = 2 couples (where one person has aphasia)	Conversation therapy	1. Conversation analysis- ClinROM
Beeke et al. (2011)	Case study with post-outcomes/IV	*n* = 1 couple (where one person has aphasia)	Conversation therapy	1. Communication Disability Profile (CDP)—PROM[b] 2. Conversation Analysis Profile of People with Aphasia (CAPPA)—ClinROM 3. Conversation analysis- ClinROM
Beeke et al. (2015)	Case series with post-outcomes/IV	*n* = 2 couples (where one person has aphasia)	CPT with couples	1. Conversation analysis- ClinROM 2. Conversation analysis profile of people with aphasia (CAPPA) (Whitworth, Perkins, & Lesser, 1997) 3. Communication Disability Profile (CDP)—PROM 4. Object and Action Naming Battery PerBOM[b] 5. Psycholinguistic Assessments of Language Processing in Aphasia (PALPA)—PerBOM 6. Comprehensive Aphasia Test (CAT)- PerBOM 7. Verb And Sentence Test (VAST)—PerBOM 8. Sentence Production- Dinner Party Narrative—PerBOM
Beckley et al. (2013)	Case study with post-outcomes/IV	*n* = 1 couple (where one person has aphasia)	Conversation therapy	1. Conversation analysis of video record approximately 20 min of conversation.- ClinROM 2. The Communication Disability Profile- PROM 3. CAPPA- ClinROM 4. The Hayling and Brixton tests of Dysexecutive Syndrome PerBOM
Best et al. (2016)	Case series with pre-test and post-test assessment/IV	*n* = 8 couples (where one person has aphasia)	Conversation therapy with couples. Group and case series intervention	1. Conversation Analysis – ClinROM 2. PALPA assessments – PerBOM

(Continues)

TABLE 3 (Continued)

Study/record	Design/level of evidence (NHMRC)	Participants	Intervention	Conversation/communication outcome measurement instruments[a] and classification[b]
Blom Johansson et al. (2013)	Case series with pre-post/IV	n = 4 couples (where one person has aphasia)	CPT with couples	1. Measure of Skill in Supported Conversation (MSC) and Measure of Participation in Conversation (MPC). ClinROM 2. Understanding of Aphasia and Communication (study-specific measure). PROM 3. Estimation of Conversational Skills (study-specific measure) PROM 4. Evaluation questionnaire (Significant other). PROM 5. Evaluation questionnaire and interview (PWA) PROM
Boles (1998)	Case study with pre-post outcomes/IV	n = 1 couple (where one person has aphasia)	Conversation therapy	1. Conversational discourse analysis (CDA)- ClinROM 2. Communicative Activities of Daily Living-CADL (Holland, 1980)- PerBOM 3. The Communication Readiness and Use Index (CRUI) (Lyon et al., 1997)- PROM 4. Psychosocial Well-Being Index (PWI) (Lyon et al., 1997)- PROM
Boles (2015)	Case study with pre-post outcomes/IV	n = 1 couple (where one person has Wernicke's aphasia)	Conversation therapy	1. Western Aphasia Battery- PerBOM 2. ASHA Quality of Communication Life Scale (QCLS)- PROM 3. Conversation Analysis- using Elan software- ClinROM
Booth and Perkins (1999)	Case series with pre-post/IV	n = 4 couples (where one person has aphasia)	Group CPT with couples	1. CAPPA (ClinROM) 2. Conversation analysis- quantitative and qualitative analysis of collaborative repair ClinROM
Carragher et al. (2015)	Case series with pre-post/IV	n = 4 couples (where one person has non-fluent aphasia)	Novel aphasia treatment (Targeting the exchange of new information within storytelling)	1. Conversation analysis- ClinROM
Croteau et al. (2018)	Case study with post-outcomes/IV	n = 1 couple (where one person has aphasia)	CPT	1. Software for behavioural coding, Studiocode 10.5 (see www.vosaic.com)- ClinROM

(Continues)

TABLE 3 (Continued)

Study/record	Design/level of evidence (NHMRC)	Participants	Intervention	Conversation/communication outcome measurement instruments[a] and classification[b]
Eriksson et al. (2016)	A comparative study with concurrent controls/III-2	n = 6 couples (where one person has aphasia)	CPT	1. Profile of Partner Candidacy for Conversation Training (PPCCT)- ClinROM 2. Measure of Interaction in Conversation (MIC). The MIC uses the assessment guidelines of the rating scale MSC- ClinROM 3. Communication Outcome after Stroke Scale (COAST). and Carer Communication Outcome after Stroke scale (Carer-COAST)- PROM 4. The Token Test - PerBOM 5. Word fluency task - PerBOM 6. Geriatric Depression Scale (GDS) - PROM
Fox et al. (2009)	Case study with post-outcomes/IV	n = 1 couple (where 1 person has mild aphasia)	Conversation therapy	1. Measure of Skill in Supported Conversation (MSC) and the Measure of Participation in Conversation (MPC)- ClinROM 2. Study-specific questionnaire- PROM
Hopper et al. (2002)	Case series with pre-test and post-test assessment/IV	n = 2 couples (where 1 person has aphasia)	Conversational coaching	1. Communications Activities of Daily Living—Second Edition—PerBOM 2. Social validation ratings pre and post, from blinded assessors- ClinROM
Lyon et al. (1997)	Case series with pre-test and post-test assessment/IV	n = 30 n = 10 (People with aphasia) n = 10 (Conversation partners), n = 10 (Volunteers)	CPT with couples and volunteers	1. Boston Diagnostic Aphasia Examination (BDAE)- PerBOM 2. Communication Abilities in Daily Living (CADL) -PerBOM 3. The Affect Balance Scale (ABS)- PROM 4. Communication Readiness and Use Index (CRUI)- PROM 5. Psychosocial Well-being Index (PWI)- PROM
Nykänen et al. (2013)	Case series with pre-test and post-test assessment/IV	n = 34 couples (where one person had severe aphasia)	Communication therapy for people with aphasia and their partners (APPUTE),	1. Western Aphasia Battery-Revised (WAB-R) 2. Communicative Effectiveness Index (CETI) from both CP and PWSA- PROM (Finnish version) 3. CSE = Communication skill evaluation -CLinROM- (study specific) 4. CCS-A = Couple Communication Scale version A, CCS-B = Couple Communication Scale version B -ClinROM 5. AE-PWA = APPUTE evaluation questionnaire for people with aphasia -PROM 6. AE-Partner = APPUTE evaluation questionnaire for the partners -PROM

(Continues)

TABLE 3 (Continued)

Study/record	Design/level of evidence (NHMRC)	Participants	Intervention	Conversation/communication outcome measurement instruments[a] and classification[b]
Rautakoski (2011a)	Comparative study with concurrent controls/III-2	N = 33 couples (where one person has aphasia) N = 10 CPs(control)	CPT with couples	1. The Communication Strategies of the Communication Partners (CSCP)- PROM
Rautakoski (2011b)	Case series with pre-test and post-test assessment/IV	N = 38 couples (where one person has severe or moderate aphasia)	CPT with couples- Total communication	1. Use of Different Communication Methods (UDCM)- PROM
Rautakoski (2012)	Case series with pre-test and post-test assessment/IV	N = 38 couples (where one person has severe or moderate aphasia)	CPT with couples- Total communication	1. The Finnish version of the CETI adapted for PWA- PROM
Saldert et al. (2013)	Case series with pre-test and post-test assessment/IV	N = 3 couples (where one person has aphasia)	CPT with couples	1. Profile of Partner Candidacy for Conversation Training (PPCCT) CLinROM 2. COAST and Carer COAST- PROM 3. Measure of Interaction in Communication (MIC) CLinROM 4. Analysis of multiple video-recorded natural conversations obtained at baseline, post-intervention, and at a 12-week follow-up. ClinROM
Sorin-Peters and Patterson (2014)	Case series with pre-test and post-test assessment/IV	N = 4 couples (where one person has aphasia)	CPT with a combination of both individual and group sessions	1. Family intervention for chronic aphasia (FICA) couple interview questions, the FICA couple questionnaire and adult learning reflective questions. PROM 2. Measure of Skill in Supported Conversation (MSC) and the Measure of Participation in Conversation (MPC)- ClinROM 3. Observed videotaped conversations and rated them independently- CLinROM
Volkmer et al. (2018)	Treatment protocol-randomised control pilot study/I	N = Unknown Target = Couples where one person has primary progressive aphasia (PPA)	'Better conversations' programme- CPT	1. Comprehensive Aphasia Test (CAT)- PerBOM 2. Video recordings of conversation samples. Informal measure adapted from the aphasia conversation measure- ClinROM 3. The Aphasia Impact Questionnaire- PROM 4. Communication Confidence Rating Scale for Aphasia- (CCRSA) -PROM 5. Perceived Stress Scale, PROM- carer only 6. Zarit burden interview PROM, carer only
Wilkinson et al. (1998)	Case study with post-outcomes/IV	N = 1 couple (where one person has aphasia)	Conversation therapy	1. Conversation analysis- ClinROM

[a] References provided in Table S2.
[b] Outcome measurement instruments classified as per FDA (2009). Abbreviations: ClinROM, clinician-rated outcome measure; CPT, communication partner training; NHMRC, National Health and Medical Research Council; PerBOM, performance-based outcome measure; PROM, patient-reported outcome measure (Full definitions in supplementary material).

TABLE 4   Included records/studies of couples without aphasia ($n = 22$).

References	Study design/level of evidence (NHMRC)	Participants	Intervention	Conversation/communication outcome measurement instruments[a] and classification[b]
Baucom et al. (2012) Baucom, Baucom, et al. (2015) Baucom et al. (2011)	Randomised control trial/II A comparative study without concurrent controls, with 2 or more single arms/III-3 A comparative study without concurrent controls, with 2 or more single arms/III-3	$n = 134$ Heterosexual couples	Couple behaviour therapy	1. Couple Interaction Rating System (CIRS) ClinROM[b] 2. Social Support Interaction Rating System (SSIRS) ClinROM 3. The Naive Observational Rating System (NORS) ClinROM
Baucom, Atkins, et al. (2015) Baucom et al. (2009)	A comparative study without controls, with time interruptive time series A comparative study without controls, with time interruptive time series/III-	$n = 130$ Heterosexual couples	Couple behaviour therapy	1. Affective Communication Scale from the MSI–R PROM[b] 2. 35-item Communication Patterns Questionnaire (CPQ) PROM 3. Influence in Decision-Making Questionnaire (IDM) PROM
Buzzella et al. (2012)	A comparative study with concurrent controls-(waitlist)/III-2	$n = 12$ Male same-sex couples	Group-based relationship education program for male same-sex couples	1. Communication Skills Test (CST) PROM
Cline et al. (1987)	Case series with pre-test/post-test outcomes/IV	$n = 88$ Heterosexual couples + 22 therapists	Marital therapy	1. Marital Communication Inventory- PROM 2. The Marital Content Satisfaction Scale (MCSS)- PROM 3. Therapist post-therapy ratings and objective observer ratings of the couple's behaviour during therapy were obtained. (ClinROM)
Cordova et al. (1998)	Quasi-randomised control trial/III-1	$n = 12$ Heterosexual couples	Integrative behavioural couple therapy (IBCT)	1. Global Distress Scale in the Marital Satisfaction Inventory (MSI)- PROM 2. Study-specific coding scale for the 4 domains of expression and emotions used for the observation of communication behaviours within sessions. ClinROM
Gingras et al. (1983)	Case series with pre-test/post-test outcomes/IV	$n = 19$ Heterosexual couples	A marital enrichment programme	1. Marital Communication Inventory PROM 2. Marital Interaction Coding System- MICS ClinROM 3. Individual Contract Questionnaire (ICQ)—dev for this study ClinROM
Hahlweg and Richter (2010)	Quasi-randomised control trial/III-1	$n = 101$ Heterosexual couples (from 2 studies)	Couple relationship education	1. PFB partnership questionnaire- PROM 2. Coding System for Marital Interaction ClinROM
Heinrichs et al. (2012)	Quasi-randomised control trial/III-1	$n = 72$ Heterosexual couples	Couple-based skills training	1. 'Communication' subscale from the Partnership Questionnaire (PFB)- PROM
Hrapczynski et al. (2012)	A comparative study with concurrent controls-nonrandomised/III-2	$n = 55$ Heterosexual couples usual care = 25 treatment = 30	Couple therapy for abusive behaviour	1. 28-item Relationship Issue Survey (RIS) Study-specific PROM 2. Marital Interaction Coding System– Global & ClinROM

(Continues)

TABLE 4 (Continued)

References	Study design/level of evidence (NHMRC)	Participants	Intervention	Conversation/communication outcome measurement instruments[a] and classification[b]
Markman et al. (1993)	A comparative cohort study without controls, III-3	$n = 114$ Heterosexual couples planning marriage	Prevention and Relationship Enhancement Program (PREP)	1. Interaction Dimensions Coding System (IOCS) ClinROM
Owen et al. (2019)	Cohort randomised control trial/I	$n = 87$ Heterosexual couples	Prevention and Relationship Enhancement Program (PREP)	1. 6-item Communication Danger Signs Scale PROM
Owen et al. (2012)	A comparative study without controls/III-3	$n = 321$ Heterosexual couples	Prevention and Relationship Enhancement Program (PREP)	1. The Communication Skills Test- 5 positive items, 6 negative items PROM 2. 9-item Communication Danger Signs Scale PROM
Owen et al. (2013)	A comparative study with the control group- cohort study/III-2	$n = 26$ Heterosexual couples	Prevention and Relationship Enhancement Program (PREP)	1. Communication Skills Test PROM 2. 9-item Communication Danger Signs Scale PROM
Quirk et al. (2014)	Case series with pre-test/post-test outcomes/IV	$n = 362$ Heterosexual couples African Americans (75.5%), Hispanic (24%), Caucasian (0.5%)	Couple relationship education (CRE)—Prevention and Relationship Enhancement Program (PREP)	1. The Communication Skills Test-Short Form (CST-SF) PROM
Roddy et al. (2020)	A comparative study with concurrent controls-nonrandomised/III-2	$n = 300$ Heterosexual couples	Couple relationship education (CRE)—The Our Relationship Program	1. The Communication Patterns Questionnaire—Short Form (CPQ-SF) PROM
Roesler (2019)	A comparative study without controls, with time interruptive time series/III-3	$n = 554$ Heterosexual couples	Couple behaviour therapy	1. Dyadic Coping Scale PROM 2. Five-item short form of the Dyadic Coping Inventory (DCI) PROM 3. Marital Satisfaction Inventory PROM
Whitton et al. (2016)	Randomised waitlist-control trial/I	$n = 20$ Male same-sex couples	Couple relationship education (CRE)	1. Videotaped couple problem discussions were coded using the Interactional Dimensions Coding System ClinROM 2. Subscales of the Communication Skills Test PROM
Whitton et al. (2017)	Randomised waitlist-control trial/I	$n = 37$ Female same-sex couples	Couple relationship education (CRE)	1. Interactional Dimensions Coding System ClinROM 2. Communication Skills Test (CST) PROM
Williamson et al. (2016)	Randomised, control trial/I	$n = 1034$ Heterosexual couples	Couple relationship education (CRE)	1. Family Interaction Rating Scales (FIRS). CLinROM 2. Effective communication scale- study specific. (ClinROM)

[a] References are provided in Table S1.

[b] Outcome measurement instruments classified as per Food Drug Administration, (FDA). ClinROM, clinician-rated outcome measure; CPT, communication partner training; NHMRC, National Health and Medical Research Council; PROM, patient-reported outcome measure (Full definitions in Secondary material).
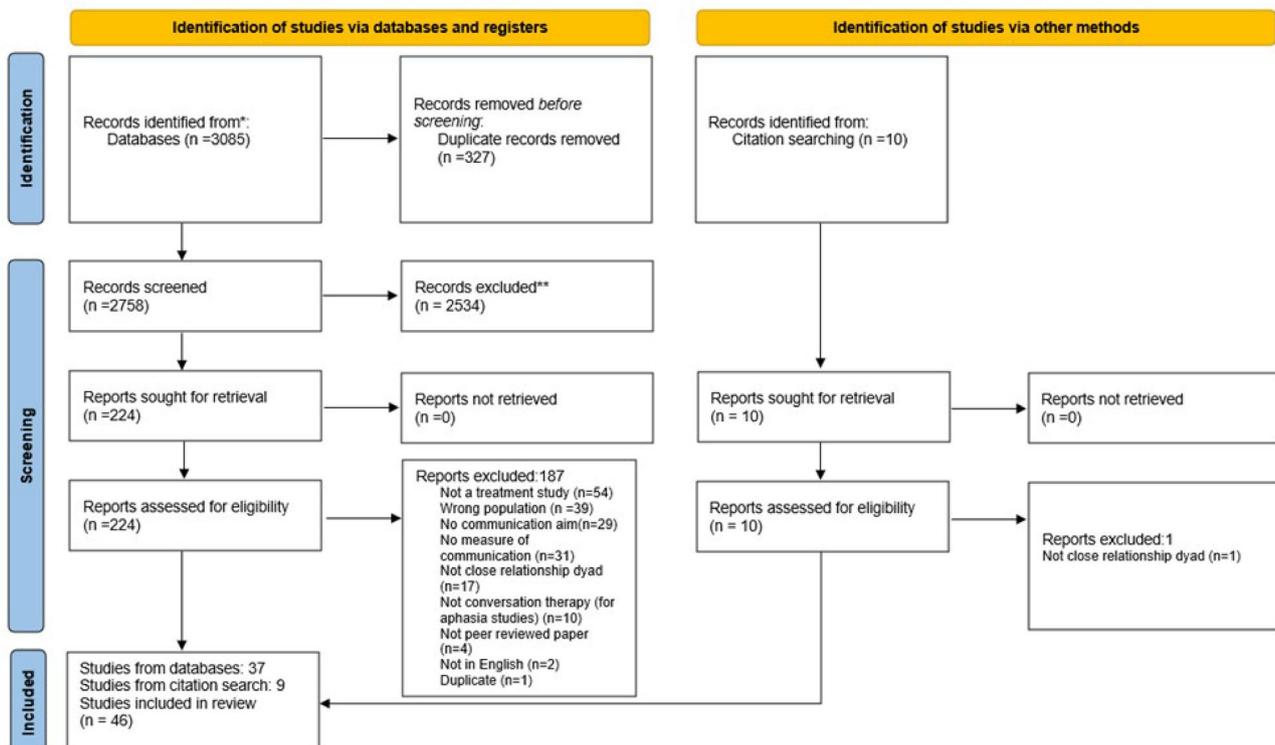
FIGURE 1 PRISMA flow diagram showing the study selection process (Tricco et al., 2018).
Abbreviation: PRISMA, Preferred Reporting Items for Systematic reviews and Meta-Analyses.

Results in relation to Aim 2

To identify outcome measurement instruments for conversation or communication used within identified treatment studies.

Treatment studies with couples with aphasia

Studies with couples with aphasia used 40 outcome measurement instruments. These included PROMs, clinician-rated outcome measures (ClinROMs), and performance-based outcome measures (PerBOMs) (see Figure 2 and Table S1). While 18 different PROMs were identified, these occurred in only eight studies (33%). The remaining studies (67%) used ClinROMs and PerBOMs only. Of the 18 PROMs identified, 13 met the screening criteria for further analysis of content and characteristics (see Table 5).

Ten different ClinROMs were used in 19 of 24 studies (79%) to measure conversation and communication abilities. The most frequently used ClinROM was conversation analysis, used in 15 of 24 studies (62%). The next most frequently used ClinROMs were the Measure of Skill in Supported Conversation (MSC) and the Measure of Participation in Conversation (MPC) (Kagan et al., 2004), with

some using adaptations for different languages. Eight different PerBOMs were used in six of the aphasia treatment studies. These were usually impairment-based measures such as the Psycholinguistic Assessments of Language Processing in Aphasia (PALPA) (Kay et al., 1992) or the Western Aphasia Battery-Revised (Kertesz, 2007). The Communicative Activities of Daily Living (Holland, 1980; Holland et al., 1999), a performance-based outcome measure focused on everyday communication, was used in three studies (See supplementary materials for a full list of outcome measurement instruments).

Treatment studies with couples without aphasia

The studies with couples without aphasia had 25 outcome measurement instruments, including 12 PROMs and 13 ClinROMs (see Figure 2). There were no observer-reported outcome measures or PerBOMs. Most of the 22 studies ($n = 20$, 90%) included PROMs. PROMs measured dyadic adjustment, marital satisfaction and marriage quality. Of the 12 PROMs identified within the studies, eight measured couple communication. The domains and items of these eight PROMs were analysed further for content and characteristics (see Table 6).

TABLE 5 Conversation/communication PROMs extracted from studies with couples with aphasia showing the refined ICF linking rules.

PROMs aphasia	No of items in PROM *No. of items that a. met screening criteria of b. items available (a/b)*	Main concept (what is measured)	Perspective of responder *Example* Is the perspective single or dyadic (PWA = person with aphasia PCP = primary conversation partner)	Response option
Understanding of aphasia and communication (study-specific measure) (Blom-Johannson et al., 2013)	*n* = 21 *n* = 3/5	Communication partner's knowledge of aphasia	Descriptive performance *To what extent do you think the intervention has improved your conversations?* Single- PCP	Likert-intensity scale
Estimation of Conversational Skills (study-specific measure) (Blom-Johannnson et al., 2013)	*n* = 12 *n* = 4/4	Conversation skills	Appraisal *To what extent do you perceive that the person with aphasia shows interest in having conversations?* Single -PCP	Likert-intensity scale
Communication Outcome after Stroke scale (COAST) (Long et al., 2008) /Carer-COAST) (Long et al., 2009)-	*n* = 20 *n* = 13/20	Communication effectiveness	Descriptive capacity: (COAST) *In the past week or so, how well could you have a chat with someone you know well?* Descriptive performance: *Nowadays, what effect do your relative's speech or language problems have on your social life?* Dyadic response	Likert-intensity scale
Communication Readiness and Use Index (CRUI) (Lyon et al., 1997)	*n* = 12 *n* = 12/12	Communication effectiveness	Appraisal *How 'comfortable' are you when communicating with a family member or friend?* Description capacity *How well do you 'start' a conversation with a stranger?* Single- PWA	Qualitative attributes
Self-rating measures: (Fox et al., 2009).	*n* = 9 *n* = 8/9	Conversation	Appraisal *How satisfied are you with the content of your conversations?* Descriptive capacity *How easy is it to talk to other people?* Single- PWA	Likert-intensity scale
Communication Strategies of Communication Partners (CSCP) (Rautakoski, 2011a)	*n* = 20 *n* = 20/20	Use of communication strategies.	Descriptive performance *Asking the person with aphasia to repeat* Single- PCP	Likert-frequency
Use of Different Communication Methods (UDCM) (Rautakoski, 2011b)	*n* = 20 *n* = 18/20	Use of communication strategies by PWA	Descriptive performance *(How much you use) A picture board or a picture book made for you.* Single- PWA	Likert-frequency
The Finnish version of the CETI (Lomas et, al., 1989) adapted for PWA	*n* = 16 *n* = 16/16	Communication situations	Descriptive performance *Having a one-to-one conversation with you.* Single- PWA	Likert-Intensity scale
Communication Disability Profile (CDP), (Byng & Swinburn, 2006)	*n* = 47 items available for the 3 scales *n* = 2/6	Talking in a group	Descriptive capacity *During the last week, how easy is it for you to talk with a group of friends?* Single- PWA	Likert-Intensity scale

(Continues)

TABLE 5 (Continued)

PROMs aphasia	No of items in PROM *No. of items that a. met screening criteria of b. items available (a/b)*	Main concept (what is measured)	Perspective of responder *Example* Is the perspective single or dyadic (PWA = person with aphasia PCP = primary conversation partner)	Response option
Aphasia Impact Questionnaire (Swinburn et al., 2019)	$n = 2$ $n = 6/21$	Conversation Familiar/stranger	Descriptive capacity *(How easy was it…) Talking to a stranger.* Single-PWA	Likert-Intensity scale
Communication Confidence Rating Scale for Aphasia (CCRSA) (Babbitt et al., 2011)	$n = 10$ $n = 8/10$	Confidence communicating in different contexts	Appraisal *How confident are you about your ability to speak for yourself?* Single -PWA	Likert-Intensity scale
AE-PWA/APPUTE A evaluation questionnaire for people with aphasia -PROM (Nykänen et al., 2013) AE-Partner/ APPUTE B evaluation questionnaire for people with aphasia -PROM (Nykänen et al., 2013)	$n = 6$ $n = 6$ $n = 5$ $n = 5$	The usefulness of communication therapy/strategies	Appraisal *Have they been useful when socialising with friends with your partner present?* Dyadic	Likert-Intensity scale
Family intervention for chronic aphasia (FICA) couple interview questions (Sorin-Peters & Patterson, 2014)	$n = 10$ $n = 10/10$	Dyadic communication	Appraisal *I enjoy talking to my partner with aphasia.* Description performance *I have strategies to be successful in talking with PWA.* Dyadic	Likert-Intensity scale

Abbreviations: ICF, International Classification of Functioning, Disability and Health; PROM, patient-recorded outcome measure. See supplementary materials for a full list of references for outcome measurements.

Results in relation to Aim 3

To describe the content and format of identified PROMs that measure conversation or communication using two conceptual models.

PROMs related to conversation or communication

PROMs of conversation or communication were identified via screening against the Three-Tier Model of Situated Language and analysed for further information regarding their content, characteristics and format. A comparison of the findings for PROMs used with couples with and without aphasia can be seen in Figure 3. The results of the analysis of the content and format of the PROMs will be presented for couples with aphasia first, followed by the results for couples without aphasia.

PROMs used with couples with aphasia

Table 5 displays the PROMs extracted from studies of couples with aphasia. In total, 13/18 identified PROMs

were analysed further as they measured conversation and communication-related constructs as per the screening process using the Three-Tier Model of Situated Language (Doedens & Meteyard, 2018). Eight of the 12 PROMs (66%) were study-specific measures that had not been psycho-metrically tested, and one was unpublished. The other five PROMs were not included as the main concept of the PROM was not communication or conversation. They measured constructs unrelated to communication, such as carer burden and quality of life.

Items within PROMs. For the aphasia PROMs, 72% of items reflected everyday conversation as per the Three-Tier Model of Situated Language (Doedens & Meteyard, 2018). The PROMs that had high rates of suitable items were, for example, the Communication Strategies of Communication Partners (Rautakoski, 2011a, 2011b) and Communicative Effectiveness Index (Lomas, 1989). Excluded items within PROMs were usually related to language tasks, such as reading.

Format of PROMs based on ICF linking rules. Identified PROMs mostly used Likert scales; however, the Communication Readiness and Use Index (CRUI) (Lyon et al., 1997) uses open-ended questions. There was also variation

TABLE 6 Conversation/communication PROMs extracted from studies with couples without aphasia showing the refined ICF linking rules.

PROMs used with couples without aphasia in couple behavioural therapy	No of items in PROM *No. of items that a. met screening criteria of b. items available(a/b)*	Main concept (what is measured)	Perspective of responder Is perspective single or dyadic?	Response option
35-item Communication Patterns Questionnaire (CPQ) (Christensen & Sullaway, 1984) -Communication Pattern Questionnaire Short Form (Christensen & Heavey, 1990) Unpublished	*n* = 35 *n* = 16 *n* = 0 (not available)	Positive communication patterns (engaging and active listening). Negative communication patterns (withdrawal, negative escalation)	Descriptive performance Dyadic	Likert scale of frequency of communication behaviour occurring
Communication Skills Test (CST; Jenkins & Saiz, 1995), Unpublished	*n* = 32 *n* = 2/2	Positive and negative patterns of communication behaviour.	Descriptive performance *When our talks get out of hand, we agree to stop them and talk again later.* Dyadic	Likert scale of frequency of communication behaviour occurring
Communication subscale from the Partnership Questionnaire (PFB) (Hahlweg, 1982)	*n* = 10 *n* = 1/10	Communication quality	Descriptive performance *We talk to each other for at least half an hour every day.* Dyadic	Likert scale of frequency of communication behaviour occurring
The 9-item Communication Danger Signs Scale (Stanley & Markman, 1997) Unpublished	*n* = 9 *n* = 5/5	Destructive behaviours versus constructive behaviours.	Descriptive performance *My partner seems to view my words or actions more negatively than I mean them to be (negative interpretations).* Dyadic	Likert scale of frequency of communication behaviour occurring
The 6-item communication Danger Signs Scale (Stanley et al., 2002) Unpublished	*n* = 6 *n* = 5/5	Destructive behaviours versus constructive behaviours	Descriptive performance *Little arguments escalate into ugly fights with accusations, criticisms, name-calling, or bringing up past hurts (negative escalation)* Dyadic	Likert scale of frequency of communication behaviour occurring
Dyadic Coping Inventory (Bodenmann & Cina, 2000)	*n* = 37 *n* = 26/37	Positive and negative patterns of communication behaviour.	Descriptive performance *My partner expresses that he/she is on my side.* Dyadic	Likert scale of frequency of communication behaviour occurring
Marital Communication Inventory (Bienvenu, 1970)	*n* = 23 *n* = 23/23	Positive and negative patterns of communication behaviour.	Descriptive performance, e.g., *Does your spouse complain that you don't understand him (her)?* Dyadic	Likert scale of frequency of communication behaviour occurring
Marital Satisfaction Inventory -R MSI-R (Snyder, 1997)	*n* = 150 *n* = 0	Affective communication: satisfaction of affection and understanding expressed, Problem-solving	Appraisal Dyadic	True/false

Abbreviations: ICF, International Classification of Functioning, Disability and Health; PROM, patient-recorded outcome measure. For a full list of outcome measurements, see supplementary material.
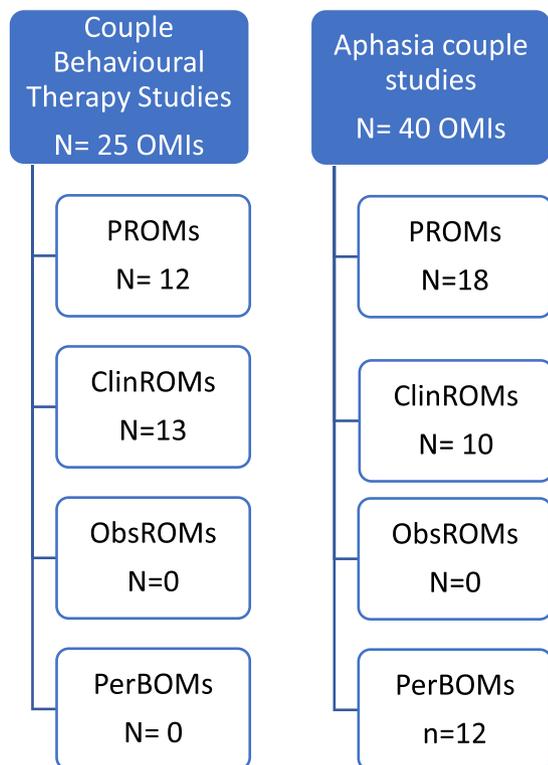
FIGURE 2   Types of outcome measure instruments used in included studies.
Abbreviations: ClinROM, clinician-reported outcome measure; ObsROM, observer-reported outcome measure; OMI, outcome measure instrument; PerBOM, performance-based outcome measure; PROM, patient-reported outcome measure.

FIGURE 3   Comparison of PROMs for couples with and without aphasia.
Abbreviation: PROM, patient-reported outcome measure.

in whether the participants with aphasia or the primary conversation partner responded to the PROM. Three of the 13 PROMs were designed to be dyadic, completed by both the PWA and PCP. These were: (1) the Communication Outcome after Stroke Scale (COAST) (Long et al., 2008) and the Carer-COAST (Long et al., 2009), (2) the Family Intervention for Chronic Aphasia (FICA) couple interview questions and (3) The AE APPUTE evaluation questionnaires for both the person with aphasia and the partner (Nykänen et al., 2013). The Blom Johannson study (2013) used two separate study-specific PROMs for the dyad: Understanding of Aphasia and Communication for the primary conversation partners and Estimation of Conversational Skills for the people with aphasia. The other 10 PROMs were designed to be completed by either the PWA or the PCP, not both.

Main concept of the outcome measure. What is measured? Items within PROMs for couples with aphasia contained various main concepts related to communication. For example, some focused on using communication methods and strategies, for example, '*Pointing to words in ready-made wo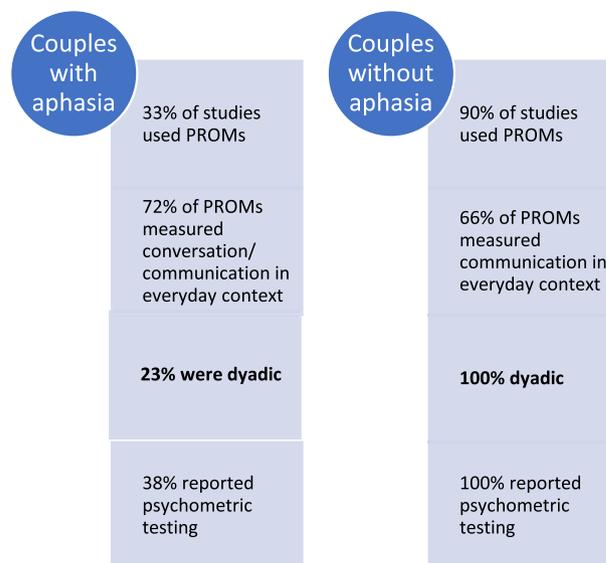rdlists…*' (Rautakoski, 2011a, 2011b), while others focused on conversation skills with familiar or non-familiar people, for example, '*How well do you "start" a conversation with a stranger?*' (Lyon et al., 1997). Satisfaction with aspects of conversation, for example, '*How satisfied are you with opinion giving/debating topics in your conversations?*' (Fox et al., 2009) was the main concept within items in one PROM, and confidence in different situations in another PROM, for example, '*How confident are you that people understand you when you talk?*' (Babbitt et al., 2011). The COAST varied the main concept of its content items, including 15 items related to the stroke survivors' conversation skills or ability to have a chat, for example, '*In the past week or so, how well could you have a chat with someone you know well?*' (Long et al., 2008), and five on the impact of communication impairment on quality of life for both people with aphasia and primary conversation partners, for example, '*Nowadays, what effect do your speech or language problems have on your social life?*' and '*Nowadays, what effect does your relative's speech or language problems have on your family life?*' (Long et al., 2008).

Two PROMs measured the impact of aphasia on conversations within the questionnaires: The Aphasia Impact Questionnaire (AIQ) (Swinburn et al., 2019) and its precursor, the Communication Disability Profile (Byng & Swinburn, 2006). The AIQ distinguished the familiarity of the communication partner as a comparison, for example, talking to a friend versus talking to a stranger. Specific aspects of conversation were the main concepts in items in one study-specific PROM (Fox et al., 2009), which measured satisfaction with conversations, for example, '*How*

satisfied are you with opinion giving/debating topics in your conversations?' (Fox et al., 2009). Nevertheless, the construct of conversation was referred to directly within items from the PROMs, for example, *'How well do you start a conversation with a family member or friend?'* or in other ways, for example, a chat, a discussion or simply talking or communicating. For example, *'How confident are you that you can <u>participate</u> in <u>discussions</u> about your finances?'*

Response options. Most of the PROMs used in aphasia therapy had Likert scale responses that measured the intensity of the communication characteristic, apart from two PROMs that measured the frequency of the communication strategy used (Rautakoski, 2011a, 2011b). One PROM (CRUI) (Lyon et al., 1997) used open-ended questions, which were classified as qualitative attributes.

The perspective of the responder. The PROMs used with couples with aphasia had more variation in the responder's perspective. Although the majority are *either* from the perspective of the person with aphasia *or* the communication partner, three were dyadic. However, only one of these three, the FICA questionnaire for PWA and PCP (2014), rated from the perspective of the communication partner about the communication occurring as a couple. The other two appraised or described the communication of the person with aphasia. There was also variation between the PROMs of the respondents' perspectives. Eight PROMs contained items classified as *descriptive performance*—describing the performance of an individual in their environment, for example, *'Having spontaneous conversation (starting the conversation and changing the subject)'*. Five PROMs used *descriptive capacity*—the ability to do a particular task, for example, *'In the past week or so, how well could your relative follow a change of subject in a conversation?'*

Six aphasia PROMS used *appraisal* of constructs including confidence in communicating, ease of communication, and comfort with communicating, for example, *'How "confident" are you that you'll be able to tell a family member/friend what you want?'*

The COAST, FICA and the study-specific self-rating measure (Fox et al., 2009) used a variety of perspectives within the PROM, *descriptive performance, descriptive capacity* and *appraisal*.

PROMs used with couples without aphasia

Of the eight PROMs that measured conversation and communication skills in couples without aphasia, only four PROMs had examples or details of individual items, and the others could not be sourced. Therefore, the available 65 items were mapped against the three-tier in-situ language model (Doedens & Meteyard, 2018) to determine if items related to the interaction between two people,

use of multi-modal communication or common ground. After this screening, 50/65 items met the criteria for further analysis. (Refer to Table 1 for the screening process).

Format of PROMs based on ICF linking rules. Table 6 details the PROMs used to measure communication in studies with couples without aphasia. All the studies for couples without aphasia described the PROMs validation methods, even for the three unpublished PROMs. A total of eight of the 12 PROMS (66%) met the screening criteria for further analysis (that they contained items related to communication). These PROMs were dyadic in that both couple members completed the measure.

Main concept of the outcome measure. What is measured? The main concept measured by PROMs for couples without aphasia was varied. For example, the Communication Patterns Questionnaire and the Communication Skills Test measure positive and negative communication behaviours and patterns, for example, destructive communication patterns such as withdrawal and negative escalation, and positive communication patterns such as engagement and active listening. The Marital Satisfaction Inventory-Revised (Snyder, 1997) focuses on relationship satisfaction with a domain for affective communication, that is, satisfaction with the expression of affection and understanding of emotions, as well as problem-solving communication. Communication quality is assessed via the communication subscale from the Partnership Questionnaire (PFB) (Hahlweg, 1982). For example, *'We talk to each other for at least half an hour every day'*, while the Communication Danger Signs Scales (Stanley & Markman, 1997; Stanley et al., 2002) analyse the frequency of negative communication patterns, including escalation, invalidation and withdrawal.

Response Options. Seven of the eight outcome measurement instruments used Likert scales with a frequency of occurrence scale except for the Marital Satisfaction Inventory-Revised (MSI-R, Snyder, 1997), which required a true or false response for all items.

The perspective of the responder. The PROMs for couples without aphasia were all dyadic in design, that is, both communication partners completed the PROM. For seven of eight PROMs, the responder's perspective was classified as descriptive performance, reflecting on what happens when communicating as a couple. For example, *'Does your spouse complain that you don't understand him (her)?'* One PROM, the Marital Satisfaction Inventory-Revised MSI-R (Snyder, 1997), used appraisal measuring satisfaction with communication and problem-solving.

DISCUSSION

Relationship satisfaction is linked to successful conversation and having successful and effective communication

strategies helps sustain couple relationships. As marital satisfaction is lower in couples where one person has aphasia (Schreck, 2013), strengthening conversational skills can also benefit the relationship and quality of life for both communication partners (Grawburg et al., 2013). This scoping review identified the outcome measurement instruments used in 46 conversation or communication treatment studies for couples with and without aphasia. Across these studies, 65 outcome measurement instruments were used: 40 for couples with aphasia and 25 for couples without aphasia. The current study reinforced findings of heterogeneity in the use of outcome measurement instruments in aphasia research and that there is a gap in the availability of appropriate and validated measures for dyadic conversation (Azios et al., 2022; Wallace et al., 2017; Wallace et al., 2022). It also reinforced the complexity of aligning meaningful treatment goals with appropriate outcome measures (Saldert et al., 2018; Sirman et al., 2017). The use of PROMs for outcome measurement benefits and supports models of person and relationship-centred care and identifies treatment areas that are meaningful to the individual or dyad (Williams et al., 2016; Yorkston & Baylor, 2019). However, this scoping review demonstrates that although there are aphasia PROMs available, only 33% of the aphasia couple studies utilised PROMs. In contrast, studies with couples without aphasia used PROMs more consistently (90%). Therefore, there is a need for a validated PROM that can match the goals of aphasia conversation therapy, that is, to have successful or improved conversations for both partners within a couple while also supporting relationships and quality of life (Baker et al., 2024; Saldert et al., 2018; Sirman et al., 2017; Wallace et al., 2022).

This scoping review has reinforced that outcome measurement instruments for aphasia rehabilitation generally focus on the abilities or performance of the person with aphasia and rarely consider communication occurring between two or more people. ICF linking enabled a closer examination of the content, main concepts and the responder's perspective of PROMs. The PROMs used in aphasia treatment studies focused on the perspective of the person with aphasia only or appraised their communication only. The PROMs contained items related to communication strategies used in conversation or the person with aphasia's ability or level of confidence to communicate in different communication situations (e.g., the Communication Confidence Rating Scale for Aphasia). The identified aphasia PROMs focused less on attitudes or feelings experienced during a conversation and resulting behaviours, for example, disengagement (Northcott & Hilari, 2011) and negative feelings of frustration, helplessness and isolation (Croteau et al., 2020; Laakso, 2014). The aphasia PROMs generally did not focus on the dyadic experience of both conversation partners. Two PROMs were identified as dyadic

with the APPUTE evaluation (Nykänen et al., 2013) and the FICA used in the study by Sorin-Peters and Patterson (2014). However, these were study-specific measures and had no evidence of validation, highlighting a lack of dyadic PROMs, meaning researchers have to develop bespoke PROMs for their studies.

In contrast, the outcome measurement instruments used with couples without aphasia contained items that measured emotions, behaviours and attitudes that impact conversation and communication within a relationship and were from the perspective of both partners, for example, how they respond to conflict and solve problems together. They also evaluated positive attitudes towards communication with items, such as '*I show empathy and understanding to my partner*' or negative attitudes, such as '*When my partner is stressed, I tend to withdraw*'. These items provide vital information about how a couple interacts and may give some critical background information on communication styles in the case of aphasia. Using dyadic PROMs could enable a more authentic and accurate representation of conversation with aphasia (Amtmann et al., 2011).

Limitations

While in line with current recommendations, a potential limitation was that the initial screening of titles and abstracts and the data extraction phase were only conducted by one reviewer. As this was a scoping review, we did not assess the quality of studies or the outcome measure instruments; however, we found that aphasia treatment studies had a significant number (62%) of unvalidated PROMs. Therefore, future research should evaluate the quality of PROMs in terms of their psychometric properties. A further limitation was the inability to access the items within the PROMs for couples without aphasia that were not published. Lastly, further analysis could also be a focus for future research by applying the refined ICF linking rules to the ClinROMs for both participant groups, couples with and without aphasia.

Clinical implications

Successful conversations are crucial to people with aphasia and their conversation partners and are usually the goal of conversation-based therapies for aphasia. However, this review has identified a lack of appropriate dyadic outcome measurement instruments for conversation therapy and conversation partner training for couples with aphasia. Moreover, there is variability in the main concept measured, method of measurement and the responder. Our analysis may assist clinicians and researchers in determin-

ing which outcome measurement instrument to select for dyadic conversation.

The eight PROMs identified for couples without aphasia provide some crucial insights into the emotional well-being and quality of couple communication that could support the development of a PROM for dyadic conversation in aphasia. For example, PROMs such as the Marital Communication Inventory (Bienvenu, 1970) and the Dyadic Coping Inventory (Bodenmann & Cina, 2000) included items related to how couples manage stress and conflict and how couples support each other emotionally which may have some relevance for use with couples affected by communication disabilities such as aphasia. Furthermore, consideration of ways to include the main concepts, such as satisfaction or enjoyment of communication and positive and negative communication patterns, could be applied to aphasia couple therapies. In addition, understanding communication styles and current patterns within conversation would add some meaningful and relevant goals for conversation therapy for couples affected by aphasia.

CONCLUSION

This scoping review sought to profile how conversation is measured for couples with and without aphasia and forms the basis of a larger project to develop a PROM for couples' conversations with aphasia. Analysis of identified PROM items expands the current understanding of how successful conversation for couples (where one person has aphasia) is currently conceptualised. We identified items that assessed communication strategies, contextual information, emotional components, attitudes and overall enjoyment of conversation. These items can contribute to a couple's perception of success in conversations. The resulting data will contribute to building an item bank to develop a measure of couples' successful conversations in aphasia. This measure will give the perspective of both partners, and the constructs and items will better represent co-constructed interaction and consider contextual and relational factors. These findings will aid future research into conversation therapy and conversation partner training in aphasia.

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There are no known conflicts of interest.

DATA AVAILABILITY STATEMENT
The data that supports the findings of this study are available in the supplementary material 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.