

The efficacy of an inter-disciplinary community aphasia group for living well with aphasia

Michelle C. Attard, Yasmine Loupis, Leanne Togher & Miranda L. Rose

To cite this article: Michelle C. Attard, Yasmine Loupis, Leanne Togher & Miranda L. Rose (2018) The efficacy of an inter-disciplinary community aphasia group for living well with aphasia, *Aphasiology*, 32:2, 105-138, DOI: [10.1080/02687038.2017.1381877](https://doi.org/10.1080/02687038.2017.1381877)

To link to this article: <https://doi.org/10.1080/02687038.2017.1381877>



Published online: 28 Sep 2017.



Submit your article to this journal [↗](#)



Article views: 702



View Crossmark data [↗](#)



Citing articles: 1 View citing articles [↗](#)

ARTICLE



The efficacy of an inter-disciplinary community aphasia group for living well with aphasia

Michelle C. Attard^a, Yasmine Loupis^b, Leanne Togher^c and Miranda L. Rose^a

^aSchool of Allied Health, La Trobe University, Melbourne, Australia; ^bSocial Work, St Vincent's Hospital, Sydney, Australia; ^cFaculty of Health Sciences, The University of Sydney, Sydney, Australia

ABSTRACT

Background: Community aphasia groups (CAGs) are argued to have various benefits for people with chronic aphasia. However, there is a paucity of evidence regarding the feasibility of conducting an inter-disciplinary programme with content and outcome measures encompassing ICF domains, making it difficult to ascertain the full potential of this service option. As another key population living with aphasia, family members have received little attention in CAG research to date. **Aim:** To determine potential efficacy of a speech-language pathologist- and social worker-led CAG model for four people with aphasia (PWA) and their spouses on living well with aphasia within a proof-of-concept trial.

Methods & Procedures: Informed by extensive study of the existing CAG literature, we developed a comprehensive 12-week interdisciplinary CAG model and trial protocol (the InterD-CAG). We used a Phase I pre-post design with a follow-up phase. The group was co-facilitated by a speech-language pathologist and social worker with support from aide staff. The group met at a university clinic for 2 h per week over 12 consecutive weeks. The protocol comprised a combination of communication therapy; conversation practice; social, peer, and psychological support; stroke and aphasia information; and participation in meaningful and accessible activities. Group session time was split into two formats: (1) concurrent sessions dedicated to members with aphasia alone/spouses alone and (2) mixed sessions with both members with aphasia and spouses together. The Therapeutic Factors Inventory was administered at regular intervals during the programme to ascertain participants' perceptions of group process. Pre, post, and follow-up outcome measures spanned all WHO ICF domains for PWA, with measures for spouses addressing supported conversation skills, psychological health, and carer burden. **Outcomes & Results:** Both PWA and spouses perceived the presence of therapeutic factors to be medium or high by Week 12 in the programme. Our hypotheses for significant improvement for PWA in quality of life, aphasia impairment, activity & participation, and contextual factors were partially supported and maintenance of gains was observed in some cases. No clear changes were evident for spouses.

Conclusions: This study contributes preliminary evidence for the efficacy of the InterD-CAG model for people with chronic aphasia.

ARTICLE HISTORY

Received 29 May 2017

Accepted 16 September 2017

KEYWORDS

Aphasia; community; group; interdisciplinary; spouses

CONTACT Miranda L. Rose  m.rose@latrobe.edu.au  School of Allied Health, La Trobe University, Bundoora, 3086, Australia

See www.aphasia.community/resources/resources-for-aphasia-groups for a complete edition of the Interdisciplinary Community Aphasia Group Facilitator Program Manual (including some adaptations to the programme described in this paper) and resource pack which is available to freely download.

© 2017 Informa UK Limited, trading as Taylor & Francis Group

Larger-scale studies with comparison groups are required to build on the present findings with specific attention to spouse support needs.

Introduction

There are approximately 100,000 people living with long-term disability associated with aphasia in Australia (Deloitte Access Economics, 2013). Chronic aphasia impacts significantly on health-related quality of life (Cruice, Worrall, Hickson, & Murison, 2005; Hilari & Byng, 2009). Specifically, aphasia can radically and negatively impact a person's social networks (Davidson, Howe, Worrall, Hickson, & Togher, 2008) and self-identity (Shadden, 2005), and those living with aphasia over the long-term face significant risk of loss of friendships (Cruice, Worrall, & Hickson, 2006) and social isolation (Le Dorze & Brassard, 1995). As informal caregivers, the family members of those with aphasia may experience similar negative impacts to self-identity, mental and physical health, and well-being (Grawburg, Howe, Worrall, & Scarinci, 2013a, 2013b).

Clinical guidelines for stroke management around the world (Hebert et al., 2016; National Stroke Foundation, 2010; Royal College of Physicians Intercollegiate Stroke Working Party, 2012; Winstein et al., 2016) suggest management after stroke survivors are transferred from hospital back to the community, including referral to (peer) support groups, can optimise adjustment and recovery. Practice-driven and exploratory research has addressed the goals of people with aphasia (PWA) and their families. PWA have reported needs regarding aphasia information and education; improving communication; coping strategies; empowerment in daily life; and return to formerly meaningful activities/improving current lifestyle and productivity (Hinckley, Packard, & Bardach, 1995; Parr, Byng, Gilpin, & Ireland, 1997; Rohde, Townley-O'Neill, Trendall, Worrall, & Cornwell, 2012; Worrall et al., 2011). Family members have described goals regarding information/training about aphasia; social and psychological support; and improving work and leisure (Hersh & Owen, 2000; Hinckley et al., 1995; Le Dorze & Signori, 2010).

Many of these needs may be met through participation in community aphasia groups (CAGs), which offer specialised environments where PWA and their families can engage in social and communicative activity and positively renegotiate self-identity. Rose and Attard (2015) define CAGs as involving (1) two or more PWA who reside in the community meeting together (with/without formal/informal facilitation) and (2) at least two activities including conversation, communication therapy, social and/or psychological support, education about aphasia, or accessible activities accessible. Recent practice literature from Australian SLPs indicates that 86 of 150 survey respondents reported not running groups for people living with aphasia; while the majority of these (60.5%) work in the acute and sub-acute sectors, of concern, 30.2% of these respondents represent the community service sector.

Further, there are less than 80 known CAGs catering for the 100,000 PWA and their significant others in Australia (Aphasia Community, 2017).

Gaps in programme content and outcome measurement

Only recently has a systematic review of quantitative CAG research become available (Lanyon, Rose, & Worrall, 2013). By applying the World Health Organisation's (2001) International Classification of Functioning, Disability and Health (ICF) taxonomy to the area of CAGs, this review highlights significant issues in the literature relating to large variations in both programming- and outcome-based variables. In terms of *intervention aims*, only 5 of 29 studies addressed more than one ICF domain. Regardless of the domains addressed, *staffing* was predominantly linked to SLPs, with only five studies (covering one to two domains) involving other staff (volunteers, psychologists, and stroke survivors). Regarding *outcome measurement*, under half of the studies (12) covered two domains, and none involved three. The review suggests that CAGs are associated overall with improvement in specific linguistic processes, social networks, and community access; however, there was a lack of well-designed studies addressing Activity and participation and Contextual factors. Additional group studies (including stroke survivors without aphasia) exploring these areas and involving other staff types include a focus on art (fine arts graduate, member of multidisciplinary community stroke team, assistant) (Beesley, White, Alston, Sweetapple, & Pollack et al., 2011), photography (architects, design students) (Levin, Scott, Borders, Hart, Lee, & Decanini, 2007), drama (SLP, drama therapist) (Cherney, Oehring, Whipple, & Rubenstein, 2011), and singing (neurologic music therapist) (Tamplin, Baker, Jones, Way, & Lee, 2013). A range of positive outcomes were reported, relating to self-expression and empowerment (Levin et al., 2007), communication and mood (Cherney et al., 2011; Tamplin et al., 2013), confidence (Beesley et al., 2011; Tamplin et al., 2013), peer support, motivation (Tamplin et al., 2013), self-efficacy, QOL, and community participation (Beesley et al., 2011). The limited number of studies addressing Activity and participation and Contextual factors domains is mirrored by recent survey findings in Australian SLP CAG practice, where community education; government lobbying; and non-verbal creative and leisure pursuits were included in between 0% and 17% of the 86 groups described (Rose & Attard, 2015).

The ICF's utility in aphasia has been demonstrated in terms of conceptualising *impacts* (Grawburg, Howe, Worrall, & Scarinci, 2013c); *goals* (Worrall et al., 2011); and *outcomes* (Wallace, Worrall, Rose, & Le Dorze, 2016; Wallace et al., 2017). Despite the ICF's potential for conceptualising CAG *treatment* (as illustrated by Lanyon et al., 2013), there is a dearth of empirical research covering multiple ICF domains in programme content and corresponding outcome measurement. This hinders capacity to understand the full potential of CAGs for PWA, and the chasm is wider still for significant others. The small amount of research regarding these populations' experiences of CAGs has been synthesised in a recent qualitative review (Attard, Lanyon, Togher, & Rose, 2015) with the overall finding that CAGs can contribute to improved psychological well-being. However, there is little *quantitative* research including significant others in CAGs and exploring the impacts of such participation. Those addressing information and psychosocial support needs for family members – either in groups with PWA or in family-only groups – yield mixed results (e.g., Borenstein, Linell, & Wahrborg, 1987; Johannsen-Horbach, Crone, & Wallesch, 1999; Purdy & Hindenlang, 2005; Rice, Paull, & Muller, 1987).

Exploring SLP and social work co-facilitation in CAGs

Providing counselling and addressing psychological well-being in aphasia rehabilitation are roles for which Australian SLPs have reported feeling under-prepared and under-skilled (Rose, Ferguson, Power, Togher, & Worrall, 2013; Sekhon, Douglas, & Rose, 2015). Social workers possess a holistic understanding of the social and environmental impacts of stroke and aphasia, and can offer counselling, information, and resources for navigating life following stroke (Australian Association of Social Workers [AASW], 2013). Social workers could therefore help to address the needs PWA and family raise. In addition, facilitating group process is a major area of social work expertise, and includes a focus on supporting members to enhance group dynamics and effect mutual aid (Abels & Garvin, 2006; AASW, 2013).

While some SLPs report undertaking joint counselling sessions with social workers (Rose et al., 2013) and seeking their support regarding PWAs' psychological well-being (Sekhon et al., 2015), CAG co-facilitation between SLPs and other health professionals such as social work is less common in practice literature. In Rose and Attard's (2015) Australian survey, SLPs staffed most of the 86 CAGs and only 1 involved a social worker. In addition to health professional co-facilitation, inclusion of PWA in mentoring or peer leader roles (e.g., Purves, Petersen, & Puurveen, 2013; Tregua & Brown, 2013) requires further exploration.

There is a need to develop CAG aims and programming that span a wider range of ICF domains, including Activity and Participation and Contextual factors. Further, the potential for collaboration between SLP and social work should be explored in more detail.

Aims and hypotheses

We aimed to investigate the efficacy of the InterD-CAG (1) for people with chronic post-stroke aphasia regarding outcomes across quality of life with aphasia, aphasia severity, activity and participation, and contextual factors and (2) for spouses regarding supported conversation skill, perceived carer burden, and psychological health outcomes. In addition, we aimed to explore PWA's and spouses' perception of group process (via perceived presence of therapeutic factors) throughout InterD-CAG participation.

Based on a combination of positive findings from the existing qualitative and quantitative CAG literature and the arguably potent, multi-faceted nature of the InterD-CAG model, our formal hypotheses are as follows:

H1. (a) Quality of life, (b) aphasia severity, (c) activity & participation, and (d) contextual factors will significantly improve for participants with aphasia.

H2. (a) Supported conversation skill and (b) psychological health will significantly improve and (c) perceived carer burden will significantly decrease for spouses.

H3. Therapeutic factors will be perceived as high for PWA and spouses by the programme's conclusion.

Method

Design

A Phase I pilot observational pre-post design with a 1-month follow-up phase was utilised in this study. Prior to initiating the study, ethics approval was obtained from the Human Ethics Committees at La Trobe University, Bundoora (# 15-008) and St. Vincent's Hospital, Sydney (# 15/175). The trial is registered on the Australian and New Zealand Clinical Trials Registry (UTN U1111-1170-7306).

Participants

The study was advertised through the Communication Research Registry, and researchers placed written advertisements online through Aphasia Community, Aphasia New South Wales, the Stroke Foundation, and the Stroke Recovery Association of New South Wales. Primary investigators at two health networks in Sydney distributed advertisements by mail to suitable candidates on current and past caseloads following an inclusion criteria screen. Details of the study were also placed in the Speech Pathology Email ChatS online forum (open to SLPs). Inclusion criteria for the PWA (* = also relevant to significant others) comprised of (1) history of left-hemisphere stroke, (2) stroke onset of at least 12 months prior, (3) ability to communicate "yes/no" regardless of modality, (4) available to undertake assessments and attend programme sessions*; (5) pre-morbid fluent English speaker*, (6) living in the community, (7) not currently undergoing aphasia-specific intervention or attending a stroke or aphasia group*, (8) able to manage toileting, and (9) no significant/uncorrected cognitive, psychiatric, vision, and/or hearing impairment that could interfere with group participation*.

Four PWA and their spouses were recruited. See [Table 1](#) for PWA demographic details and [Table 2](#) for spouse details (in corresponding columns). Clinical judgement indicated that some PWA displayed features of concomitant apraxia of speech. One participant (DB) scored above the cut-off point for possible presence of depression on the Community

Table 1. Participant demographics for participants with aphasia (SA, DB, MC, RD).

Demographics	SA	DB	MC	RD
Age (years)	60	69	53	73
Gender	Male	Female	Male	Male
Bilingualism	No	No	Yes	No
Time post-onset (months)	34	81	31	41
Aphasia type	Broca's	Wernicke's	Broca's	Broca's
Hemiparesis	Yes	Yes	Yes	Yes
Mobility	Independent	Wheelchair use	Independent	Use of cane
Current work	Unemployed	Retired	Unemployed	Retired
Immediately pre-stroke employment	Full time	Retired	Full time	Retired

Table 2. Participant demographics for spouses (MA, FB, FC, HD).

Demographics	MA	FB	FC	HD
Age (years)	57	72	41	71
Gender	Female	Male	Female	Female
Bilingualism	No	No	Yes	No
Current work	Homemaker (unemployed), carer	Retired, carer	Homemaker (unemployed), carer	Semi-retired (employed part time)
Immediately pre-stroke work	Employed part-time	Retired	Homemaker	As above

Stroke Aphasia Depression Rating Questionnaire (C SADQ-10; Sutcliffe & Lincoln, 1998). DB was not excluded as she engaged sufficiently in the pre-group assessments and her husband FB reported they were attending other social events at the time. Two dyads (SA/MA and MC/FC) knew one another prior to commencing the programme.

Description of the InterD-CAG programme

Setting and format

The programme occurred at the Communication Disorders Treatment & Research Clinic, University of Sydney. Both the PWA and spouses attended 12 meetings once weekly for 2 h. The meetings involved two 50-minute sessions divided by a 20-minute break. All meetings began and ended with the group together as a whole, with several weeks involving PWA-only and spouse-only time in one or both sessions. The sessions were audio-recorded and video-recorded.

Programme description

Based on the aforementioned need to cover aims and programming across the full range of ICF domains, we aimed for the InterD-CAG to address living successfully with aphasia as completely as possible. Therefore, we designed the InterD-CAG programme to reflect known consumer needs and involve the full list of Rose's and Attard's (2015) CAG programming components: communication therapy, conversation, participation, psychological and social support, and stroke/aphasia education. Aside from conversation during breaks, these components were generally of a structured nature and were developed into a manualised format to permit replication. Members also had the opportunity to engage in communication, iPad use, and reflection outside of the meetings using provided templates. All planned programme content was proposed to members early in the programme with ongoing opportunity for customisation based on member needs. [Appendix A](#) describes the InterD-CAG programming in further detail. An outline of the weekly programme schedule and distribution of PWA-only, spouse-only, and whole-group sessions is presented in [Appendix B](#).

Staffing

The InterD-CAG incorporated four staff, bringing an extensive range of knowledge and skills unique to their role: an SLP (the first author); a social worker (the second author); a peer aide (a stroke survivor with aphasia); and an aide (a member of the general community). The SLP conducted a 1-day training session for the staff with facilitation support from the third and fourth authors – experienced SLPs serving as consultants. Training involved didactic and interactive components addressing aphasia, communication strategies, information about the research, staff roles, and a briefing regarding participant details. Information regarding mental health first aid and group coordination was also provided.

For the InterD-CAG programme, the whole-group sessions were primarily led by the SLP, with the aides providing support and expertise throughout. The PWA-specific sessions were generally facilitated by the SLP with aide support, and the social worker generally facilitated the spouse-specific sessions. Guest staff facilitated sessions on occasion (see [Appendices A and B](#)). The staff met informally before each meeting to discuss plans for the day as well as after each meeting to debrief. The fourth author

provided Skype-based consultancy for the SLP and social work facilitators as part of post-session debriefing (50% of sessions).

Assessments

To assess the experience of group process, all participants took home the Therapeutic Factors Inventory-19 (TFI-19) (Joyce, MacNair-Semands, Tasca, & Ogrodniczuk, 2011) to complete after weeks 3, 6, 9, and 12. Semi-structured interviews were also conducted with the participants, social worker, and aide staff immediately following the programme. Interview results are reported in two companion papers (Attard, Loupis, Togher, & Rose, *n.d. a, n.d. b*).

We selected one measure for quality of life and at least two outcome measures for each remaining ICF domain to comprehensively evaluate impacts for PWA. This is also commensurate with the ICF-wide scope of outcomes recently reported to be prioritised by PWA (Wallace et al., 2017). Measures were selected based on one or more of the following characteristics: acceptable psychometric properties, utility, and previous use in the CAG literature. We selected fewer measures for the spouses, primarily to reduce burden. In relation to Wallace et al.'s (2017) study, our selection involves the most highly prioritised outcome by family members – that of improved communication. Table 3 outlines the measures for PWA and spouses, and Appendix C presents a detailed description of the TFI-19 and assessments. Assessment was conducted by the first author in dyads' homes.

Data analysis

Pre-treatment scores on all outcome measures were compared with post-treatment and follow-up scores at an individual case-based level. The standard error of measurement (SEM) was calculated for the Assessment for Living with Aphasia (ALA), Western Aphasia Battery – Revised Aphasia Quotient (WAB-R AQ), Communicative Effectiveness Index (CETI), Medical Outcomes Study Social Support Survey (MOS SSS), Measure of Participation in

Table 3. Outcome measures for PWA and spouses.

PWA (ICF domain)	Outcome measure
Quality of life	Assessment of Living with Aphasia (ALA) (Kagan et al., 2011) – Sum of Ratings score
Aphasia impairment	Western Aphasia Battery–Revised Aphasia Quotient (WAB–R AQ) (Kertesz, 2007)
Activity & participation	ALA – Aphasia domain subtest (Kagan et al., 2011)
	ALA – Participation domain subtest (Kagan et al., 2011)
Contextual factors	Communicative Effectiveness Index (CETI) (Lomas et al., 1989)
	Measure of Participation in Conversation (MPC) (Kagan et al., 2001; Kagan et al., 2004)
	ALA – Environment domain subtest (Kagan et al., 2011)
	ALA – Personal domain subtest (Kagan et al., 2011)
	Communication Confidence Rating Scale for Aphasia (CCRSA) (Babbitt et al., 2011)
Spouses (area)	Medical Outcomes Study Social Support Survey (MOS SSS) (Sherbourne & Stewart, 1991)
	Social Networks Communication Inventory (SNCI) (Blackstone & Hunt Berg, 2003) – social networks size
	Community Stroke Aphasic Depression Questionnaire-10 (C-SADQ-10) (Sutcliffe & Lincoln, 1998)
Supported conversation skill	Measure of skill in Supported Conversation (MSC) (Kagan et al., 2001; 2004)
Perceived carer burden	Bakas Caregiving Outcomes Scale (BCOS) (Bakas et al., 2006)
Psychological health	General Health Questionnaire-12 (GHQ-12) (Goldberg, 1972)

ICF = International Classification of Functioning, Disability, and Health; PWA = participants with aphasia.

Table 4. Values for detecting clinical significance or meaningfulness across outcome measures.

PWA (ICF domain)	Outcome measure	Clinical significance				Clinical meaningfulness
		SD	r	SEM	95% CI ±	
Quality of life	ALA ¹ Sum of Ratings score/148	20.6	.86	7.71	15.11	
Aphasia impairment	WAB-R AQ ²	-	-	3	-	
Activity & participation ³	ALA ¹ – Aphasia total/20	3.3	.71	1.78	3.48	
	ALA ¹ – Participation total/64	10.2	.83	4.21	8.24	
	CETI (%)	16.8	0.94	4.12	8.07	
	MPC Interaction/4	0.9	.65	0.53	1.04	
	MPC Transaction/4	0.8	.84	0.32	0.63	
Contextual factors	ALA ¹ – Environment total	2.9	.68	1.64	3.22	
	ALA ¹ – Personal total	7.1	.8	3.18	6.22	
	CCRSA ⁴ /40					0–9 = very low 10–19 = low 20–29 = med. 30–40 = high
	MOS SSS total/100	24.2	0.78	11.35	22.25	
	C SADQ-10/30					Cut-off: 14
Spouses (area)	Measure	SD	r	SEM	95% CI ±	
Supported conversation skill ³	MSC Acknowledge competence/4	0.8	.86	0.30	0.59	
	MSC Reveal competence (average)/4	0.4	.96	0.08	0.16	
Perceived carer burden	BCOS/105	8.9	.66	5.19	10.17	
Psychological health	GHQ-28/28					Cut-off: ≤ 5 = low, ≥ 6 = high

¹Data from Simmons-Mackie et al. (2014).

²This is a conservative change score based on Hula, Donovan, Kendall, & Gonzalez-Rothi's (2010) Rasch analysis (see Appendix C).

³MPC/MSC data from Kagan et al. (2001).

⁴Based on Babbitt, E. (2017). Personal communication.

SD = standard deviation; SEM = standard error of measurement; CI = confidence interval; WAB-R AQ = Western Aphasia Battery-Revised Aphasia Quotient; CETI = Communication Effectiveness Index; MOS SSS = Medical Outcomes Study Social Support Survey; ALA = Assessment of Living with Aphasia; SOR = sum of ratings score; MPC = Measure of Participation in Conversation; MSC = Measure of Skill in Supported Conversation; BCOS = Bakas Caregiving Outcomes Scale.

Conversation (MPC)/Measure of Skill in Supported Conversation (MSC), and Bakas Caregiver Outcomes Scale (BCOS), with 95% confidence intervals (CIs) used to determine clinical significance ($p < .05$). Values for detecting clinical significance across outcome measures are shown in Table 4, where the SEM could not be calculated (CCRSA, C-SADQ-10, GHQ), values pertaining to clinical meaningfulness are shown. The Social Networks Communication Inventory (SNCI) was analysed descriptively. Inter- and intra-rater reliability for the MPC/ MSC was analysed using point-to-point agreement (see Appendix C).

Results

The results are presented for both PWA and spouses in relation to participant attendance, experience of group process, and outcome measures.

Participant attendance

Participant attendance was high (over 80%) throughout the programme. Four participants (MC/FC, SA/MA) attended all 12 weeks, and three (DB/FB; RD) attended 11

(absences due to prior commitments and illness, respectively). Along with 1 week's absence due to RD's illness, HD stepped out from two separate spouse-specific sessions (2 × 50 min) due to work commitments (overall equivalent of 10 weeks attendance).

Experience of group process: perception of therapeutic factors

Participants with aphasia and spouses

Case-based TFI-19 results for individual factors and overall totals are illustrated for PWA in [Figure 1](#) and for spouses in [Figure 2](#).

Outcome measures

Participants with aphasia

Given the large number of measures, we first outline the findings for each component of the ALA as a complete set. This is because the measure offers a full domain-based summary, based on participants' own perceptual ratings. We then outline the findings for the remaining measures by domain. [Table 5](#) shows all results (ALA components in bold).

Assessment for Living with Aphasia: complete domain-based findings

Quality of life. Sum of ratings score: Two participants demonstrated no clinically significant change (SA, RD). DB made a clinically significant gain at post-group with follow-up maintenance, while MC made a clinically significant increase at follow-up compared with pre-group.

Aphasia severity. Aphasia domain subtest: Participants' ratings for ALA – Aphasia varied at pre-group, with two just above half the total score (SA, MC) and two below (DB, RD). DB's post-group gain was the only one reflecting clinical significance; this was maintained at follow-up.

Activity and participation. Participation domain subtest: No clinically significant change was observed for any participant.

Contextual factors. Environmental domain subtest: Three of the four PWA (SA, MC, RD) rated above two thirds of the total ALA – Environment subtest score at pre-group, with DB scoring 1/16. As for the Aphasia domain subtest, DB was the only participant to show clinically significant change – her improved post-group rating was also maintained at follow-up.

Personal domain subtest: Not unlike the pre-group spread for the ALA – Environmental domain subtest, SA, MC, and RD all began with relatively similar Personal domain subtest ratings above three quarters of the total score of 44, with DB's the lowest at 2.5. Two members remained stable post-group (SA, RD) and the other two made clinically significant gains (DB, MC) – DB's rating increased by one third. These two gains were maintained at follow-up, while SA's rating remained relatively unchanged and RD made a clinically significant decline (compared with post-group only).

Other outcome measures by domain

Aphasia impairment. Western Aphasia Battery Revised – Aphasia Quotient: Immediately following the group, two participants (SA, RD) made clinically significant gains on the WAB-R-AQ. DB remained stable while MC made a clinically significant decline. Further variability was observed between the post-group and follow-up phases. Clinically significant gains occurred

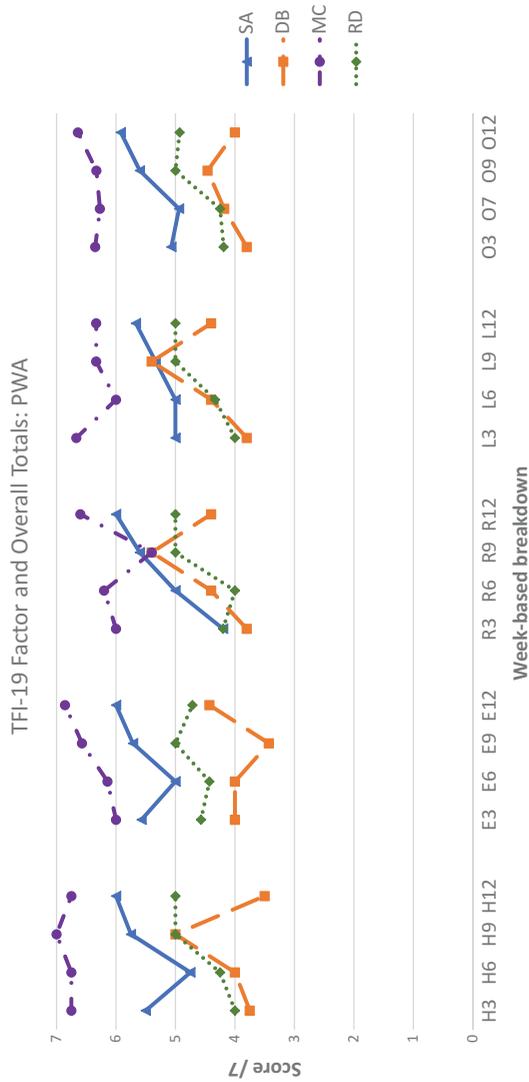


Figure 1. Individual factor and overall totals for the Therapeutic Factors Inventory-19: PWA.

Note: Clinical interpretation of scores: 1–3 = low, 4–5 = medium, 6–7 = high; MacNair-Semands (2016). Personal communication.

H = instillation of hope factor, E = secure emotional expression factor, R = awareness of relational impact factor, L = social learning factor, O = overall total.

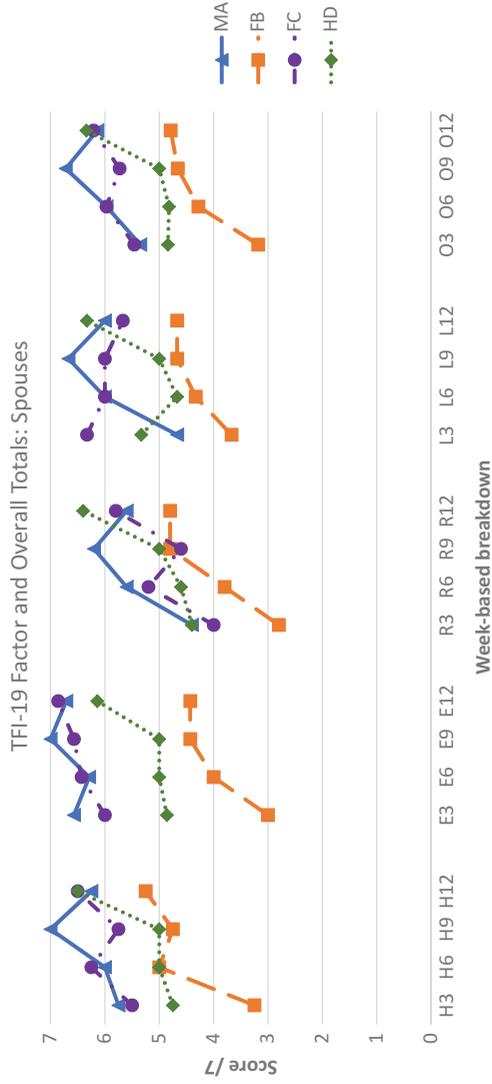


Figure 2. Individual factor and overall totals for the Therapeutic Factors Inventory-19: Spouses.
 Note: Clinical interpretation of scores: 1–3 = low, 4–5 = medium, 6–7 = high; MacNair-Semands (2016). Personal communication.
 H = instillation of hope factor, E = secure emotional expression factor, R = awareness of relational impact factor, L = social learning factor; O = overall total

for DB – compared with both earlier time points – and for MC, returning his score to pre-group level. SA made a clinically significant decline compared with post-group only, and RD made a clinically significant decline compared with both earlier phases.

Activity and participation with aphasia. Communicative Effectiveness Index: Participants' CETI scores were comparable at pre-group. Three participants made clinically significant gains immediately post-group (SA MC, RD), with SA and RD maintaining their gains at follow-up. MC made a further clinically significant gain at follow-up – more than doubling his pre-group score. DB's rating remained stable.

Measure of Participation in Conversation: Point-to-point inter- and intra-rater reliability for the MPC was 100%. Changes were limited to one participant: DB made clinically significant decline for both the areas of *Interaction* and *Transaction* following the group, with clinically significant improvements at follow-up returning her to pre-group level.

Contextual factors. Communication Confidence Rating Scale for Aphasia: Three participants had similar ratings of 'medium' at pre-group (SA, MC, RD), while DB's was "low". Immediately post-group, DB and RD made clinically meaningful gains, increasing to "medium" and "high", respectively. At follow-up, DB and RD both returned to pre-group levels, and MC made a clinically meaningful gain to "high". SA remained stable.

Medical Outcomes Study Social Support Survey: Three participants began with overall scores over 78/100 (SA, MC, RD). Beginning with the lowest score of 63, DB was the only participant to make clinically significant change – her gain at the follow-up phase was significant compared with both earlier time points.

Community Stroke and Aphasic Depression Questionnaire – 10: Before the group, three of the four PWA scored below the suggested C SADQ-10 cut-off of 14 (SA, MC, RD). As noted previously, DB's initial score of 14/30 indicated the possible presence of depression. No clinically meaningful changes were observed on this measure.

Social Networks Communication Inventory: Participants varied somewhat in relation to the numbers of individuals in their social networks, with a pre-group range of 45 (DB) to 75 (SA). At post-group, there was a small degree of change for three participants (SA, DB, MC). This was in relation to the acquaintances circle, where fellow InterD-CAG programme members were added (as SA and MC knew one another prior to commencing the group, they each added only two new dyads from the programme to their total, while RD chose not to add programme peers to his social network). No changes in social networks were reported at follow-up.

Spouses

Findings for the spouses are shown in [Table 6](#) and outlined in the following.

Supported communication skill: Measure of Skill in Supported Conversation. Point-to-point inter- and intra-rater reliability for the MSC was 100%. There was variability across the participants' ratings at pre-group. Variability at subsequent time points was also observed: those beginning with higher scores (MA, FB) made clinically significant post-group declines with subsequent follow-up gains (compared with post-group; returns to pre-group level occurred for only one MSC subscale – either *Acknowledge* or *Reveal competence* – for each of these participants). Beginning with lower scores, FC and HD made post-group gains – for *Reveal competence*, though at follow-up this was only maintained for FC, while HD's post-group gain had reduced to below that of pre-

Table 5. Pre, post, and follow-up outcome measure results for PWA.

ICF domain	Outcome measure	SA			DB			MC			RD		
		Pre	Post	FU	Pre	Post	FU	Pre	Post	FU	Pre	Post	FU
Quality of life	ALA – Sum of ratings/148	112.5	105	104.5	29.5	60.5^a	57.5^b	120.5	129	137.5^a	90	94.5	82.5
	ALA – Aphasia/20	11.5	14.5	14	1	4.5^a	3	14	12.5	15.5	9.5	7.5	6.5
	WAB-R AQ	26.5	34^a	30.4^{a,*2}	45.9	47.5	51.8^{a,b}	47.4	43*1	47.7^b	36.2	41.3^a	32.2*1,2
Activity & participation	Spontaneous speech total/20	4	7	5	8	8	8	9	8	10	5	7	4
	Auditory verbal comprehen. total/10	5.55	7.2	6.3	5.55	6.65	6.8	8	8.5	7.85	6.3	7.05	5.9
	Repetition total/10	1.3	1.3	1.0	6.7	4.9	5.8	4.3	2.6	3	3.6	4	2.8
	Naming and word finding total/10	2.4	1.5	2.9	3.7	4.2	5.3	2.4	2.4	3	3.2	2.6	3.4
	ALA – Participation/64	51.5	46.5	44	25	30.5	28	53	56	60.5	35	39	37.5
	CETI (%)	35	48	50^a	33	36	35	38	56^a	83^{a,b}	40	52^a	59^a
Contextual factors	MPC – Interaction/4	1.5	1.5	1.5	2.5	0.5*1	3^b	2	2	1.5	1.5	1.5	1.5
	MPC – Transaction/4	1	1	1	2	1*1	2^b	1	1	1	1	1	0.5
	ALA – Environment/16	12	11	11	1	7^a	9^a	12.5	13.5	15	11.5	12	10
	ALA – Personal/44	35	30	33	2.5	16.5^a	16.5^{a,b}	37	43.5^a	42.5	32	34	26.5*2
	CCRSA/40 (CM)	26	26	27	14	26^a	15*2	29	28	35^{a,b}	23	32^a	22*2
	MOS SSS – Total/100	80.26	73.68	72.37	63.16	51.32	93.42^{a,b}	78.95	85.53	92.11	78.95	82.89	67.11
C-SADQ-10/30 (low score ideal) (CM)	6	7	8	14	16	15	7	7	6	8	8	9	
SNCI – Total	75	79	79	45	50	50	38	42	42	61	61	61	

Regarding clinical significance: Values in bold font indicate clinically significant improvement: ^acompared with pre-group score, ^bcompared with post-group score; bold font with underline indicates maintenance of post-group improvement; bold font with * = clinically significant decline; ¹compared with pre-group score, ²compared with post-group score. Regarding clinical meaningfulness (CCRSA, C-SADQ-10): bold font with ^ indicates clinically meaningful improvement; ^acompared with pre-group score, ^bcompared with post-group score; bold font with underline indicates maintenance of post-group improvement; bold font with # indicates clinically meaningful decline; ¹compared with pre-group score, ²compared with post-group score. ICF = International Classification of Functioning, Disability, and Health; FU = follow-up phase; ALA = Assessment of Living with Aphasia; WAB-R AQ = Western Aphasia Battery-Revised Aphasia Quotient; CETI = Communication Effectiveness Index; MPC = Measure of Participation in Conversation; CM = results regarding clinical meaningfulness; CCRSA = Communication Confidence Rating Scale for Aphasia; MOS SSS = Medical Outcomes Study Social Support Survey; C-SADQ-10 = Community Stroke and Aphasia Depression Rating Scale-10; SNCI = Social Networks Communication Inventory.

Table 6. Pre, post, and follow-up outcome measure scores for spouses.

Outcome measure	MA			FB			FC			HD		
	Pre	Post	FU	Pre	Post	FU	Pre	Post	FU	Pre	Post	FU
BCOS/105 (high score ideal)	48	57	47	46	44	49	42	51	51	45	63^a	52^{a,*2}
GHQ-28/28 (low score ideal) (CM)	6	6	6	4	3	3	4	0	0	2	10^{#1}	0^{^b}
MSC												
Acknowledge competence/4	3	0.5^{*1}	1.5^{b,*1}	4	3^{*1}	4^b	1	1.5	2^a	1.5	1	1.5
Reveal competence average/4	3.3	1.83^{*1}	3.3^b	3.83	2.83^{*1}	3.67^{b,*1}	2.67	3^a	3.12^a	2.33	2.5^a	2^{*1,2}

Regarding clinical significance: Values in bold font = clinically significant improvement: ^acompared with pre-group score, ^bcompared with post-group score; bold font with underline = maintenance of post-group improvement; bold font with * = clinically significant decline: ¹compared with pre-group score, ²compared with post-group score. Regarding clinical meaningfulness: bold font with ^ = clinically meaningful improvement: ^acompared with pre-group score, ^bcompared with post-group score; bold font with # = clinically meaningful decline: ¹compared with pre-group score, ²compared with post-group score.

FU = follow-up phase; BCOS = Bakas Caregiving Outcomes Scale; GHQ-28 = General Health Questionnaire-28; CM = results regarding clinical meaningfulness; MSC = Measure of Skill in Supported Conversation.

group level. FC also made a gain for *Acknowledge competence* at follow-up. Thus overall, only FC was rated as consistently improved on both areas (either at post-group and/or at follow-up), with only one other participant making a temporary gain in one area.

Caregiver burden/life changes: Bakas Caregiving Outcomes Study. In their research sample of $n = 146$ (26% of whom were caregivers of stroke survivors with aphasia [severity not specified]), Bakas, Champion, Perkins, Farran, and Williams (2006) report a mean BCOS score of 58.4 with a *SD* of 10.8. In comparison, our spouses' ratings ranged from between 42 and 48, reflecting scores between 1 and 2 *SD* below the 2006 sample mean. At post-group, three participants made improvements (MA, FC, HD); HD's reached clinical significance and was maintained at follow-up.

Psychological health: General Health Questionnaire-28. The suggested clinically meaningful cut-off for the GHQ-28 total score is 5/6 (Goldberg & Hillier, 1979), meaning that 5 is the upper limit of "low" scores (suggesting good psychological health) and 6 is the lower limit of "high" scores (suggesting probable psychological distress). Prior to the group, three of the four spouses (FB, FC, HD) had "low" ratings, while MA was in the "high" category. MA, FB, and FC's scores remained in their respective categories at the post-group and follow-up phases. For HD, her psychological health rating had declined to "high" at post-group, though between this point and the follow-up HD's score returned to "low".

Discussion

This Phase I clinical observational study aimed to investigate the impacts of the InterD-CAG on participants with chronic post-stroke aphasia and their spouses in relation to the perceived presence of therapeutic factors and programme outcomes. A discussion of the presence of therapeutic factors will be addressed first for both consumer groups, followed by programme outcomes for PWA and then spouses.

Presence of therapeutic factors

The hypothesis that the perceived presence of therapeutic factors would be high for PWA and spouses by Week 12 of the programme is partially supported. For the PWA, this is reflected by one participant reaching a high rating for the overall total (with the remaining three participants at medium) and two reaching high ratings for at least three of the four individual factors. For the spouses, this is reflected by three participants having high ratings for the overall total (with the other at medium) and two participants with high ratings for at least three of the four individual factors.

Increases in perceived presence of therapeutic factors appeared to occur at varying time points and to varying degrees across factors for different participants, supporting the intuitive notions that (a) people may respond differently to different elements of a group and (b) it can take time for a group to develop process or “get into the swing of things”, and for people to develop a sense of ease and connection in a group setting (e.g., see Ewing, 2007 for summary). However, it is encouraging that overall, participants’ ratings tended to reflect medium to high levels of therapeutic factors from early on in the programme with maintenance over time, and that for DB and FB, whose ratings began low, increases were made by Week 12. It is interesting to note that the spouses had more pronounced increases in ratings (within and across factors) than the PWA. Their experience of being part of the spouse-only format with the social worker *in addition to* the mixed group format with the SLP and aides may have contributed additional meaning to spouses’ sense of therapeutic factors throughout the programme.

The evidence of therapeutic benefits observed in the present study supports findings from the qualitative CAG literature. In a review exploring PWA’s and family members’ experiences of CAGs (Attard et al., 2015), concepts relating to positive psychosocial outcomes for 11 key studies include engagement, social and peer support, mutual influence, social identity/self-reflection, confidence, empowerment and motivation/purpose, and hope (Attard et al., 2015). More broadly in the context of psychological well-being, positive CAG outcomes were linked to the overall CAG environment and a client-centred approach which included aphasia-specific nature of group, logistics, programming, and composition. The InterD-CAG was therefore designed to incorporate these therapeutic factors including the contributions of different staff (e.g., as noted earlier), programming focusing on the self as well as the future, and having ongoing opportunities to consider and share experiences of living with aphasia as well as InterD-CAG participation itself with the group (including with and without the participants’ family member present). The degree of homogeneity in relation to participant characteristics may have also had a positive benefit. All were experiencing post-stroke aphasia, and three of the four dyads shared gender, aphasia type, WAB AQ severity levels, and similar lengths post-onset, along with a 50/50 split of similar age groups. This pattern of relative similarity may have assisted members to feel they were “in the same boat” and able to relate to one another overall (Bertcher & Maple, 1994; Tarrant et al., 2016), a factor that is suggested to contribute to a group’s overall cohesiveness (Yalom & Leszcz, 2005).

Along with the assertion that elements within the group contributed to the positive levels of therapeutic factors, it is possible that SA/MA’s and MC/FC’s early medium to

high ratings were also in part due to their past experiences (they already knew one another and had participated in university-based therapy before). Prior familiarity with members has been suggested to contribute positively to engagement in an aphasia choir session (Tarrant et al., 2016). Indeed, DB/FB and RD/HD had not met any of the dyads before nor had prior experience with aphasia groups.

Programme outcomes

Impacts for participants with aphasia: summary

The hypothesis that quality of life with aphasia, aphasia severity, participation, and contextual factors (environmental and personal factors) would significantly improve for the four participants with aphasia was partially supported. This was reflected in all participants making gains in at least two domains – more commonly three – with maintenance across one to two domains. Along with gains across domains, DB tended to make the most improvement within domains (Impairment and Contextual factors) compared with the other participants. Such gains are perhaps even more noteworthy given the severity and chronicity of the participants' aphasia (WAB AQ range: 26.5–47.4; 31–81 months post onset). Much of the prior CAG research has reported on individuals with mild-to-moderate aphasia despite the fact that it is individuals with severe aphasia who experience the largest degree of social exclusion and participation restrictions.

Impacts for participants with aphasia: ICF domains

In partial support for the quality of life hypothesis, two participants made clinically significant gains on the ALA sum of ratings score (either at post-group or follow-up). That DB's post-group gain extended to the follow-up phase is particularly encouraging. Quality of life measures have not been commonly included in CAG studies, though the present findings support an emerging trend of improvement on aphasia-specific quality of life measures following CAG attendance (Corsten, Konradi, Schimpf, Hardering, & Keilmann, 2014; Corsten, Schimpf, Konradi, Keilmann, & Hardering, 2015; Mumby & Whitworth, 2012; Rodriguez et al., 2013). Together with the InterD-CAG, each of these studies involves substantially different programming elements and treatment length/dose.

There were gains in the Impairment domain for three participants and maintenance for one on at least one of the two severity measures (DB was the only participant to make clinically significant gains across both measures). In relation to RD's follow-up decline, it is highly likely that his ongoing illness impacted his performance on the WAB, as the assessor observed he seemed to be having a particularly "poor talking day". The improvements lend some support to Lanyon et al.'s (2013) indication that CAGs can produce changes in the impairment domain. The gains are especially interesting to consider in the context of (a) specific linguistic processes not being directly targeted (similarly to CAG studies by Elman & Bernstein-Ellis, 1999; Marshall, 1993) and (b) a non-intensive, group-only programme format (in comparison to Intensive Comprehensive Aphasia Programs – see Babbitt, Worrall, & Cherney, 2016).

The Activity and Participation domain reflected gains for three participants and maintenance for two on one of the three measures (CETI). The overall positive outcome of this proxy-rated measure provides an additional perspective given the self-rated ALA Participation subtest was the only ALA domain showing no change for any participant. It

is possible that the spouses were observing specific behaviour changes in their partners with aphasia covered in the CETI that were addressed in broader terms through the ALA. The CETI has been included in a limited number of CAG studies to date (see Lanyon et al., 2013); the findings of the present study lend support for the use of the CETI as a sensitive outcome measure for aphasia.

Regarding the absence of gains on the MPC, perhaps exposure to a generally structured group setting was not sufficient to effect clinically significant change in PWA's conversation participation with their spouses. Indeed, conversation partner/dyadic skills training was not a focus of the group. In addition to this *programme* variable, *contextual* elements may contribute to the outcome: for example, interacting in front of a camera and variations in participants' mood across time points may have influenced participants' communication behaviours (for example, one rater reported DB as appearing less engaged at post-group compared with pre-group). The issue of effectively measuring change in conversation between communication partners (CPs) is an ongoing source of contention (Beeke et al., 2016), and natural variability within and across conversation samples has been acknowledged (Armstrong, 2000; Lesser & Watt, 1978; Perkins, Crisp, & Walshaw, 1999). *Measurement* variables may also have impacted: given the variation in the PWA's CP between the training and study samples (SLP assessor/interviewer vs. spouse), inter-rater reliability could have been harder to achieve for the study samples. While inter-rater reliability for the three samples was 100%, since the previous sets did not meet criterion (see Appendix C), it is possible that the second reliability result reflects a false positive outcome (Type I error). In addition, the original inter-rater reliability data (Kagan, Black, Duchan, Simmons-Mackie, & Square, 2001) relates to PWA/volunteer dyads, representing another potential confound.

In relation to the Contextual factors domain which included the largest number of measures, three participants showed improvements. Considering the ALA – Personal subtest and the CCRSA together, DB made clinically significant gains for both measures following the programme, with MC making a gain on the ALA – Personal only and RD on the CCRSA only. Both participants maintained improvements for the ALA – Personal subtest. Identity-focused programming content during the group (e.g., sharing mementos from pre-stroke life, exploring character strengths) may have led to the improvements noted for DG and MC on the ALA – Personal subtest and increased opportunities for conversation may have contributed to increased confidence for DB and RD as measured with the CCRSA. Communication confidence also improved for an additional participant on the CCRSA at follow-up; however, in considering that two participants did not retain their gains, communication confidence may be a construct that responds better to ongoing social participation.

Evaluating the effects of mood disorders was undertaken using the ALA – Personal subtest and the C SADQ-10. In comparing these two measures, the ALA – Personal appeared to be more sensitive to change than the C SADQ-10. The evaluation of different feelings, such as anger and loneliness, and self-efficacy in the ALA – Personal may have contributed to detectable change for MC (despite beginning below the C SADQ-10 cut-off), and DB (who began and remained above the cut-off). However, Ross, Winslow, Marchant, and Brumfitt (2006) have reported pre-post CAG group-level gain at using a similarly broad measure to the C SADQ-10, the Hospital Anxiety and Depression

Scale (Zigmond & Snaith, 1983). Putting MC aside, the general stability observed for the C SADQ-10 for SA and RD may be in part due to these participants already sitting below the cut-off for potential depressive symptoms.

There was limited change across participants regarding social network size (SCNI) and perceived social support (MOS SSS). Three participants added their fellow group members to their Acquaintances social circles which was an encouraging outcome, though no changes to other circles were reported, and only DB made clinically significant gains in perceived social support. The InterD-CAG programme did not include a dedicated component addressing transition to other community supports. While SLPs have suggested that CAGs can lead to shifts in participating in other community and/or pre-morbid social life and activities (Elman, 2007; Kearns & Elman, 2001; Rose & Attard, 2015), the lack of change on the ALA – Participation subtest in the present study appeared not to reflect this, and the present study and few existing empirical studies of finite duration (e.g., Mumby & Whitworth, 2012) appear to involve direct programming to address end-of-CAG transition. It is possible that the 1-month space between the post- and follow-up assessment phases was not sufficient to capture change in social networks; at the same time, however, a larger gap would impact our degree of confidence in attributing any increases specifically to participation in the programme. In addition, other research into social network functioning and social connectedness has suggested that these constructs may be relatively stable in the post-stroke population (Hilari et al., 2010; Northcott, Burns, Simpson, & Hilari, 2016) and general population (e.g., university students) (Sarason, Sarason, & Shearin, 1986). This is a potential contributing factor in the stable outcome for three participants on the ALA – Environment; however, the three participants who did not make gains (unlike DB, who was the only one to improve) did have relatively high baseline ratings and so this may also have impacted. Social support and social network outcomes following tailored psychosocial group intervention in various other health-affected populations appear more encouraging (Reblin & Uchino, 2008; Webber & Fendt-Newlin, 2017). Consideration of other CAG studies that have measured contextual factors outcomes further suggests variability regarding this domain, with reported *gains* (psychological well-being: Hoen, Thelander, & Worsley, 1997 – an ongoing CAG with $2 \times \frac{1}{2}$ day weekly attendance); *no change* (mood state, psychological health, sense of belonging: Tamplin et al., 2013); and substantial *in-sample variation* (psychological well-being, depression, positive identity: Hartke, King, & Denby, 2007; mood state: Ross et al., 2006).

Impacts for spouses

The hypotheses that (a) supported conversation skill and (b) psychological health would significantly improve and (c) perceived carer burden would significantly decrease for spouses attending the InterD-CAG were not supported. Beginning with the MSC, there was substantial variability in ratings over time; as for the MPC mentioned earlier, programming, measurement, and contextual variables may be of relevance. In terms of the aforementioned absence of CP/dyadic communication skills training as a *programming* element, group-based studies that have evidenced gains on the MSC have involved aphasia-specific supported conversation skill training consisting of multiple sessions (see Simmons-Mackie, Raymer, Armstrong, Holland, & Cherney, 2010 for review). However, none of these involved family members as CPs, and so from a *measurement*

perspective, it is possible that spousal dyads are too dissimilar as a CP group for rating and analysing the MSC in the same way as for volunteers/students/health professional staff (whom the scale was designed for). Indeed, improvements seen in the MPC/MSO for significant others of people with traumatic brain injury are based on an adapted version of the scales with its own psychometric data (Togher, McDonald, Tate, Power, & Rietdijk, 2013; Togher, Power, Tate, McDonald, & Rietdijk, 2010). In relation to *contextual* variables, a number of the spouses acknowledged during at least one measurement time point that they and their spouse with aphasia do not tend to sit down and talk continuously for several minutes. This may have contributed to moments in the recordings where the raters perceived spouses to be conscious of needing to keep the conversation going using a more pedagogic style (e.g., based on frequent use of questioning including yes/no interrogatives, and “correct production sequences” – see Wilkinson, Bryan, Lock, & Sage, 2010).

Regarding spouses’ perceived carer burden, only HD evidenced a clinically significant improvement and maintenance. In terms of spouses’ psychological health, the lack of change for FB and FC may be due to their having low (good) ratings at the beginning of the programme. However, this does not explain the lack of change for MA, who had a higher rating (on the cut-off) to start. HD, the only participant to evidence clinically significant change, reported that her post-group rating increase (poorer outcome) was due to the health issues RD had experienced throughout the programme, with her improvement back to below cut-off at follow-up lending support to this. However, it is difficult to interpret why HD’s psychological health rating declined while at the same time her perception of carer burden improved. The limited change in outcomes (particularly in terms of the GHQ and BCOS) contrasts with the substantial increase in perceived therapeutic factors reported throughout the programme – for the spouses, it appears the positive group process they experienced was not sufficient to produce broader psychosocial gains. This is reflected in a pre-post study where perceived personal, social, and familial burden did not improve (Johannsen-Horbach et al., 1999), though a study comparing psychological well-being at two time points of ongoing attendance has yielded positive results (Hoen et al., 1997).

Limitations and future directions

This was a proof-of-concept study exploring the efficacy and feasibility of a CAG model for a small sample of participants with severe aphasia and in that context we propose several limitations and future directions. The present study provides some basis for designing a larger Phase II controlled study. Along with comparing different CAG models, this is required to illuminate the potential mechanisms for positive outcomes in people with chronic post-stroke aphasia and their family members. There is a dearth of such comparisons to date, with only a single controlled CAG trial available (Elman & Bernstein-Ellis, 1999).

This study was designed to incorporate recent recommendations for CAG development with the aim of addressing important psychosocial needs for PWA and their spouses. As such, it provides new insights regarding the feasibility and importance of comprehensive outcome measures as well as directions for future development of tailored CAG programming and a preliminary indication of how interdisciplinary staffing

can enhance outcomes. The spouse-only aspect of the InterD-CAG programme was a key innovation and predicated on the inclusion of the social worker in the team. This Phase I study did not specifically aim to ascertain the impact of co-facilitation on participant outcomes and it is difficult to delineate the impact of contribution across staff for our participant groups. Nevertheless, it is the first quantitative study to explore potential benefits associated with including a social worker and peer within the CAG environment, and qualitative results in our companion papers (Attard et al., *n.d. a*, *n.d. b*) shed additional light on the issue of staffing. Further research is needed to examine the effects of manipulating staffing as an environmental variable. As noted earlier, comparisons across CAG models in terms of other elements (such as programming components or dosage) will also contribute to an understanding of which specific CAG factors may be most beneficial.

The present study incorporated a range of measures addressing Activity and Participation, and Contextual factors (a recommendation of the Lanyon et al., 2013 review); more studies need to address these domains in particular if we are to build the evidence for more widespread (functional and psychosocial) benefits of CAGs for PWA. While we observed maintenance for all participants across at least two domains, specific programme content addressing transition to other community settings may have contributed to more instances of maintenance and/or additional gains at follow-up. More CAG programmes including a transition focus (e.g., Mayo, Anderson, & Barclay, 2015; Mumby & Whitworth, 2012) will be informative. However, given a number of CAGs do not appear to include such elements yet report maintenance of at least some post-group gains (Corsten et al., 2014, 2015; Elman & Bernstein-Ellis, 1999; Hinckley & Packard, 2001; Lesser & Watt, 1978), it may also be the case that CAGs need to run for longer periods of time to produce robust longer-term changes; thus, (a) studies with follow-up phases that extend beyond the common 6-week to 6-month time frame and (b) additional research exploring progress through ongoing participation (e.g., van der Gaag et al., 2005) is also needed.

Outcome measurement is also an ongoing challenge area in aphasia research (Wallace, Worrall, Rose, & Le Dorze, 2014) and needs to be considered carefully in future CAG trials; some suggestions follow. In larger powered studies, researchers could address notions such as the correlation between PWA and spouse responses on measures such as the TFI over time. Quality of life in relation to CAG attendance certainly requires further exploration; general measures appear to be less sensitive to change (Corsten et al., 2014, 2015; Rodriguez et al., 2013) compared with those that are aphasia-specific (as noted earlier), though an exception has been reported (van der Gaag et al., 2005). We consider the ALA to have good utility, being an aphasia-specific (and aphasia-friendly), self-rated measure that covers all ICF domains – without being overly burdensome for participants. In terms of Activity and Participation, Goal Attainment Scaling (Schlosser, 2004) – though used infrequently in the CAG literature to date (e.g., Duke, Bains, Ferdinandi, & Tittley, 2013; Mumby & Whitworth, 2012) – appears to be a useful, participant-centred method that could be incorporated into future studies. Given issues with reliability, the MPC/MSA appears to require further testing with PWA and their significant others. Other ways to measure conversation participation and skill following CAG participation should be explored. These could include having naïve raters guess the assessment time point based on particular criteria (e.g., Lesser & Watt, 1978; Wilkinson et al., 2010), using binary ratings of

transactional goal achievement (e.g., Purdy & Hindenlang, 2005), tallying positive/facilitator and negative/barrier CP behaviours for comparison across time points (e.g., Beeke et al., 2014; Purdy & Hindenlang, 2005), and use of qualitative analysis to explore the impact different behaviours have on a conversation (e.g., Beeke et al., 2014; Wilkinson et al., 2010). Outcomes examining CAG-based peer engagement could also be explored in programmes where conversation is a prominent programming focus (e.g., Pimentel & Algeo, 2009; Simmons-Mackie, Elman, Holland, & Damico, 2007). Given the aforementioned variability in discourse, it is important to elicit multiple conversation samples (within and across conversation types) across time points.

Finally, this type of CAG model must be explored with a greater breadth of participant characteristics in large-scale studies. Increased inclusion of family members in CAGs is required to add to our understanding of how CAGs impact this population. The existing quantitative research regarding family member outcomes is limited, adding to the complexity of selecting appropriate outcome measures – though Wallace et al.'s (2017) areas of outcome prioritised by family members offer a starting point. Findings remain inconclusive, though indications in the qualitative literature that CAGs may contribute to family members' psychological well-being (Attard et al., 2015) warrant ongoing investigation.

Conclusion

This proof-of-concept study provides preliminary findings showing that the InterD-CAG model – involving SLP and social work co-facilitation and addressing all ICF domains in terms of programme content and outcome measurement – can be feasibly applied in a community setting even with individuals with severe aphasia. As the sample reflects the diverse demographics of those seeking CAG services, the present study has the potential to have some generalisability to Australian practice. However, we emphasise that these results are not conclusive, and that larger samples are needed to test the efficacy of the InterD-CAG model with PWA and significant others across a range of characteristics. Participants perceived the presence of therapeutic factors within the group to be medium to high, and our hypotheses for improvement in all WHO ICF domains were partially supported for PWA overall. Dyad programme attendance was high with no dropouts, likely reflecting strong interest and perceived value in the programme. The semi-structured interview data will contribute further to our understanding of this particular programme – particularly in relation to the spouses given the limited quantitative change observed here. Along with positive findings from our recent exploration of other CAG models – showing significant group and/or individual level improvement with maintenance in some cases (Dalton, Attard, & Rose, 2017; Kovesy, Steel, Attard, & Rose, 2017) – our findings lend some support for the benefits of CAGs on the domains of Activity and Participation, and Contextual factors that have been found to be inconclusive in an earlier review (Lanyon et al., 2013). Continued research is required to enhance clinicians' capacity to deliver robust, consistent, and efficacious CAG services to PWA and their significant others.

Acknowledgments

The authors would like to thank the clinicians involved in recruitment and the participants for their commitment to the project.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Australian Research Council Future Fellowship under grant #1010061 (fourth author). The first author was supported by an Australian Postgraduate Award and a Postgraduate top-up studentship. The third author was supported by an NHMRC Senior Research Fellowship.

References

- Abels, P. A., & Garvin, C. D. (2006). *Standards for social work practice with groups*. Alexandria, VA: Association for the Advancement of Social Work with Groups.
- Aphasia Community. (2017). Current groups. Retrieved from <http://aphasia.community/current-groups>
- Armstrong, E. (2000). Aphasic discourse analysis: The story so far. *Aphasiology*, 14, 875–892. doi:10.1080/02687030050127685
- Attard, M., Loupis, Y., Togher, L., & Rose, M. (n.d. a). *Experiences of people with severe aphasia and spouses attending an interdisciplinary community aphasia group* (in preparation).
- Attard, M., Loupis, Y., Togher, L., & Rose, M. (n.d. b). *Staff experiences of an interdisciplinary community aphasia group* (in preparation).
- Attard, M. C., Lanyon, L. E., Togher, L., & Rose, M. L. (2015). Consumer perspectives on community aphasia groups: A narrative literature review in the context of psychological well-being. *Aphasiology*, 29, 983–1019. doi:10.1080/02687038.2015.1016888
- Australian Association of Social Workers. (2013). *Practice standards*. Canberra, Australia: Author.
- Babbitt, E. M., Heinemann, A. W., Semik, P., & Cherney, L. R. (2011). Psychometric properties of the Communication Confidence Rating Scale for Aphasia (CCRSA): Phase 2. *Aphasiology*, 25, 727–735. doi:10.1080/02687038.2010.537347
- Babbitt, E. M., Worrall, L., & Cherney, L. R. (2016). Who benefits from an intensive comprehensive aphasia program? *Topics in Language Disorders*, 36, 168–184. doi:10.1097/TLD.0000000000000089
- Bakas, T., Champion, V., Perkins, S. M., Farran, C. J., & Williams, L. S. (2006). Psychometric testing of the revised 15-item Bakas Caregiving Outcomes Scale. *Nursing Research*, 55, 346–355. doi:10.1097/00006199-200609000-00007
- Beeke, S., Beckley, F., Johnson, F., Heilemann, C., Edwards, S., Maxim, J., & Best, W. (2014). Conversation focused aphasia therapy: Investigating the adoption of strategies by people with agrammatism. *Aphasiology*, 29, 355–377. doi:10.1080/02687038.2014.881459
- Beeke, S., Sirman, N., Beckley, F., Edwards, S., Heilemann, C., Johnson, F., ... & Best, W. (2016, December). *Conversation training in aphasia rehabilitation: The challenges of measuring outcomes*. Workshop presented at the 17th International Aphasia Rehabilitation Conference, London.
- Beesley, K., White, J. H., Alston, M. K., Sweetapple, A. L., & Pollack, M. (2011). Art after stroke: The qualitative experience of community dwelling stroke survivors in a group art programme. *Disability & Rehabilitation*, 33, 2346–2355. doi:10.3109/09638288.2011.571333
- Bertcher, H. J., & Maple, F. (1994). *Group participation: Techniques for leaders and members* (2nd ed.). California: Sage.
- Blackstone, S. W., & Hunt Berg, M. (2003). *Social Networks: A communication inventory for individuals with complex communication needs and their communication partners*. Monterey, Canada: Augmentative Communication, Inc.
- Borenstein, P., Linell, S., & Wahrborg, P. (1987). An innovative therapeutic program for aphasia patients and their relatives. *Scandinavian Journal of Rehabilitation Medicine*, 19, 51–56.

- Cherney, L. R., Oehring, A., Whipple, K., & Rubenstein, T. (2011). "Waiting on the Words": Procedures and outcomes of a drama class for individuals with aphasia. *Seminars in Speech and Language, 32*, 229–242. doi:10.1055/s-0031-1286177
- Corsten, S., Konradi, J., Schimpf, E. J., Hardering, F., & Keilmann, A. (2014). Improving quality of life in aphasia—Evidence for the effectiveness of the biographic-narrative approach. *Aphasiology, 28*, 440–452. doi:10.1080/02687038.2013.843154
- Corsten, S., Schimpf, E. J., Konradi, J., Keilmann, A., & Hardering, F. (2015). The participants' perspective: How biographic-narrative intervention influences identity negotiation and quality of life in aphasia. *International Journal of Language & Communication Disorders, 50*, 788–800. doi:10.1111/1460-6984.2015.50.issue-6
- Cruice, M. N., Worrall, L. E., & Hickson, L. M. H. (2006). Quantifying aphasic people's social lives in the context of non-aphasic peers. *Aphasiology, 20*, 1210–1225. doi:10.1080/02687030600790136
- Cruice, M. N., Worrall, L. E., Hickson, L. M. H., & Murison, R. (2005). Measuring quality of life: Comparing family members' and friends' ratings with those of their aphasic partners. *Aphasiology, 19*, 111–129. doi:10.1080/02687030444000651
- Dalton, D., Attard, M., & Rose, M. (2017). A Phase I proof-of-concept study of a speech pathologist-led community aphasia group. Manuscript in preparation.
- Davidson, B., Howe, T. J., Worrall, L., Hickson, L. M. H., & Togher, L. (2008). Social participation for older people with aphasia: The impact of communication disability on friendships. *Topics in Stroke Rehabilitation, 15*, 325–340. doi:10.1310/tsr1504-325
- Deloitte Access Economics. (2013). *The economic impact of stroke in Australia*. Melbourne, Australia: National Stroke Foundation.
- Duke, W., Bains, R., Ferdinandi, A., & Tittley, L. (2013). The use of Goal Attainment Scaling for setting, monitoring and upgrading language goals in the treatment of chronic aphasia [Abstract]. *Stroke: Abstracts from the 4th Canadian Stroke Congress, 44*, e194–e194.
- Elman, R. J. (2007). *Group treatment of neurogenic communication disorders: The expert clinician's approach*. (R. J. Elman, Ed.) (2nd ed.). San Diego, CA: Plural Publishing.
- Elman, R. J., & Bernstein-Ellis, E. (1999). The efficacy of group communication treatment in adults with chronic aphasia. *Journal of Speech, Language, and Hearing Research, 42*, 411–419. doi:10.1044/jslhr.4202.411
- Ewing, S. (2007). Group process, group dynamics, and group techniques with neurogenic communication disorders. In *Group treatment of neurogenic communication disorders: The expert clinician's approach* (2nd ed., pp. 11–24). San Diego, CA: Plural Publishing.
- Goldberg, D. (1972). *The detection of psychiatric illness by questionnaire: A technique for the identification and assessment of non-psychotic psychiatric illness*. London: Oxford University Press.
- Goldberg, D. P. (1978). *Manual of the general health questionnaire*. Windsor: NFER Nelson.
- Goldberg, D. P., & Hillier, V. F. (1979). A scaled version of the General Health Questionnaire. *Psychological Medicine, 9*, 139–145. doi:10.1017/S0033291700021644
- Grawburg, M., Howe, T., Worrall, L., & Scarinci, N. (2013a). Third-party disability in family members of people with aphasia: A systematic review. *Disability & Rehabilitation, 35*, 1324–1341. doi:10.3109/09638288.2012.735341
- Grawburg, M., Howe, T. J., Worrall, L. E., & Scarinci, N. (2013b). A qualitative investigation into third-party functioning and third-party disability in aphasia: Positive and negative experiences of family members of people with aphasia. *Aphasiology, 27*, 828–848. doi:10.1080/02687038.2013.768330
- Grawburg, M., Howe, T. J., Worrall, L. E., & Scarinci, N. (2013c). Describing the impact of aphasia on close family members using the ICF framework. *Disability & Rehabilitation, 36*, 1184–1195. doi:10.3109/09638288.2013.834984
- Hartke, R. J., King, R. B., & Denby, F. (2007). The use of writing groups to facilitate adaptation after stroke. *Topics in Stroke Rehabilitation, 14*, 26–37. doi:10.1310/tsr1401-26
- Hebert, D., Lindsay, M. P., McIntyre, A., Kirton, A., Rumney, P. G., Bagg, S., ... Teasell, R. (2016). Canadian stroke best practice recommendations: Stroke rehabilitation practice guidelines, update 2015. *International Journal of Stroke, 11*, 459–484. doi:10.1177/1747493016643553

- Hersh, D., & Owen, P. (2000). A new charity comes forward...and carers retreat. *ACQ: Issues in Language, Speech, and Hearing*, 2, 88–89.
- Hilari, K., & Byng, S. (2009). Health-related quality of life in people with severe aphasia. *International Journal of Language & Communication Disorders*, 44, 193–205. doi:10.1080/13682820802008820
- Hilari, K., Northcott, S., Roy, P., Marshall, J., Wiggins, R. D., Chataway, J., & Ames, D. (2010). Psychological distress after stroke and aphasia: The first six months. *Clinical Rehabilitation*, 24, 181–190. doi:10.1177/0269215509346090
- Hinckley, J. J., Packard, M., & Bardach, L. G. (1995). Alternative family education programming for adults with chronic aphasia. *Topics in Stroke Rehabilitation*, 2, 53–63. doi:10.1080/10749357.1995.11754080
- Hinckley, J. J., & Packard, M. E. (2001). Family education seminars and social functioning of adults with chronic aphasia. *Journal of Communication Disorders*, 34, 241–254. doi:10.1016/S0021-9924(01)00049-1
- Hoen, B., Thelander, M., & Worsley, J. (1997). Improvement in psychological well-being of people with aphasia and their families: Evaluation of a community-based programme. *Aphasiology*, 11, 681–691. doi:10.1080/02687039708249415
- Hula, W., Donovan, N. J., Kendall, D. L., & Gonzalez-Rothi, L. J. (2010). Item response theory analysis of the Western Aphasia Battery. *Aphasiology*, 24, 1326–1341. doi:10.1080/02687030903422502
- Johannsen-Horbach, H., Crone, M., & Wallesch, C.-W. (1999). Group therapy for spouses of aphasic patients. *Seminars in Speech and Language*, 20, 73–83. doi:10.1055/s-2008-1064010
- Joyce, A. S., MacNair-Semands, R., Tasca, G. A., & Ogrodniczuk, J. S. (2011). Factor structure and validity of the Therapeutic Factors Inventory–Short Form. *Group Dynamics: Theory, Research, and Practice*, 15, 201–219. doi:10.1037/a0024677
- Kagan, A. (1998). Supported conversation for adults with aphasia: Methods and resources for training conversation partners. *Aphasiology*, 12, 816–830. doi:10.1080/02687039808249575
- Kagan, A., Simmons-Mackie, N., Victor, J. C., Carling-Rowland, A., Hoch, J., Huijbregts, M., ... & Mok, A. (2011). *Assessment for living with aphasia (ALA)*. Toronto, ON: Aphasia Institute.
- Kagan, A. A., Black, S. E., Duchan, J., Simmons-Mackie, N., & Square, P. (2001). Training volunteers as conversation partners using “Supported Conversation for Adults With Aphasia” (SCA): A controlled trial. *Journal of Speech, Language, and Hearing Research*, 44, 624–638. doi:10.1044/1092-4388(2001/051)
- Kagan, A. A., Winckel, J., Black, S. E., Duchan, J. F., Simmons-Mackie, N., & Square, P. (2004). A set of observational measures for rating support and participation in conversation between adults with aphasia and their conversation partners. *Topics in Stroke Rehabilitation*, 11, 67–83. doi:10.1310/CL3V-A94A-DE5C-CVBE
- Kearns, K. P., & Elman, R. J. (2001). Group therapy for aphasia: Theoretical and practical considerations. In R. Chapey (Ed.), *Language intervention strategies in adult aphasia* (5th ed., pp. 316–337). Baltimore: Lippincott Williams & Wilkins.
- Kertesz, A. (2007). *Western aphasia battery-revised*. San Antonio, TX: PsychCorp.
- Kovesy, L., Steel, G., Attard, M., & Rose, M. (2017). A Phase I proof-of-concept study of the Austin ICAP (Intensive Comprehensive Aphasia Program) for chronic post-stroke aphasia. Manuscript in preparation.
- Lanyon, L., Rose, M., & Worrall, L. (2013). The efficacy of outpatient and community-based aphasia group interventions: A systematic review. *International Journal of Speech Language Pathology*, 15, 359–374. doi:10.3109/17549507.2012.752865
- Le Dorze, G., & Brassard, C. (1995). A description of the consequences of aphasia on aphasic persons and their relatives and friends, based on the WHO model of chronic diseases. *Aphasiology*, 9, 239–255. doi:10.1080/02687039508248198
- Le Dorze, G., & Signori, F.-H. (2010). Needs, barriers and facilitators experienced by spouses of people with aphasia. *Disability & Rehabilitation*, 32, 1073–1087. doi:10.3109/09638280903374121
- Lesser, R., & Watt, M. (1978). Untrained community help in the rehabilitation of stroke sufferers with language disorder. *BMJ*, 2, 1045–1048. doi:10.1136/bmj.2.6144.1045

- Levin, T., Scott, B. M., Borders, B., Hart, K., Lee, J., & Decanini, A. (2007). Aphasia talks: Photography as a means of communication, selfexpression, and empowerment in persons with aphasia. *Topics in Stroke Rehabilitation, 14*, 72–84. doi:10.1310/tsr1401-72
- Lomas, J., Pickard, L., Bester, S., Elbard, H., Finlayson, A., & Zoghaib, C. (1989). The communicative effectiveness index: Development and psychometric evaluation of a functional communication measure for adult aphasia. *Journal of Speech and Hearing Disorders, 54*, 113–124. doi:10.1044/jshd.5401.113
- Marshall, R. C. (1993). Problem-focused group treatment for clients with mild aphasia. *American Journal of Speech-Language Pathology, 2*, 31–37. doi:10.1044/1058-0360.0202.31
- Mayo, N. E., Anderson, S., & Barclay, R. (2015). Getting on with the rest of your life following stroke: A randomized trial of a complex intervention aimed at enhancing life participation post stroke. *Clinical Rehabilitation, 29*, 1198–1211. doi:10.1177/0269215514565396
- Mumby, K., & Whitworth, A. (2012). Evaluating the effectiveness of intervention in long-term aphasia post-stroke: The experience from CHANT (Communication Hub for Aphasia in North Tyneside). *International Journal of Language & Communication Disorders, 47*, 398–412. doi:10.1111/jlcd.2012.47.issue-4
- National Stroke Foundation. (2010). *Clinical guidelines for stroke management*. Melbourne: Australia.
- Northcott, S., Burns, K., Simpson, A., & Hilari, K. (2016). Living with Aphasia the best way I can': A feasibility study exploring solution-focused brief therapy for people with aphasia. *Folia Phoniatrica Et Logopaedica, 67*, 156–167. doi:10.1159/000439217
- Parr, S., Byng, S., Gilpin, S., & Ireland, C. (1997). *Talking about aphasia: Living with loss of language after stroke*. Buckingham, UK: Open University Press.
- Perkins, L., Crisp, J., & Walshaw, D. (1999). Exploring conversation analysis as an assessment tool for aphasia: The issue of reliability. *Aphasiology, 13*, 259–281. doi:10.1080/026870399402091
- Pimentel, J., & Algeo, D. (2009). Effects of environmental props on communication in aphasia group therapy. *SIG 15 Perspectives on Gerontology, 14*, 12–18. doi:10.1044/gero14.1.12
- Purdy, M., & Hindenlang, J. (2005). Educating and training caregivers of persons with aphasia. *Aphasiology, 19*, 377–388. doi:10.1080/02687030444000822
- Purves, B. A., Petersen, J., & Puurveen, G. (2013). An aphasia mentoring program: Perspectives of speech-language pathology students and of mentors with aphasia. *American Journal of Speech-Language Pathology, 22*, S370. doi:10.1044/1058-0360(2013/12-0071)
- Reblin, M., & Uchino, B. N. (2008). Social and emotional support and its implication for health. *Current Opinion in Psychiatry, 21*, 201–205. doi:10.1097/YCO.0b013e3282f3ad89
- Rice, B., Paull, A., & Muller, D. J. (1987). An evaluation of a social support group for spouses of aphasic partners. *Aphasiology, 1*, 247–256. doi:10.1080/02687038708248841
- Rodriguez, A. D., Worrall, L. E., Brown, K., Grohn, B., McKinnon, E., Pearson, C., ... Copland, D. A. (2013). Aphasia LIFT: Exploratory investigation of an intensive comprehensive aphasia programme. *Aphasiology, 27*, 1339–1361. doi:10.1080/02687038.2013.825759
- Rohde, A., Townley-O'Neill, K., Trendall, K., Worrall, L. E., & Cornwell, P. (2012). A comparison of client and therapist goals for people with aphasia: A qualitative exploratory study. *Aphasiology, 26*, 1298–1315. doi:10.1080/02687038.2012.706799
- Rose, M. L., & Attard, M. C. (2015). Practices and challenges in community aphasia groups in Australia: Results of a national survey. *International Journal of Speech-Language Pathology, 17*, 241–251. doi:10.3109/17549507.2015.1010582
- Rose, M. L., Ferguson, A., Power, E., Togher, L., & Worrall, L. E. (2013). Aphasia rehabilitation in Australia: Current practices, challenges and future directions. *International Journal of Speech-Language Pathology, 16*, 169–180. doi:10.3109/17549507.2013.794474
- Ross, A., Winslow, I., Marchant, P., & Brumfitt, S. M. (2006). Evaluation of communication, life participation and psychological well-being in chronic aphasia: The influence of group intervention. *Aphasiology, 20*, 427–448. doi:10.1080/02687030500532786
- Royal College of Physicians Intercollegiate Stroke Working Party. (2012). *National clinical guideline for stroke* (4th ed.). London: Royal College of Physicians.

- Sarason, I. G., Sarason, B. R., & Shearin, E. N. (1986). Social support as an individual difference variable: Its stability, origins, and relational aspects. *Journal of Personality and Social Psychology*, 50, 845–855. doi:10.1037/0022-3514.50.4.845
- Schlosser, R. W. (2004). Goal attainment scaling as a clinical measurement technique in communication disorders: A critical review. *Journal of Communication Disorders*, 37, 217–239. doi:10.1016/j.jcomdis.2003.09.003
- Sekhon, J. K., Douglas, J., & Rose, M. L. (2015). Current Australian speech-language pathology practice in addressing psychological well-being in people with aphasia after stroke. *International Journal of Speech-Language Pathology*, 17, 252–262. doi:10.3109/17549507.2015.1024170
- Shadden, B. B. (2005). Aphasia as identity theft: Theory and practice. *Aphasiology*, 19, 211–223. doi:10.1080/02687930444000697
- Simmons-Mackie, N., Elman, R. J., Holland, A. L., & Damico, J. S. (2007). Management of discourse in group therapy for aphasia. *Topics in Language Disorders*, 27, 5–23. doi:10.1097/00011363-200701000-00003
- Simmons-Mackie, N., Raymer, A., Armstrong, E., Holland, A. L., & Cherney, L. R. (2010). Communication partner training in aphasia: A systematic review. *JAPMR*, 91, 1814–1837. doi:10.1016/j.apmr.2010.08.026
- Sutcliffe, L. M., & Lincoln, N. B. (1998). The assessment of depression in aphasic stroke patients: The development of the Stroke Aphasic Depression Questionnaire. *Clinical Rehabilitation*, 12, 506–513. doi:10.1191/026921598672167702
- Tamplin, J., Baker, F. A., Jones, B., Way, A., & Lee, S. (2013). “Stroke a Chord”: The effect of singing in a community choir on mood and social engagement for people living with aphasia following a stroke. *NeuroRehabilitation*, 32, 929–941. doi:10.3233/NRE-130916
- Tarrant, M., Warmoth, K., Code, C., Dean, S., Goodwin, V. A., Stein, K., & Sugavanam, T. (2016). Creating psychological connections between intervention recipients: Development and focus group evaluation of a group singing session for people with aphasia. *BMJ Open*, 6, e009652. doi:10.1136/bmjopen-2015-009652
- Togher, L., McDonald, S., Tate, R., Power, E., & Rietdijk, R. (2013). Training communication partners of people with severe traumatic brain injury improves everyday conversations: A multicenter single blind clinical trial. *Journal of Rehabilitation Medicine*, 45, 637–645. doi:10.2340/16501977-1173
- Togher, L., Power, E., Tate, R., McDonald, S., & Rietdijk, R. (2010). Measuring the social interactions of people with traumatic brain injury and their communication partners: The adapted Kagan scales. *Aphasiology*, 24, 914–927. doi:10.1080/02687030903422478
- Tregea, S., & Brown, K. (2013). What makes a successful peer-led aphasia support group? *Aphasiology*, 27, 581–598. doi:10.1080/02687038.2013.796506
- van der Gaag, A., Smith, L., Davis, S., Moss, B., Cornelius, V., Laing, S., & Mowles, C. (2005). Therapy and support services for people with long-term stroke and aphasia and their relatives: A six-month follow-up study. *Clinical Rehabilitation*, 19, 372–380. doi:10.1191/0269215505cr785oa
- Wallace, S. J., Worrall, L., Rose, T., & Le Dorze, G. (2014). Measuring outcomes in aphasia research: A review of current practice and an agenda for standardisation. *Aphasiology*, 28, 1364–1384. doi:10.1080/02687038.2014.930262
- Wallace, S. J., Worrall, L., Rose, T., & Le Dorze, G. (2016). Which treatment outcomes are most important to aphasia clinicians and managers? An international e-Delphi consensus study. *Aphasiology*, 31, 643–673. doi:10.1080/02687038.2016.1186265
- Wallace, S. J., Worrall, L., Rose, T., Le Dorze, G., Cruice, M., Isaksen, J., ... Gauvreau, C. A. (2017). Which outcomes are most important to people with aphasia and their families? an international nominal group technique study framed within the ICF. *Disability & Rehabilitation*, 39, 1364–1379. doi:10.1080/09638288.2016.1194899
- Webber, M., & Fendt-Newlin, M. (2017). A review of social participation interventions for people with mental health problems. *Social Psychiatry and Psychiatric Epidemiology*, 52, 369–380. doi:10.1007/s00127-017-1372-2
- Wilkinson, R., Bryan, K., Lock, S., & Sage, K. (2010). Implementing and evaluating aphasia therapy targeted at couples’ conversations: A single case study. *Aphasiology*, 24, 869–886. doi:10.1080/02687030903501958

- Winstein, C. J., Stein, J., Arena, R., Bates, B., Cherney, L. R., Cramer, S. C., ... Zorowitz, R. D. (2016). Guidelines for adult stroke rehabilitation and recovery: A guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke*, *47*, e98–e169. doi:10.1161/STR.0000000000000098
- World Health Organization. (2001). *International classification of functioning, disability and health*. Geneva, Switzerland: Author.
- Worrall, L. E., Sherratt, S., Rogers, P., Howe, T. J., Hersh, D., Ferguson, A., & Davidson, B. (2011). What people with aphasia want: Their goals according to the ICF. *Aphasiology*, *25*, 309–322. doi:10.1080/02687038.2010.508530
- Yalom, I. D., & Leszcz, M. (2005). *The theory and practice of group psychotherapy* (5th ed.). New York, NY: Basic Books.
- Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica*, *67*, 361–370. doi:10.1111/acp.1983.67.issue-6

Appendices

Appendix A

Detailed Description of InterD-CAG Programming

(Adapted from Attard, Loupis, Togher, & Rose, 2017).

“Programming” here means activities that have specific, dedicated modules for direct application within the InterD-CAG in order to contribute to living well with aphasia. The following activities are defined (relevant subtypes are also addressed):

- communication therapy
- conversation
- participation
- psychological support
- social support
- stroke/aphasia education
- additional considerations.

Communication therapy.

Modelling and/or direct education around skills, strategies, and techniques for improving receptive and expressive communication, with the ultimate goal to maximise both (1) conveying needs and wants (transaction) and (2) achieving social closeness (interaction) (Brown & Yule, 1983).

Total communication (TC).

A form of communication therapy involving (1) the modelling of TC strategies by facilitators throughout the sessions and 2) direct education regarding TC (e.g., information regarding types of strategies, discussion around their use, and opportunities to practice TC and receive feedback from facilitators and peers).

Conversation partner training.

A form of communication therapy. (1) Throughout mixed-group sessions, facilitators modelled strategies and techniques for revealing PWA competence for communication, such as Supported Conversation for adults with Aphasia (SCA™) (Kagan, 1998); (2) direct education was provided for family members and friends regarding such strategies and techniques (e.g., information regarding types of strategies and techniques, discussion around their use).

Conversation.

A form of maintained communicative interaction where individuals had the opportunity to practice and enjoy exchanging information, establish social closeness, and conform to social conventions of politeness.

Participation.

Verbal and/or non-verbal engagement in an accessible and meaningful activity that had a specific focus beyond pure involvement in other particular aspects of group programming (communication therapy, conversation, and stroke/aphasia information).

Psychological support.

Programming directed at promoting and reinforcing improvement in areas of mental health to contribute to healthy coping and adaptation to aphasia.

Identity.

A specific aspect of psychological and social support. Programming around identity was based on promoting awareness, reinforcement, and ongoing development of a healthy sense of self as an individual with aphasia and a valuable member of society.

Stroke/aphasia education.

Formal didactic content about stroke and aphasia provided by the group facilitators.

Social support.

A broad construct of supportive exchanges. It can be defined as the perception that one is loved and cared for, respected and valued, and part of a network of communication and mutual obligations (Cohen & Willis, 1985; Seeman, Lusignolo, Albert, & Berkman, 2001). A subtype of social support is *peer support*.

Peer support.

Peer support has been defined as "...a system of giving and receiving help founded on key principles of respect, shared responsibility, and mutual agreement of what is helpful" (Mead, Hilton, & Curtis, 2001, p. 135). Crucially, peer support involves the empathetic understanding of another's situation due to "...shared experience of emotional and psychological pain" (Mead et al., 2001, p. 135) and is based on an "emotional commitment" to the self, others, and group (Moyses Steinberg, 2014). It was part of the staff's role to model norms of acceptance and empathy from an early stage. Opportunities for group members themselves to provide support to one another were encouraged wherever possible. Two subtypes include *informational* and *emotional* support.

Informational support.

Informal support, including suggestions, advice, and guidance, provided by peer members within the group. Facilitators and aides also provided this type of support.

Emotional support.

Expressions of caring, encouragement, active listening, reflection, and reassurance (Dennis, 2003). Acceptance and compassion are additional elements (Moyses Steinberg, 2014). Such expressions take place through consistent and "...purposeful choice of caring words, expressions, and gestures" (Moyses Steinberg, 2014, p. 32), in both good and difficult times. Facilitators and aides also provided this type of support.

Additional considerations.

Along with the features mentioned earlier, the InterD-CAG included a focus on group process and action plans. Group process relates to attention directed towards the functioning of the group as a whole (e.g., establishing and reinforcing group ground rules). Members were provided with Action Plans (home practice tasks) – a term coined by Behn (2016) – that allowed the opportunity to further explore and apply particular aspects of in-group programming outside the session, with the potential to share experiences during subsequent sessions.

Table B1. InterD-CAG programme schedule: Weeks 1–6.

Week 1 Session a	Week 2 Session a	Week 3 Session a	Week 4 Session a	Week 5 Session a	Week 6 Session a
PWA + Spouses Introduction to the group Self-introductions Key ground rules	PWA + Spouses Further introduction to the group What's been happening	Mixed time before split Reflecting on group so far What's been happening PWA Conversation Spouses Introduction to planned schedule for family-only sessions; sharing experiences	PWA + Spouses Communication skills/strategies and troubleshooting	PWA + Spouses Introduction to Life Books and story sharing	PWA + Spouses What's been happening Life Books: Stroke event, aphasia
Week 1 Session b	Week 2 Session b	Week 3 Session b	Week 4 Session b	Week 5 Session b	Week 6 Session b
PWA + Spouses Good communication – what helps?	PWA+ Spouses Week-by-week breakdown of programme (suggested schedule)	PWA + Spouses Information & discussion: Stroke and aphasia	PWA + Spouses Using iPads	PWA Story + mementos sharing: Before my stroke, memento sharing Spouses Continuing discussion from 3b; Identity, life story sharing, discussion	PWA Story + mementos sharing: The stroke and early aphasia Spouses Story sharing: The stroke and early aphasia, rehab

Table B2. InterD-CAG programme schedule: Weeks 7–12.

Week 7 Session a	Week 8 Session a	Week 9 Session a	Week 10 Session a	Week 11 Session a	Week 12
Mixed time before split Life books: Living with aphasia; sharing Life Book progress PWA Story sharing: Recovery, My life now Spouses Living with aphasia, discussion	PWA Identity: My Character Strengths 1 (card sorting) Spouses Yoga session (Occupational therapist)	PWA Identity: My Character Strengths 2 (card sorting and discussion) Spouses Identity 1: Introduction, discussion	PWA + Spouses Living well with aphasia, My life in the future	PWA + Spouses Introduction to Art Group (SLP, art group attendee with aphasia)	PWA + Spouses End of programme reflection Life Book/art sharing Where to from here Conversation Wrap-up/trial housekeeping
Week 7 Session b	Week 8 Session b	Week 9 Session b	Week 10 Session b	Week 11 Session b	Week 12
PWA Story sharing: Goals, conversation Spouses Living with aphasia, discussion	PWA Yoga session (Occupational therapist) Spouses Discussion: Looking after yourself; origami and sharing	PWA Communication skills practice: Getting the message across Spouses Identity 2: My Character Strengths (card sorting)	PWA Music session (Registered music therapist) Spouses Communication support/skills review (SLP, SW)	PWA + Spouses Art session (SLP, art group attendee with aphasia)	

All PWA-only sessions facilitated by the speech-language pathologist with the support of the peer aide and aide. All spouse-only sessions facilitated by the social worker unless otherwise stated. Additional guest staff attendance indicated in italics. PWA = people with aphasia; SLP = speech-language pathologist, SW = social worker. ¹All sessions were audio/video recorded except for the yoga classes.

Appendix A References

- Attard, M., Loupis, Y., Togher, L., & Rose, M. (2017). *Interdisciplinary Community Aphasia Group program manual*. Melbourne: La Trobe University. Open access. Retrieved from <http://aphasia.community/resources/resources-for-aphasia-groups>
- Behn, N. (2016). *Communication and quality of life outcomes in people with acquired brain injury following project-based treatment*. London: City University London.
- Brown, G., & Yule, G. (1983). *Discourse analysis*. New York: Cambridge University Press.
- Cohen, S., & Wills, T. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310–357.
- Dennis, C-L. (2003). Peer support within a health care context: A concept analysis. *International Journal of Nursing Studies*, 40(3), 321–332.
- Kagan, A. A. (1998). Supported conversation for adults with aphasia: Methods and resources for training conversation partners. *Aphasiology*, 12(9), 816–830.
- Mead, S., Hilton, D., & Curtis, L. (2001). Peer support: A theoretical perspective. *Psychiatric Rehabilitation Journal*, 25(2), 134–141.
- Moyse Steinberg, D. (2014). *A mutual-aid model for social work with groups* (3rd ed.). Northvale, NJ: Routledge.
- Seeman, T. E., Lusignolo, T.M., Albert, M., & Berkman, L. (2001). Social Relationships, Social Support, and Patterns of Cognitive Aging in Healthy, High-Functioning Older Adults: MacArthur Studies of Successful Aging. *Health Psychology*, 20(4), 243–310.

Appendix C

Detailed Description of InterD-CAG Assessments

PWA and spouse experience of group process.

Therapeutic Factors Inventory-19 (TFI-19); Joyce et al., 2011).

The Therapeutic Factors Inventory – 19 item-version (TFI-19) (Joyce et al., 2011) is a self-report tool used to measure perceived presence of therapeutic factors within the group setting. As recommended by the authors, this was conducted with participants at four time points across the programme: Weeks 3, 6, 9, and 12. Utilising Yalom & Leszcz's (2005) 11 therapeutic factors in group counselling as a foundation, the TFI-19 contains four subscales: Instillation of Hope, Secure Emotional Expression, Awareness of Relational Impact, and Social Learning. The phenomenon of therapeutic factors is dynamic. The inventory pertains to the experience of group-based social interaction processes and impacts, and thus is suggested to link to the Participation and Contextual Factors domains of the ICF.

The TFI-19 includes statements answered on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). For example, an item under Instillation of Hope is “Group helps me feel more positive about my future”; an item under Social Learning is “In group sometimes I learn by watching and later imitating what happens”. Thus, higher scores demonstrate a greater perceived presence of group therapeutic factors. Each TFI-19 factor score is generated by summing item ratings, each multiplied by a factor score weight. Clinical interpretation of scores is as follows: low = 1–3; medium = 4–5; high = 6–7. Tested with 360 participants undertaking counselling group therapy, the factors have shown good internal consistency (range $\alpha = .90-.66$; range mean inter-item correlation $.70-.39$). At the group level, the factors have demonstrated good sensitivity to change across time ($r^2 = .28-.34$). Discriminant validity appears good, with the TFI-19 factors largely independent of social desirability and initial disturbance overall ($r^2 = .02-.07$). Data also exists regarding the tool's predictive validity: when measured at Week 4 of 12-week group attendance, some or all of the TFI-19 factors were significantly predictive of post-treatment levels of depression, anxiety, general symptomatic distress, and general interpersonal distress ($r = 0.1$, 1% variation accounted for, to $r = 0.26$, 7% of variation accounted for, $p < .05-.01$). Convergent validity was consistent with previously reported findings (MacNair Semands, Ogrodniczuk, & Joyce, 2010), where medium-to-large significant correlations were found between the all four subscales and the GCQ-5 (Group Climate

Questionnaire Short Form) Engaged subscale ($r = .51-.68, p < .001$), and significant inverse correlations between (a) all of the subscales the GCQ-S Conflict subscale ($r = -.14$ to $-.23, p < .01-.001$) and (b) Secure Emotional Expression in the TFI and GCQ-S Avoidance subscale ($r = -.16, p < .05$).

Quality of life.

Living with aphasia: Assessment for Living with Aphasia (ALA; Kagan et al., 2011).

The ALA is a pictographic, self-report measure derived from the Living with Aphasia: Framework for Outcome Measurement (A-FROM) (Kagan et al., 2008). The A-FROM is an aphasia-specific schematic adaptation of each of the World Health Organisation ICF domains: Aphasia domain (*body function* relating to language and related impairments), Participation domain (incorporating Activity), Environment domain (based on the communication environment), and Personal domain. In an extension of the ICF, QOL is specifically represented here as a holistic overlap of domains conceptualised as "Living with aphasia". It is represented through a general item called the "Wall question" as well as through summing the ratings from all domain subtests and the Wall question.

A recent study has investigated the reliability and construct validity of the ALA (Simmons-Mackie, Kagan, Victor, et al., 2014). Correlations between each of the domains and the total ALA score ranged from .69 to .87, suggesting that the overall quality of life of PWA is reflected in the total ALA score. This is particularly the case with the Participation ($r = .94$) and Personal ($r = .87$) domains. However, the singular question addressing "moving on with life" had only a moderate correlation of $r = .43$. Test-retest reliability using interclass correlations was found to be excellent for the total ALA score (.86), with the individual domains ranging from moderate (.68; Environment) to strong (.83; Participation). Again, the ICC for "moving on with life" was moderate at .57. Internal consistency using Cronbach's α (95% confidence intervals) ranged from acceptable (.59; Language) to high (.89; Personal), with a result of .81 for the total ALA score. Construct validity was confirmed with significant correlations found between the ALA and three reference tests (SAQOL-39, .72; $p < .001$; VASES, .62, $p < .03$; BOSS CAPD (negative scoring c.f. ALA), $-.69$; $p < .008$). Results from a focus group of three SLP assessors indicated that the ALA was easy to administer and captured key aspects of the experience of living with aphasia. Inter-rater reliability was not calculated within the study by Simmons-Mackie and colleagues, though a training DVD and manual regarding test administration is included with the assessment (Simmons-Mackie et al., 2014). Finally, emerging data suggests that the ALA may be sensitive to intervention-specific change (Rodriguez et al., 2013).

Impairment of body function.

Aphasia impairment: Western Aphasia Battery – Revised Aphasia Quotient (WAB-RAQ; Kertesz, 2007).

The WAB-R (Kertesz, 2007) assesses the language function of adults with aphasia to discern the presence, severity, and type of aphasia. The Aphasia Quotient (AQ) includes assessment of spontaneous speech, auditory comprehension, repetition, and naming. Scores beyond the cut-off point of 93.8 indicate communication with no detectable aphasia. Reliability of the WAB-R is generally acceptable. Internal consistency reliability for the WAB-R as a whole has been reported to be .91. Intrarater (.92-.99) and interrater (.98-.99) reliability were reported as very high (though one subtest, Spontaneous Speech Fluency was rated as .79 in a single rater (Kertesz, 2007). Test-retest reliability was found to be similarly high. Pearson correlation coefficients between two administrations of the WAB at 1-year intervals ($n = 22$) was .99 (Kertesz, 2007). Sixteen of 20 subsequent correlations over a 2-year interval for each section score were at or above .85, with only one correlation falling below .76. A 5-point change on the WAB-R AQ has been the standard value for determining clinically significant difference, though Hula, Donovan, Kendall, and Gonzalez-Rothi (2010) have acknowledged flaws relating to this value. Based on their Rasch model, AQ scores falling between 28 and 68 correspond to an SEM < 2 . As our participants' pre-group scores range from 26 to 47, we have selected a conservative value of 3 for an SEM in the present study.

Aphasia impairment: Assessment for Living with Aphasia (ALA; Kagan et al., 2011).

See description of ALA (Kagan et al., 2011) earlier. The ALA – Aphasia subtest is comprised of 25 items with a total possible score of 20.

Activity & Participation.

Participation with aphasia: Assessment for Living with Aphasia (ALA; Kagan et al., 2011).

See description of ALA (Kagan et al., 2011) earlier. The ALA – Participation subtest is comprised of 20 items, with 19 that count towards a total possible score of 64.

Communication performance: Communicative Effectiveness Index (CETI; Lomas et al., 1989).

The CETI (Lomas et al., 1989) measures proxy-perceived change in the PWA's communication performance over time. It comprises 16 items relating to managing basic needs, life skills, and health threats. The proxy rates his/her response to each item on a scale from 0 (*not at all able*) to 100 (*as able as before stroke*). Values for each item are combined to create an overall percentage score. Internal consistency is high (Cronbach's $\alpha = .90$). The interclass correlation for inter-rater reliability between two significant others for $n = 11$ is considered acceptable at .73 (95% CI: .62–.81). Test-retest reliability over 6 weeks is high (intraclass correlation [ρ] = .94, 95% CI: .87–.99). Construct validity has been demonstrated using global ratings by significant others, the WAB, and the Speech Questionnaire, with statistically significant correlations found between all measures at $p < .05$ and below. Repeated measures ANOVA comparisons between participants from recovering and stable groups ($n = 11$ in each) showed that the CETI is sensitive to change.

Participation in conversation: Measure of Participation in Conversation (MPC; Kagan et al., 2001, 2004).

The MPC evaluates the PWA's level of participation in conversation in relation to his/her ability to interact or socially connect with his/her significant other, and to respond to and/or initiate specific transactional content (Kagan et al., 2004).

Scoring is based on a 9-point Likert scale, presented as a range of 0–4 with 0.5-level intervals for ease of scoring and recognition of clinical relevance. The scale ranges from 0 (*no participation*) to 4 (*full participation in conversation*), with scores reflecting overall goal achievement irrespective of the number of specific behaviours demonstrated. Inter-rater reliability using intraclass correlations with two raters was between .93 and .94 ($p < .001$). Construct validity, estimated using Spearman rank correlations for two raters, ranged from .76 to .93 ($p < .01$).

Two independent SLP raters undertook training using samples from Aphasia Bank (MacWhinney et al., 2011). For the InterD-CAG data, the raters were blinded to measurement time point scored 5-min audiovisual extracts of casual conversation between the PWA and spouses. These recordings were extracted from the middle 5 min of recordings generally lasting 10 min. Where reference was made that could unblind the raters to the time points, the content was removed and the 5 min was compiled from content added from either side of the recording. One rater scored all 12 recordings and then conducted point-to-point intra-rater reliability checks for three recordings selected at random. The second rater conducted point-to-point inter-rater reliability checks for three recordings selected at random. Raters were required to score with an accuracy of ± 0.5 for all allocated samples for Interaction and for Transaction. Following inter-rater discrepancy (Interaction: 66% discrepancy; Transaction: 33% discrepancy) the raters discussed the discrepancies and then an additional set containing three samples was provided to the second rater. This second set is reported on in the results of this study.

Contextual Factors.

Personal factors and aphasia: Assessment for Living with Aphasia (ALA; Kagan et al., 2011).

See description of ALA (Kagan et al., 2011) earlier. The ALA – Personal subtest is comprised of 11 items with a total possible score of 44.

Environment and Aphasia: Assessment for Living with Aphasia (ALA; Kagan et al., 2011).

See description of ALA (Kagan et al., 2011) above. The ALA – Environment subtest is comprised of eight items, with four that count towards the total possible score of 16.

Social network size: Social Networks Communication Inventory (SNCI; Blackstone & Hunt Berg, 2003).

The Social Networks Communication Inventory (Blackstone & Hunt Berg, 2003) includes the Circles of Communication Partners paradigm, where five concentric circles around the person with communication disability represent the various levels or “layers” of communication partnership: (1) life-long communication partners; (2) close friends/relatives; (3) acquaintances; (4) paid workers; and (5) unfamiliar partners. The person-centred tool is used to map the total number of communication partners (circles 1–4) and categories of communication partners (e.g., restaurant staff; circle 5) across participants’ social networks. This process involves collaboration between the PWA, the relative, and the clinician. If participants are not able to provide specific names of people for a given section, they will be asked to estimate the number of people or to describe communication partners.

Communication confidence: Communication Confidence Rating Scale for Aphasia (CCRSA; Babbitt, Heinemann, Semik, & Cherney, 2011)

This is a 10-item self-rated questionnaire that addresses communication confidence in PWA. Confidence relating to various communication situations is rated on a visual scale from 0 (*not confident*) to 100 (*very confident*), with higher scores thus indicating greater levels of communication confidence. Responses are rescored to a 4-point scale, where 1 indicates 0–29% confidence, 2 indicates 30–59% confidence, 3 indicates 60–89% confidence, and 4 indicates 90–100% confidence. Psychometric evaluation is currently limited to findings of high person separation reliability (.81) and item reliability (.96) (Babbitt et al., 2011).

Depressed mood: Community Stroke Aphasic Depression Questionnaire (C SADQ-10; Sutcliffe & Lincoln, 1998).

The C SADQ-10 (Sutcliffe & Lincoln, 1998) is an observational questionnaire that will be used to assess recent mood level (from the last 7 days) in PWA living in the community. Each of the 10 depression-related items is scored by a proxy on a scale from 0 (*never*) to 3 (*often*), with higher scores indicating lower mood. A score of 14 or above out of 30 may suggest the presence of depression (Leeds, Meara, & Hobson, 2004). Its internal reliability is acceptable (Cronbach’s α item-total = 0.80, split-half analysis correlation = 0.81). Test–retest analysis from data with 17 stroke survivors with aphasia indicates reliability over a 4-week interval ($r_s = .72, p < 0.001$).

Perceived social support: Medical Outcomes Study Social Support Survey (MOS SSS; Sherbourne & Stewart, 1991).

The Medical Outcomes Study Social Support Survey (MOS SSS; Sherbourne & Stewart, 1991) was developed for use with people living with chronic conditions. It contains 19 items assessing the perceived availability of five types of support over the past month: (1) tangible (someone to provide practical support such as behavioural assistance or material aid); (2) emotional (e.g., someone to confide in, someone with whom to share private worries and fears); (3) informational (e.g., someone whose advice you value, who can offer information or guidance); (4) positive social interaction (someone to do enjoyable things with); and (5) affectionate support (someone who can show you love and affection). As a way of maintaining low respondent burden, the measure does not require elaboration of who might provide the various supports. Scores range across a scale from 1 (*none of the time*) to 5 (*all of the time*), with higher scores indicating a greater degree of perceived support. Subscale scores are summed and averaged to allow for differentiation of results across the five support types. An overall support index may also be calculated out of 100. Minor modifications were made to the measure to increase communicative access (e.g., increasing the font size and reducing the number of items presented on each page). Pearson r item-scale correlations ranged from 0.72 to 0.90: 0.72–0.87 (tangible), 0.80–0.86 (affection), 0.82–0.90 (emotional/informational), and 0.87–0.88 (positive interaction). All test scale items met the researchers’ criteria for discriminant validity (> 2 standard errors) and showed good discrimination from other measures (e.g., mental health, current health perceptions). Internal consistency across scales is high (Cronbach’s $\alpha = .91$ –.97). Principal component factor analyses yielded values across the 19 items from 0.67 to 0.88, supporting the use of an overall index score. Construct validity correlations were significant at $p < 0.01$ across 13 validity variables (range 0.11: physical functioning to -0.67: loneliness, which has negative direction scoring).

Outcomes for spouses.

Supported conversation skill: Measure of Skill in Supported Conversation (MSC; Kagan et al., 2001, 2004).

The partner measure to the MPC, the MSC was used to rate the ability of the family member in supporting their significant other with aphasia in conversation. This support relates to communication that acknowledges the inherent competence of the PWA, along with revealing his/her competence (facilitating transactional and interactional skills) through the use of supported conversation techniques. The numeric structure of the rating scale and the training requirements of the rate match that of the MPC outlined earlier. For the MSC, the ratings refer to adequacy of communication partner skill (0: *totally inadequate* to 4: *outstanding*). Inter-rater reliability using intraclass correlations for two raters has been calculated as ranging from .91 to .96 ($p < .001$) (Kagan et al., 2004). Construct validity using Spearman rank correlations for two raters ranged from .83 ($p < .003$) to .95 ($p < .01$) (Kagan et al., 2004).

The training and rating procedure for the MSC was the same as that for the MPC (raters were required to score with an accuracy of ± 0.5 for all allocated samples for Acknowledge competence and for Reveal competence – average). Following inter-rater discrepancy (Reveal Competence: 33% discrepancy), the raters discussed the discrepancy and then an additional set containing three samples was provided to the second rater. This second set is reported on in the results of this study.

Caregiver burden/life changes: Bakas Caregiver Outcomes Scale (BCOS; Bakas et al., 2006).

The BCOS (Bakas et al., 2006) is a self-administered 15-item scale measuring life changes as a result of caregiving, including emotional well-being, ability to cope with stress, physical health, and self-esteem. Internal consistency (Cronbach's $\alpha = 0.90$) and test–retest reliability conducted with 36 carers of stroke survivors with aphasia (ICC = 0.66; 95% CI = 0.42–0.81) are satisfactory.

Psychological health: General Health Questionnaire (GHQ; Goldberg, 1978).

The GHQ (Goldberg, 1978) is a self-administered measure of current psychological health. It has been extensively used in different settings with a range of populations, including stroke carers. The scale asks whether the respondent has experienced a particular symptom or behaviour recently. The GHQ screens for non-psychotic psychiatric disorders, focusing on two major areas: (1) the inability to carry out normal functions and (2) the appearance of new and distressing phenomena. The GHQ-28 has 28 items to assess somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression. There are four response categories (*not at all, no more than usual, rather more than usual, much more than usual*). We used the more common “GHQ scoring method” (0-0-1-1) in this study.

Appendix C References (those covered only in this section)

- Leeds, L., Meara, R. J., & Hobson, J. P. (2004). The utility of the Stroke Aphasia Depression Questionnaire (SADQ) in a stroke rehabilitation unit. *Clinical rehabilitation*, 18(2), 228–231.
- MacNair-Semands, R. R., Ogradniczuk, J. S., & Joyce, A. S. (2010). Structure and initial validation of a short form of the therapeutic factors inventory. *International Journal of Group Psychotherapy*, 60(2), 245–281.
- Simmons-Mackie, N., Kagan, A., Victor, J. C., Carling-Rowland, A., Mok, A., Hoch, J. S., et al. (2014). The assessment for living with aphasia: Reliability and construct validity. *International Journal of Speech-Language Pathology*, 16(1), 82–94.