Group Communication Treatment for Individuals with PPA and Their Partners

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ABSTRACT

Primary progressive aphasia (PPA) is a neurodegenerative syndrome characterized by insidious language deterioration. This young-onset disorder leaves adults with reduced communication skills for participation in social activities. There is limited evidence regarding group treatment for individuals with PPA, though the principles of chronic aphasia groups can be applied to this clinical population. We developed a PPA group treatment model incorporating compensatory strategies from augmentative and alternative communication (AAC), communication partner training from aphasia rehabilitation, and systematic instruction from dementia management. Six modules were designed and delivered to people with PPA and their communication partners in a university clinic setting over a 6-week period. Treatment was provided by graduate clinicians with supervision from a certified speech–language pathologist and faculty member. Primary treatment goals were to provide education about PPA symptoms and progression; to increase practice and use of multimodal communication by people with PPA; and to establish an environment where people with PPA and their partners could connect for training and support. We present pre/post comparisons and satisfaction data provided by five individuals with PPA and their partners in the group. Results suggest that group training is an effective service delivery model. Participants reported gains in both knowledge about PPA and in using many different modalities to communicate. The new compensatory strategies learned provide tools for maintenance and improvement of language use. Participants saw increased confidence and participation in daily activities, and highlighted the value of the PPA group for individuals with this relatively rare condition and their family members.

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Learning Outcomes: As a result of this activity, the reader will be able to (1) describe an effective treatment group model for adults with PPA and their communication partners; (2) list five modes of communication that PwPPA and their communication partner may utilize in multimodal communicative interactions; (3) discuss benefits of providing SLP group therapy specifically for PwPPA.

John and Cathy sat in the outpatient clinic looking defeated. Just 3 months prior, they had completed 8 weeks of speech and language treatment to improve word retrieval and establish communication supports for John's language impairments associated with primary progressive aphasia (PPA). They had walked out of our last session smiling and confident. When intervention ended, they looked for a treatment group to practice their new skills. Initially they tried the local aphasia group, but they felt like they just did not belong. They found most members had communication impairments more severe than what they were experiencing; other members were dealing with physical changes such as hemiparesis; and everyone was talking about getting better. "We actually felt terrible telling them that John was going to lose skills," Cathy stated. A friend suggested they try an Alzheimer's dementia (AD) group; they knew that PPA was considered a form of dementia. This encounter was even worse. John felt totally out of place; his language problems were minimal compared with the memory and other cognitive changes that people in the AD group were sharing. Despite being devastated by PPA, he could still drive, work, and run his own life. He left wondering, "Am I going to progress in this same way?" John and Cathy felt completely isolated, with nowhere to fit in.

Speech and language pathologists (SLPs) have long provided evidence-based interventions for restoration and compensation of language and cognitive deficits to adults with communication disorders, with goals to decrease impairment and establish compensatory strategies to maximize life participation.[1] This has prepared SLPs with a strong base for intervention likely to be successful for people with PPA. Indeed, it is people with this neurodegenerative language disorder whose clinical presentations demand a skilled and holistic approach, combining best practices from different specialties within our discipline.

PRIMARY PROGRESSIVE APHASIA

Primary progressive aphasia is a neurodegenerative syndrome characterized by selective deterioration of language processing caused by several types of neuropathologic disease, including Alzheimer's disease or frontotemporal lobar degeneration; mean age at onset is the late 50s with a variable rate of decline.[2] There is currently no cure for PPA. Originally defined as a distinct clinical syndrome in 1982,[3] PPA is currently classified into three variants: nonfluent/agrammatic (nfvPPA), semantic (svPPA) and logopenic (lvPPA).[4–6] Each variant is distinguished by a distinctive array of linguistic impairments and is associated with a typical cognitive, neuroimaging, and neuropathologic profile.[7] The hallmark symptoms in svPPA include anomia and single-word comprehension difficulties; in nfvPPA, apraxia of speech and/or dysarthria, problems with grammar production or comprehension; and in lvPPA, word retrieval and repetition challenges.

The impact of PPA on individuals and their social networks is profound. Due to early onset, often in preretirement years, individuals and families are met with unexpected challenges including change in life expectancy, financial and legal implications of leaving the workforce, and lack of PPA-specific community resources and long-term care services.[8,9] A significant correlation has been found between language impairment in dementia, increased social withdrawal, and reduced participation in social activities, as

well as an increase in probability of depression.[10] Living with PPA is so serious that in 2010 the U.S. Social Security Administration added PPA to the *most disabling conditions list*, Compassionate Allowance Conditions, approving benefits within days rather than months or years.[11] Due to the degenerative nature of PPA, people with PPA (PwPPA) often report frustration in finding a support network that fully understands their personal struggles with communication which continuously change as the disease progresses.

Initial evidence suggests that impairment-directed speech–language treatment, including therapies aimed at naming and lexical retrieval, may enhance expression for PwPPA or other dementias.[12–14] Functional communication interventions focused on training strategies and supports so that individuals can maintain participation for daily interactions and socialization have been documented. Strategies include, but are not limited to, writing, communication books, personal electronic devices (tablets and smartphones), texting, script training, remnants, and communication partner training (CPT).[15–22]

Communication treatment in a naturalistic group setting offers one opportunity for PwPPA to meet others with similar challenges. Groups can improve conversational skills, build community, and increase life participation.[1,23] A group format offers a setting in which practice of everyday natural discourse may occur with participants using multiple communication modes and experiencing turn-taking.[1] By engaging in communication events that align closely to everyday communicative life, individuals in group treatment are more likely to generalize skills and confidence outside of the therapy situation.[1] Through group treatment, participants often benefit from one another, as they share strategies for successful communicative interactions.[24] Additional aphasia group benefits include enhanced interpersonal relationships and reduced stress which result in positive health for participants.[25]

There is extremely limited evidence regarding group treatment for individuals with PPA. Morhardt et al[9] conducted a psychoeducational group intervention for individuals with PPA and their care partners who provided benefits for participants in sharing of helpful compensation strategies with other group members. Participants reported comfort in knowing that they were not alone as individuals with PPA. Jokel et al[26] piloted a comparison group study in which individuals with PPA received 10 weeks of conversation training for 1-hour weekly with student SLPs while their caregivers spent time networking with one another or meeting with a social worker or SLP to address education. Group participants showed improvements in quality of communication as well as coping skills compared with matched controls. Feedback from all 10 participants in the active treatment group highlighted the need for intervention customized to both people with PPA and their caregivers.

COMBINING APPROACHES FOR A PPA GROUP TREATMENT MODEL

Families affected by PPA, similar to John and Cathy in our vignette, are presenting with increasing frequency to SLPs. Their communication challenges are real. Their language and cognition profiles are different from most individuals post-stroke, at least for the first few years of disease, and different from those experiencing Alzheimer's disease. For many individuals with neurodegenerative language disorders, as language impairments worsen, so do activity limitations and participation restrictions. There are very few naturalistic settings where PwPPA and their partners can learn new strategies to engage verbally. We propose a group treatment model to address the unique social and communication needs of PwPPA.[27] Our model incorporates evidence-based treatment approaches from well-researched fields that treat clinical symptoms typically present in those with PPA. These fields include augmentative and alternative communication (AAC), aphasia rehabilitation, and dementia management.

The first approach is compensatory and based on principles commonly used within the field of AAC. We know that communication is an intricate process that is influenced by the message; how it is generated and transmitted; and how it is received across dyads, settings, environmental, and conversational demands.[28,29] Communication is multimodal. People use not

only vocalizations and speech to convey messages, but gestures, facial expressions, body language, writing, and drawing. Today, the use of electronic devices (computers, tablets, smart phones, and more) has added additional modes of communication that are widely accepted around the world by all generations. As PwPPA gradually lose access to speech as their primary communication mode, they need to rely increasingly on other modes to express themselves. These unaided or aided modes and the ways we access them are referred to as compensatory strategies and tools. Case studies demonstrate that compensatory strategies benefit patients with PPA.[30–32] Cress and King,[30] for example, reported on one man who relied on augmented input, maps, drawing, and a communication book when speech became laborious. Over time, cued comprehension partner strategies were taught to family members. Most AAC clinicians who treat PwPPA strongly recommend early integration of AAC into restorative language treatment.[18]

Communication partner training is the second approach that is part of the PPA group treatment model. CPT is defined as any intervention that targets those who interact with people with PPA, addressing the attitudes, knowledge, and skills that will facilitate social interaction, with a goal to enhance social participation.[33] People who regularly interact with the PwPPA learn to use strategies and communication resources to improve functional communication, participation, and well-being of the PwPPA.[34] CPT incorporates conversational coaching and environmental modifications to teach partners of those living with PPA to assist in maintaining choice-making and engagement in meaningful activities.[35] There is tremendous support for CPT within aphasia and dementia management. People living with aphasia and their partners rank CPT as one of their top two services needed for information and assistance, and report outcomes of improved participation in conversation, activities, and social interaction.[36]

A third approach that is integrated into the PPA group treatment model is systematic instruction (SI). SI is grounded in theory that adults with cognitive-communication impairments benefit from structured training. SI includes explicit models, minimization of errors during acquisition, active learner engagement, carefully guided practice to ensure mastery, maintenance, and generalization across contexts.[37]

The PPA treatment group model has three goals: (1) to provide an environment where people with this degenerative language disorder could connect with peers for training and support; (2) to train PwPPA and their primary communication partners (CPs) how to use specific compensatory supports in conversation; and (3) to provide practice opportunities so that PwPPA and their CPs could master use of a wider range of communication modes in spontaneous conversation.

For this article, we describe the development and implementation of intervention modules in the group setting and discuss results addressing the question: Is group treatment an effective format for increasing the number and variety of reported communication modes by individuals with PPA and their CPs?

METHODS

The PPA treatment group was held within the Department of Speech and Hearing Sciences in the College of Liberal Arts and Sciences at Portland State University (PSU). PSU supports an on-campus speech and hearing clinic that is a training site for students and provides services to community members. For the past two decades, PSU has held clinics serving adults with aphasia, using a multimodality approach with a primary focus on functional communication and social integration. PSU never previously offered a group for individuals with PPA and their partners.

The group leader was a SLP graduate clinician who developed the training modules as a special project for completion of graduate studies under direct supervision of the first author, a PSU faculty member and certified SLP. Four additional PSU graduate clinicians administered the group intervention. They participated in an 8-hour orientation on PPA, its impact on communication and participation, and current evidence for SLP intervention. The students were reacquainted with interventions previously taught in their graduate courses for adult language, motor speech, and cognitive rehabilitation, including CPT for people with

aphasia, and multimodal communication supports used in AAC.

All group sessions took place in the PSU Speech and Hearing Clinic. Participants were seated around large tables arranged in a semicircle; pens and pads of paper were provided. For the individual and dyad training portions of the intervention, participants and clinicians moved to smaller clinic rooms.

Participants

Five individuals diagnosed with primary progressive aphasia (PwPPA) and their CPs formed the treatment group. Diagnosis of PPA was made by a board-certified neurologist using the criteria of Gorno-Tempini et al.[5] Two women and three men presented with PPA, and ranged in age from 63 to 73 years (M = 67 years). Two participants presented with svPPA, two with nfvPPA, and one with lvPPA. PPA variant was identified through medical chart review, including neurology records. No formal standardized language assessment was conducted. There were six primary CPs, ranging in age from 49 to 76 years (M = 64 years). Participant B had two CPs: husband and son. Length of relationships with the CPs ranged from 10.5 to 51 years (M = 38 years). Each PwPPA reported adequate visual acuity for daily reading tasks and functional hearing at the conversational level. All participants were Caucasian, identified English as their primary language, and resided in a single-family residence. Four out of five PwPPA were familiar with and currently used mobile technology while all six CPs used mobile technology.

Individuals were eligible for recruitment based on their participation in a university speech and language clinic, constituting a convenience sample for a population with a relatively low prevalence rate. All participants provided written informed consent under the approval of the PSU Institutional Review Board. Tables 1 and 2 present participants' demographics.

Procedures

Each graduate clinician was paired with one PwPPA/CP dyad. Clinicians met their dyad for 2 hours prior to the initial group meeting. The purpose of this session was threefold: (1) to begin to form clinician–client rapport; (2) to gather demographic information from both the PwPPA and CP; and (3) to complete the modes of communication survey, described later.

Table 1 Participant demographics for PwPPA

PwPPA	Gender	Age (y)	PPA variant	Education (y)	Familiarity with technology
A	F	63	svPPA	16	Yes
B	F	73	nfvPPA	18	Yes
C	M	63	svPPA	16	Yes
D	M	72	lvPPA	18	Yes
E	M	66	nfvPPA	18	No

Abbreviations: lvPPA, logopenic variant of primary progressive aphasia; nfvPPA, nonfluent variant of primary progressive aphasia; PwPPA, people with primary progressive aphasia; svPPA, semantic variant of primary progressive aphasia.

Table 2 Participant demographics for CP

CP	Gender	Age (y)	Length of relationship with PwPPA	Education (y)	Familiarity with technology
CP-A	M	67	40	18	Yes
CP-B1	M	76	51	16	Yes
CP-B2	M	49	49	18	Yes
CP-C	F	59	32	16	Yes
CP-D	F	65	10.5	19	Yes
CP-E	F	66	47	15	Yes

Abbreviations: CPs, communication partners; PwPPA, people with primary progressive aphasia.

Group intervention lasted for 6 weeks. Treatment sessions were held twice weekly for 1 hour. Weekly sessions were organized as follows: Session 1 was attended by PwPPA and graduate clinicians only; Session 2 was attended by the PwPPA/CP dyad and graduate clinicians.

Session 1: Introduction of communication mode to the PwPPA. Information was provided using verbal presentation augmented by PowerPoint presentation slides and accompanying written handouts (developed using aphasia-friendly principles for health education materials). Participants were seated with their assigned graduate clinicians who offered support via augmented input methods of key-wording and written choice. Lecture was immediately followed by a short demonstration and modeling of the communication mode by the group leader and a volunteer PwPPA; all were encouraged to ask questions or request clarification. Next, each PwPPA and clinician moved to a small treatment room for individualized massed practice, grounded in SI. SI techniques included explicit models, minimization of errors during acquisition, active learner engagement, and carefully guided practice to ensure mastery. Clinicians integrated personally relevant stimuli into all SI. Finally, the group reconvened for concluding discussion, assignment of home exercise, and request of personally relevant materials for the following session.

Session 2: Introduction of communication mode to the CP; review for PwPPA. The information was provided using verbal presentation, PowerPoint slides, and aphasia-friendly written handouts. Each dyad was seated with their graduate clinician who again offered augmented input as needed to the PwPPA. Lecture was immediately followed by a short demonstration and modeling of the communication mode by the group leader and a volunteer PwPPA; all were encouraged to ask questions or request clarification. Next, each dyad and their clinician moved to a small treatment room for individualized massed practice with the graduate clinician. During the practice component of Session 2, clinicians again used SI techniques and personally relevant stimuli. To wrap up, the group reconvened for discussion, assignment of home exercise, and request of personally relevant materials for the following session. Tables 3 and 4 show agendas for the biweekly sessions.

Materials

The Modes of Communication Survey is a tool created by the authors to gather information about what communication modalities are used by PwPPA. One version is given to PwPPA, and a separate version is provided for the CPs. The PwPPA version asks participants to rate how *they* use different communication modalities; the CP version asks participants to rate how *their partners* use the different modalities. Questions target specific modes of communication that can be taught as compensatory strategies in a PPA group setting. The survey uses a five-point Likert scale with a fixed choice response, as well as write-in responses. The survey was

Table 3 Session 1 weekly agenda: PwPPA only

Time	Session 1: PwPPA only
5 min	Greet members
{All}	Review agenda for current session
20 min	Introduce communication mode and compensatory strategy using lecture,
{All}	modeling, PowerPoint presentation, and accompanying written handouts
5 min	Strategy demonstration/modeling (graduate clinician with PwPPA volunteer)
{All}	
20 min	Massed strategy practice between graduate clinician and PwPPA
{1:1 breakout}	
10 min	Wrap-up: review of mode
{All}	Facilitated sharing of success and challenges
	Assign home exercises and discuss next session: agenda and materials to bring

Abbreviation: PwPPA, people with primary progressive aphasia.

Table 4 Session 2 weekly agenda: PwPPA and CPs

Time	Session 2: PwPPA and CPs
5 min	Greet members
{All}	Review agenda for current session
5 min	Respond to questions about last session and review home exercises
{All}	
15 min	Present communication mode and compensatory strategy previously
{All}	presented at Session 1, using lecture, PowerPoint presentation,
	and written handouts
5 min	Strategy demonstration/modeling (graduate clinician with PwPPA volunteer)
{All}	
20 min	Massed strategy practice between PwPPA and CP, facilitated by graduate clinician
{Dyad breakout}	
10 min	Wrap-up: review of mode
{All}	Facilitated sharing of success and challenges
	Assign home exercises and discuss next session: agenda and materials to bring

Abbreviations: CPs, communication partners; PwPPA, people with primary progressive aphasia.

administered before and after the 6-week group treatment. Changes in scores for each communication mode serve as intervention measures. The survey is presented in Appendix A.

Training Modules for the 6-Week Group Treatment

Six training modules were created for the PPA group treatment. Each module was developed based on best practices in the field and is referenced below.

Module 1—Education: PPA, multimodal communication and conversation partner training.[2,5,38–41] The first module emphasizes that PPA affects the individual *and* the family. Understanding the disease, the potential progression, and symptoms is a crucial intervention component for PwPPA and their loved ones. In addition to PPA education, the first module focuses on CPT,[41] describing the principles of multimodal communication and AAC,[18,29] and teaching the use of augmented input through key-wording and or written choice.[42] These AAC techniques rely on written word cues provided by conversation partners.[43] Augmented input strategies provide linguistic support on a turn-by-turn basis to accommodate the language processing and lexical retrieval challenges of individuals with aphasia. In real time, augmented input may provide a means for successful verbal exchanges despite persistence of language impairment, thus strengthening participation in a natural setting.[44] During this module, PwPPA and their partners watched role plays between graduate clinicians and identified the variety of modes used. Additionally, they observed two conversation simulations which modeled the key-wording and written choice forms of augmented input. To conclude the session, each PwPPA/CP dyad participated in two activities to demonstrate comprehension of themes trained. First they practiced sharing information about a recent event using at least three different communication modes; next CPs demonstrated use of key-wording and written choice during a brief conversational exchange.

Module 2—Low-tech AAC (PPA wallet cards and simple communication books).[10,18,22,45] In this module, participants are taught the value of a personal lexicon that is placed in front of the PwPPA so that word finding becomes an external rather than strictly an internal challenge. Wallet cards serve as an immediate communication support during interactions with unfamiliar CPs, helping the PwPPAs share new information about their condition. Communication books are low-tech AAC tools that augment both input and output to support conversation. They are most effective when personally customized to the PwPPA's needs and interests.[10,22] They may include text-based

items (i.e., letters, words, sentences) and symbol-based items (i.e., photos, drawings, charts).[29] During this module, participants with PPA create a personal communication book with assistance from their CPs and graduate clinicians. Examples of personally developed pages included favorite restaurants, phrases I use at volunteer site, and LA Lakers starting lineup.

Module 3—Daily communicative supports: remnants.[16,19,21,44] The PwPPA and CP are taught to recognize and collect remnants from daily activities to use as content for conversation. Remnants are a collection of items or objects that represent a personal experience and serve as contextual supports.[16] The object may be an item from a recent activity, such as movie ticket stubs, store receipts, wrappers, takeout menus, business cards, photos or objects, such as seashells.[19,21] When collected and utilized, remnants become a tactile and visual cue to assist in conversation initiation or discourse narrative. They form a joint reference and provide context and topic for information exchange. Use of remnants increases both the number of initiations and communication interactions.[46] During this module, PwPPA and their CPs watch role plays between graduate clinicians demonstrating how remnants can be used naturally as communication support to describe recent events. For massed practice training, the PwPPA use a variety of their own personal remnants to communicate at least three relevant details during informal conversation.

Module 4—Scripts.[20,22,46,47] In this module, the PwPPA and CP create personally relevant monologues or dialogues (PwPPA as initiator or PwPPA as responder) which are practiced and learned by the PwPPA for real-life communicative interactions.[20] According to Khayum and colleagues, script practice can enhance automatic retrieval during a real-life situation, especially if treatment stimuli are representative of the person's everyday environment.[22] Script training can result in more functional conversational tasks, increased word production and grammatical productivity, faster speaking rate, and improved articulatory fluency.[20,46] Additionally, when utilized as low-tech AAC, scripts can be used as written cues that a PwPPA can simply read, or present to CPs to read, either way effectively conveying their message. Prior to this module, CPs are instructed to pay attention to conversations that are repeated during the week and arrive to this session with a list of dialogues that could be scripted. During individual training, these personally relevant and functional scripts are honed with graduate clinician assist, then practiced in conversational context.[47]

Module 5—Mobile technology and built-in apps.[15,48–52] Mobile technology has changed the landscape of communication and socialization. It has become an integral part of daily life and can be used to facilitate communication.[49] Many adults with communication impairments are unaware of the apps available on their smart phones, and the powerful new ways to use them. Apps that are built into the mobile device may be utilized strategically in several ways: to help support interpersonal relationships; to create functional lists (i.e., things to remember when packing your suitcase, grocery list); to supplement communication and maintain socialization through texting and email; and to give communication support via contextual, visual, written, and graphic cues provided by apps such as contact list, text, weather, and photos.[17,48,52] In this module, participants are first taught requisite operations of the smart phone (or tablet), including locating the home button, swiping, accessing, and opening apps. After demonstrating operational mastery, participants practice utilizing apps to support their conversation. For example, participants are given the conversation prompt, *What did you do last weekend?* and then are trained to use four apps: (1) the maps app to provide visual-graphic cues that show where they went; (2) the contact list to identify who was there; (3) the photos app to provide visual cues to describe or add detail to their responses; and (4) the text app to provide written cues to recant a conversation.

Module 6—Optimizing communication: Intentional multimodal communication support. Successful communication participation demands opportunities for practice in the use of multiple modalities. The goal for this module is to provide a high number of practice opportunities to use multimodal communication in natural conversation. Training focuses on demonstration, instruction, and guidance to

integrate multiple modalities in conversation. Rautakoski defines this as, "a way of communicating through all available modalities and means of communication including the support of a communication partner."[53] All modes recently trained (i.e., key-wording, communication books, remnants, scripts, and mobile technology with built-in apps) are modeled and encouraged. Each dyad is given conversation starters that require use of multimodal communication skills to initiate and maintain an interaction.

RESULTS

The five PwPPA completed the modes of communication survey before and after the 6-week treatment group. Table 5 shows their changes in scores. All five PwPPA reported increases in the number and variety of communication modes utilized after participation in group. They all reported increased use of both key-wording and personalized communication books during communicative interactions. Four out of five PwPPA reported increased use of scripts to support communicative interactions. Three out of five reported increased frequency of use of remnants and native apps on their mobile technology. Four of five PwPPA reported increased use of at least four modes.

CPs were asked to consider and evaluate their partners' use of targeted modes of communication, before and after group treatment. There are no posttreatment scores reported for CP-C, as she was unavailable due to family emergency. Four out of five CPs perceived an increase in the numbers of modes used. Three out of five CPs reported increased use of key wording, personalized communication books, scripts, and native apps on mobile devices to support communicative interactions. With no one modality standing out, this may indicate that the dyads learned to match the best strategy with the needs in a given communication setting. Neither PwPPA nor CPs validated increased use of wallet cards as a communication mode.

Participants' feedback regarding the value of the PPA group treatment was gathered during a group discussion after the final session. Overall satisfaction with the group format was high. They unanimously found the university clinic setting to be good and the parking to be poor. Regarding the amount of intervention time, all participants felt meeting twice weekly was just right. However, the entire group validated that hourly sessions were not long enough. Most agreed that increasing session length by 30 minutes would suffice. All dyads agreed that enough take home information was given. When asked, *What did you find most helpful about this group?*, four themes emerged: (1) being around others who understand; (2) connecting and developing community; (3) exploring other ways of communicating and practicing them; (4) learning strategies in advance of need. Participants shared that they enjoyed the support of being with others with the same syndrome and challenges. One member suggested they exchange emails to stay in contact and every other member agreed and joined in. Additionally, some PwPPA reported increased confidence, a more positive personal identity as well as having an improved knowledge of PPA. Due to the increase in number of modes used, over half of the participants reported improvement when interacting with their

Table 5 Change in scores for each item in the modes of communication survey, before and after 6-week treatment group, for PwPPA and for CPs

	PwPPA reported use					CP perceived use[a]				
Modes	**A**	**B**	**C**	**D**	**E**	**CP-A**	**CP-B1**	**CP-B2**	**CP-D**	**CP-E**
Key-wording	+2	+3	+1	+1	+2	0	+1	0	+1	+2
Comm. book	+2	+1	+1	+2	+2	0	0	+1	+2	+2
Script	+2	+4	+0.5	0	+1	−1	0	+1	+1	+2
Remnants	+2	−4	+0.5	+2	0	0	+1	−1	+1.5	+1
Native apps	0	+2	+1	+1	0	0	0	+1	+2	−2
Wallet card	0	0	+1	0	0	0	−1	0	0	0

Abbreviations: CPs, communication partners; PwPPA, people with primary progressive aphasia.
[a]Post-assessment data incomplete for CP-C due to family emergency.

environment (e.g., attitude of people with whom they interact). When asked what was least helpful, participants reiterated that there was not enough time in each session. Finally, when given the choice for more time to learn new strategies or more time to practice the strategies, all participants chose more practice time. They whole-heartedly endorsed the need for a psychosocial support group to discuss concerns, discuss experiences, and form friendships. All participants indicated they would attend the group again if it was offered.

DISCUSSION

A new 6-week PPA group treatment model is presented for increasing use of multimodal communication by adults with PPA and their CPs. We designed intervention modules based on effective strategies from the AAC, aphasia rehabilitation, and dementia management fields, and grounded the group treatment in the communication participation model.[29] Implementation was feasible in a university clinic. Results indicate that group training is an effective intervention for expanding the number and variety of communication modalities used. Results replicate those found by Morhardt et al[9] who reported that the PPA group is a feasible and valued option that offers support, education, and activity programs for persons with PPA and their care partners. Education about the symptoms and progression of PPA, as well as social engagement and meeting others with the same language challenges, led to a sense of empowerment and hopefulness for daily active participation.

For many PwPPA, treatment strives to maintain language use in the face of the progressive disease. With the new PPA group treatment model, there is a reported increase in expressive modalities that support language use. While oral language skills continue to decline, the means to express oneself continues to be maintained with compensatory strategy use. The increase in number and types of communication modalities reported by participants is a strong positive outcome of a group treatment model for individuals with this neurodegenerative language disorder. They are, in fact, building an external lexicon to retrieve words that are placed in front of them, rather than relying on an internal lexicon and impaired word finding skills. The compensatory strategies provide tools for maintenance or even improvement in social interactions.

Participants reported satisfaction with intervention and provided many useful suggestions for improvement of the model. They unanimously requested additional practice time as individuals and as dyads for trying the newly introduced communication modes. They felt session time should be increased to 90 minutes twice weekly. They validated that the psychosocial support of others with the same disease was helpful during communication treatment. Some PwPPA reported increased confidence, stronger positive personal identities, and strength to cope with the disease and its progression because of more knowledge. Due to an increase in the number of modes used for language expression, over half of the participants reported improvement in interaction within their environments. The improved multimodal language use changed attitudes of people with whom they interacted, and gave CPs means to support interaction with written keywords.

Based on participants' comments collected during informal interview and feedback from the graduate clinicians, the six treatment modules will be modified for future implementation. Instead of holding the first session of each week with the PwPPA only, every session should include the PwPPA and their CPs. Practice time for each mode will be increased by lengthening the sessions to 90 minutes. Massed practice will be initially modeled by the graduate clinician followed by dyad practice. Dyads will continue to be encouraged to bring personally relevant vocabulary to the sessions, so that they have materials for each module that are customized and meaningful. Every module will have consistent, aphasia-friendly language tools and supports available during each session.

Recently, there has been considerable effort worldwide to develop aphasia intervention guidelines, clinical pathways, and best practice documents that are consistent with the participation approach.[54,55] In this

Seminars issue, there is an article devoted to the inclusion of PwPPA in the aphasia camp model. We strongly advocate for a PPA research agenda that is parallel to the Life Participation Approach to Aphasia (LPAA) efforts. LPAA methods will need to be modified to accommodate a population of individuals with degenerative disease, and goals will need to be focused on the maintenance of communicative participation. Comparative effectiveness studies and evaluation of practice-based models should include PwPPA and their partners.

CONCLUSION

A novel 6-week multimodal communication group treatment was designed and implemented. Six modules were piloted with five PwPPA and their CPs. The group treatment model created a greater sense of communication confidence, hopefulness, and social engagement by PwPPA and their partners, and each PwPPA left with compensatory strategies to support language use during the course of this relatively rare progressive disease. The intervention was feasible and enjoyed by participants, and considered overall to be a success. This initial group treatment was a pilot endeavor. Future directions were suggested by participants for the treatment modules. Iterative development of the PPA group model, with additional participants and outcome measures, will strengthen implementation and the value of this important intervention in a naturalistic environment.

DISCLOSURES

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Appendix A Modes of communication survey: PwPPA

1 = Never: Do not use this strategy at all in daily life
2 = Rarely: 0–1 times per week
3 = Occasionally: 2–3 times per week
4 = Often: 4 or more times per week
5 = Always: Rely on this strategy as a main communication tool

Score each item with a number from 1 to 5	1	2	3	4	5
Low-tech augmentative and alternative communication					
1. Do you use paper and pencil to assist in communicative interactions?					
a. Do you write out what you are communicating?					
b. Do you draw pictures to communicate?					
c. Do you use key wording to communicate?					
2. Do you use a personal communication book to assist in communicative interactions?					
3. Do you use any form of a wallet card to assist in communicative interactions?					
Daily communicative supports: Remnants					
4. Do you use items (objects, printed materials, packaging) that you encounter throughout the day in your environment to assist in communicative interactions?					
Scripts					
5. Do you use scripts to assist in communicative interactions?					
Native apps on devices					
6. Do you use any apps native on your personal electronic devices to assist in communicative interactions? Please list:					
Outside apps on devices					
7. Do you use any apps outside of those that are native to your personal electronic devices or any apps that you installed or purchased to assist in communicative interactions? Please list:					
Optimization of communication					
8. List the tools you rely on the most to assist in communicative interactions:					