


Research Report

UK speech and language therapists' views and reported practices of discourse analysis in aphasia rehabilitation

Madeline Cruice† , Nicola Botting† , Jane Marshall†, Mary Boyle‡, Deborah Hersh§, Madeleine Pritchard†  and Lucy Dipper†

†Division of Language and Communication Science, School of Health Sciences, City University of London, London, UK

‡Department of Communication Sciences and Disorders, Montclair State University, Montclair, NJ, USA

§School of Medical and Health Sciences, Edith Cowan University, Joondalup, WA, Australia

(Received October 2019; accepted January 2020)

Abstract

Background: Discourse assessment and treatment in aphasia rehabilitation is a priority focus for a range of stakeholder groups. However, a significant majority of speech and language therapists (SLTs) infrequently conduct discourse analysis, and do not feel competent in doing so. Known barriers identified in other countries, specifically a lack of time, training, expertise and resources, affect use of discourse analysis in clinical practice.

Aims: To investigate UK SLTs' reported practices and views of discourse analysis, barriers and facilitators, and clinical feasibility in aphasia rehabilitation.

Methods & Procedures: An online survey of 52 questions adapted from existing research and incorporating behaviour change literature was created for the study and piloted. UK SLTs working in aphasia rehabilitation for at least 6 months were invited to participate. Potential participants were contacted through national and local clinical excellence networks, a National Health Service (NHS) bespoke e-mail list, and national magazine advertisement, and the study was also advertised on social media (Twitter). Therapists read an online participant information sheet and submitted individual electronic consent online; then progressed to the Qualtrics survey. Descriptive, correlational and inferential statistical analyses were conducted, and content analysis was carried out on the questions requiring text.

Outcomes & Results: A total of 211 valid responses were received from primarily female SLTs, aged 20–40 years, working full-time in the NHS in England, in community, inpatient and acute/subacute multidisciplinary settings. A total of 30% SLTs collected discourse analysis often, were mostly very experienced, and working part-time in community settings. Years of experience was predictive of use. Discourse was most often collected using standardized picture descriptions and recounts during initial assessment. Samples were infrequently recorded, and typically transcribed in real-time. Most SLTs (53–95%) reported making clinical judgements or manually counted words, sentences, communication of ideas and errors, and were confident in doing so. Barriers included time constraints; lack of expertise, confidence, training, resources and equipment; and patient severity. Discourse 'super-users' were distinguished by significantly higher professional motivation for discourse and workplace opportunity than other SLTs, and 'non-users' were distinguished by significantly less knowledge and skills in discourse analysis than other SLTs. SLTs reported a desire and need for training, new/assistive tools and time to do more discourse analysis in practice.

Conclusions & Implications: Clinicians were highly engaged and relatively active in at least some aspects of discourse analysis practice. Interventions that target individual clinicians as well as organizations and systems are needed to improve the uptake of discourse analysis in practice.

Keywords: aphasia, clinical practice, discourse analysis, speech and language therapist, survey.

Address correspondence to: Madeline Cruice, Division of Language and Communication Science, School of Health Sciences, City University of London, Northampton Square, London EC1V 0HB, UK; e-mail: m.cruice@city.ac.uk

What this paper adds

What is already known on the subject?

- Discourse in aphasia rehabilitation is a priority in clinical practice and research. However, the majority of clinicians infrequently collect and analyse discourse. Research in Australia and the United States indicated that lack of time, assessment resources and relevant knowledge and skills are the main barriers to use.

What this paper adds to existing knowledge

- Compared with existing research, UK SLTs were more likely to see discourse analysis as part of their role and experienced fewer barriers, and more SLTs did it at least sometimes in clinic. However, practices were limited by lack of training, giving rise to challenges in selecting and interpreting findings for clients. More use was predicted by more experience and commitment to discourse analysis, particularly where workplaces supported this approach. Less use was associated with less knowledge and skills in discourse analysis. Practice and decision-making were influenced by client factors and constrained to a lesser degree by logistical challenges.

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

- Education and training in discourse analyses and in specific procedures are needed to improve individual clinicians' knowledge, skills and confidence in using discourse analysis for clients' rehabilitation. Equally, organizational and systems changes are needed to promote, support and reinforce discourse analysis in the workplace.

Introduction

All key stakeholders in aphasia rehabilitation—researchers, people with aphasia, family members, clinicians and professional bodies—have identified discourse as important and a priority in aphasia rehabilitation. Discourse measurement in aphasia research was the subject of a recent clinical forum in the journal *Aphasiology* (32/4, 2018) with eight articles discussing the value and merits of discourse. Furthermore, it can be considered a means for evaluating effectiveness of aphasia rehabilitation. In their review of 57 randomized controlled trials (RCTs) of speech and language intervention, for 3002 people with aphasia, Brady *et al.* (2016) highlight that for treatments that aim to improve communicative ability, the primary outcome measure should reflect communication activity in real world settings. These outcome measures should evaluate functional communication skills, that is, successful transmission of messages via spoken, written and/or non-verbal modalities. Discourse analysis is considered an ideal primary outcome measure of functional communication and was used in four RCTs reviewed.

In an international study of 68 people with aphasia and family members from seven countries, Wallace *et al.* (2017) identified priority outcomes for future aphasia rehabilitation research that included improved communication for people with aphasia. This included several outcomes relating to discourse: improved verbal and written expression, improved discourse at sentence level, to have normal and meaningful conversations, to

have complex conversations including giving explanations and conversation via the telephone, and to be included in conversation and group conversations. In a related study of aphasia clinicians and managers, consensus was gained on an outcome pertaining to discourse, specifically that the person with aphasia can communicate more than their basic needs such as memories and opinions (Wallace *et al.* 2017). It is unsurprising that people with aphasia have recovery of communication as a key goal of speech and language therapy (SLT), and similarly highlight the range of communication functions, from expressing basic needs to opinions (Worrall *et al.* 2011).

Finally, discourse treatment is acknowledged and recommended in the latest expert reviews and clinical guidelines. For example, the evidence-based and expert-endorsed best practice statements for aphasia rehabilitation recommend people with aphasia be offered therapy to gain benefits in communication in everyday environments, and treatment to improve word retrieval can include discourse treatment (Power *et al.* 2015). The *Canadian Stroke Best Practice Recommendations* recommend treatment to improve functional communication to include language therapy including production and comprehension of words, sentences and discourse (Herbert *et al.* 2016).

To summarize in the words of Dietz and Boyle (2018: 460), discourse assessment and treatment in aphasia rehabilitation research has reached the *tipping point*. Discourse as a trend has permeated all stakeholder

groups; it unites researchers, clinicians, clients, family members and professional bodies in the collective quest to improve everyday communication outcomes for people with aphasia, and thus should shape service provision and research agendas. Despite this swell of interest and attention, the field is challenged by limitations in clinical expertise and the research evidence base, which are discussed in turn below.

Several studies indicate that discourse analysis is not embedded in routine practice in aphasia rehabilitation and highlight reasons for this. The most relevant of these is the survey conducted by Bryant *et al.* (2017) of 123 aphasia clinicians in Australia, New Zealand, Canada, the United States and the UK regarding their clinical linguistic discourse analysis practices and views. Whilst a significant minority of clinicians (almost 40%) reported using discourse analysis *always* or *usually*, almost half the sample used it *sometimes* or *rarely*, and a fair proportion (14%) *never* conducted discourse analysis, citing lack of time, training, expertise and resources as reasons, as well as it not being required by their employer (Bryant *et al.* 2017). Two-thirds of clinicians reported that availability of clinical time influenced which discourse genres they sampled in assessment, and a significant minority (40%) cited availability of assessment resources. Lack of available clinical time affected transcribing a recording of discourse for most clinicians surveyed, and approximately one-fifth felt they did not have the knowledge or skills needed for transcription, or believed it was not necessary to transcribe in order to adequately assess a client. A total of 30% of clinicians felt competent using linguistic discourse analysis, whereas just over 40% did not, citing lack of use, experience, knowledge and training. Clinicians identified the steps of transcription and analysis as significant barriers to undertaking discourse analysis, and more than two-thirds wanted more time, access to assistive tools and professional development opportunities in this field. These findings are to be viewed positively in the context of earlier research in Australia, where 70 clinicians reported more broadly on their aphasia management practices; the notable finding of relevance here was that only two of 180 assessments reported were instances of discourse analysis (Verna *et al.* 2009).

Low use of discourse analysis is not uncommon; the study by Simmons-Mackie *et al.* (2005) of 94 North American clinicians reported 13 instances of discourse or natural speech analysis as an outcome measure for aphasia rehabilitation among 336 tools reported. This compares with 153 instances of linguistic and cognitive outcome measures, and 79 instances of functional communication assessments as outcome measures. Similarly, approximately half of an Australian sample of 188 aphasia clinicians reported limited knowledge and confidence in discourse approaches, and limited use in

aphasia rehabilitation. Clinicians in this study also identified sentence level and discourse treatments as one of 18 priorities for future aphasia rehabilitation research (Rose *et al.* 2014).

Finally, it is useful to look to other adult language-impaired populations. Frith *et al.* (2014) report on 265 speech pathologists' practices in five countries in the management of cognitive communication deficits in people with traumatic brain injury. Here they found that 44.3% of clinicians reported routinely assessing discourse; *more experienced* clinicians (> 10 years' experience) were more likely to assess discourse; and that discourse and/or pragmatic skills assessment was significantly more likely to be conducted in the *community* setting, compared with other settings (Frith *et al.* 2014). Interestingly, though, clinicians appeared to be primarily assessing discourse as pragmatic skills using formal assessments of perceived communicative ability and social perception, rather than undertaking linguistic discourse analysis, for example, word counts. In a qualitative study of speech pathologists treating people with non-aphasic acquired brain injury, Maddy *et al.* (2014) reported time constraints, lack of standardized data, and lack of formal education in discourse assessment and treatment as affecting clinicians' practices.

In summary, at best around 40% of clinicians routinely assess discourse of patients with aphasia in regular clinical practice; there are no agreed-upon assessment tools that are used; discourse is rarely measured as an outcome; most clinicians do not feel competent in conducting discourse assessment; and lack of time, expertise (including training), and resources are prominent barriers affecting use. Conduct of discourse analysis may vary based on geographical location (i.e., country), age of clinician, years of experience and setting (Bryant *et al.* 2017; Frith *et al.* 2014), and where relevant these variables should be considered in future research.

There has been a paradigm shift in aphasiology away from measuring treatment effects at word and sentence levels and towards measuring treatment effects at the discourse level (Dietz and Boyle 2018; see also the six commentaries to this forum article). Whilst Brady *et al.* (2016) propose analysis of naturalistic discourse as the ideal gold standard for assessing spoken language production, inspection of studies' outcome measures reveals that very few trials used discourse in this way with researchers preferring functional communication assessments. One likely explanation is the state of the current evidence base for psychometrics of discourse measures. Dietz and Boyle (2018) highlight that while there has been a proliferation in the *number* and *type* of discourse measures, with many idiosyncratic measures being developed, their reliability, validity and stability are unknown. As such, they may not be

appropriate for research purposes, let alone able to be transferred into clinical practice (Dietz and Boyle 2018). Indeed, Pritchard *et al.* (2017) concluded that discourse information measures lacked the psychometric quality needed to justify their use as sole diagnostic or outcome measurement tools in aphasia. In their review of 76 studies (48 descriptive, 27 treatment), they found #correct information units (CIUs) and #main concepts to be the most reliable, and #CIUs and percentage main concepts with strongest known groups validity, out of 58 different discourse information measures considered. Dietz and Boyle (2018) raise an urgent call to arms for considered investigation of outcome measures that consider levels and genres of discourse, and that demonstrate appropriate psychometrics, so that collectively the emerging evidence base can be accumulated across studies effectively.

A further challenge is that reviews show a lack of consensus in the field about which are the best discourse measures to use (Bryant *et al.* 2016) and studies adopt numerous measures with no clear indication of preference (Pritchard *et al.* 2017). Bryant *et al.* reviewed 165 studies (78 descriptive and 87 treatment) and counted 536 different measures of linguistic elements, spanning language productivity, information content and grammatical complexity. As highlighted above, Pritchard *et al.* reviewed 76 studies and counted 58 functional and structural discourse measures. The variability in process and outcome illustrated by these studies makes clear the lack of consensus in discourse analysis in research, which in turn provides no direction or guidance for practitioners wishing to assess and treat patients' discourse in rehabilitation. It is of interest, then, in the current research to see what measures of discourse clinicians use in practice. Some consensus does exist on elicitation stimuli and genre though. Most studies used only structured language samples, mostly typically elicited using the Cookie Theft Picture Description and the Cinderella fairy-tale telling from a wordless picture book; and narrative was the most common discourse genre, although exposition, procedure and conversation were also identified (Bryant *et al.* 2016).

The study described here is one phase within a multi-phase developmental research study seeking to establish proof-of-concept of a novel discourse intervention for people with chronic aphasia using personal narratives. Core to the future successful implementation of any novel intervention in routine practice (once tested for efficacy) is an understanding of the capacity of the existing workforce in adopting the intervention and how it interfaces with current practice, preferably underpinned by theory, and in this case, a theoretical understanding of behaviour change and professionals' behaviour (Michie *et al.* 2014). The field of behaviour change acknowledges that 'changing the incidence of any behaviour of

an individual, group or population involves changing one or more of the following: capability, opportunity and motivation, relating to either the behaviour itself or behaviours that compete with or support it' (60). Clinicians' views or beliefs can help or hinder behaviour, that is, whether they analyse aphasic clients' spoken discourse. We drew specifically on the Theoretical Domains Framework (TDF; Cane *et al.* 2012) as a means of framing clinicians' current and future behaviour. Knowing clinicians' perceived capability, opportunity and motivation for discourse analysis informs researchers' design and delivery of subsequent interventions, for example, education and training. To this end, we undertook a scope of practice study investigating current practices in discourse analysis by practising UK therapists in any setting involving aphasia rehabilitation with the overall aims:

- To characterize SLTs' current practice of discourse analysis and its application in management of clients with aphasia (i.e., to what extent SLTs use discourse analysis; how they elicit, prepare and analyse discourse).
- To explore facilitators and barriers to using discourse analysis in the clinical setting (i.e., what helps and hinders actual use, as well as therapists' views and beliefs which can help or hinder); and
- To explore potential clinical feasibility of discourse analysis (i.e., questions pertaining to the extent to which SLTs would be prepared to spend time eliciting, transcribing, and analysing discourse).

As there is some indication that experience and stage/continuum of care influence use (Bryant *et al.* 2017; Frith *et al.* 2014), we hypothesized that clinicians who were more experienced (> 10 years) and clinicians in community settings would conduct discourse analysis more frequently than those who are less experienced or working in other settings. Similarly, because of the known barriers (Bryant *et al.* 2017), we hypothesized that clinicians who reported available clinical time, available resources, and considered themselves skilled in discourse analysis would conduct discourse analysis more frequently.

Methods

Design

We used an open web-based survey in the Qualtrics platform to reach a large cross-section of SLTs. Our reporting meets the recommended reporting guideline CHERRIES (Eysenbach 2004) and is detailed in additional supporting information 1.

Participants

Individuals were eligible to participate in the study if they were (1) a qualified SLT registered with the Health and Care Professions Council; (2) currently working in aphasia rehabilitation in the UK (or had worked within the last 6 months to accommodate individuals between posts or on leave); and (3) had been practising in the UK for 6 months or more.

Survey design

The survey was adapted from Bryant *et al.* (2017) who provided their survey questions via personal communication. Participant background information was adapted to be relevant to terminology used specifically within the UK, and minor alterations were made to wording throughout the survey following team review. The two novel sections added for the present study are explained below. The survey had 52 questions across 10 sections (three about process and seven about content) as well as two information screens explaining the screening process and defining discourse for this study (see appendix A). The first section was screening (three questions); the ninth section was survey submission; and the 10th section was an optional invitation to participants to answer two questions on how they heard about the survey, and whether they wished to share anything with the research team, for example, any difficulties experienced when completing the survey, or something further that had occurred to them during the survey where there was no opportunity to reflect this in the predetermined survey questions. Content sections comprised: participant demographics and clinical background; frequency of use of discourse analysis; methods used to collect samples for discourse analysis; preparation of discourse samples; analysis measures and methods applied to discourse samples; feasibility of discourse analysis in the clinical environment; and perspectives on discourse analysis in aphasia.

Novel sections on feasibility and perspectives were created for this study. As lack of available clinical time was identified as a substantial barrier (Bryant *et al.* 2017), it warranted further investigation in this study. *Feasibility* thus explored length of time that respondents estimated they spend in preparing, administering, scoring, interpreting, and goal planning from *standard* language and communication assessments, to understand the context in which a novel discourse package (assessment, treatment, outcome measurement) could be conceived in the clinical setting. *Perspectives on discourse analysis* was inspired by the behaviour change and TDF literature. Drawing on the research of Huijg *et al.* (2014), survey questions probed nine theoretical domains, and are referred to hereafter in relation

to the broader three constructs that are known to affect behaviour change. The first was Capability, covered by three questions (Q8.1; 8.2; 8.9) which asked about respondents' awareness of discourse analysis, skills in discourse analysis, and whether or not they followed a protocol.¹ The second was Opportunity, which was covered by four questions (QQ8.7, 8.8, 8.10, 8.11). These covered support in the workplace, the availability of resources and of time.² The third was Motivation, which was covered by four questions (QQ8.3–8.6) exploring feelings associated with discourse analysis and the degree to which this was perceived as part of the respondent's role.³ Other questions in the survey additionally addressed theoretical domains, for example, respondents' confidence (Belief in capabilities) and resources (Environmental Context and Resources).

The majority of survey questions were designed for respondents to select either a single response, or multiple responses (*tick all that apply*). One section used a Likert scale of agreement; and two survey questions required a free text response (QQ5.3, 6.3). Branch and skip logic were used to move respondents efficiently through the survey, for example, by omitting questions that were rendered irrelevant by prior responses (see appendix A). Branch logic was used to move respondents answering 'Never' to Q3.1 *how often they collected and used analysis of discourse samples* through then irrelevant questions to section 7.3 to complete remaining relevant questions. Skip logic was also employed at QQ3.2 and 9.1 (see appendix A). The two open text questions were not compulsory; otherwise, all questions were mandatory, and respondents were prompted to complete any questions before progressing to the next page. The survey was piloted with several SLTs on paper and in Qualtrics including trialling across devices (desktop, laptop, tablet, mobile) and operating systems (Microsoft Windows and macOS). Minor adjustments were made following piloting, for example, reducing the length of the definition of discourse (to improve likelihood respondents read it rather than moving on) and improving the clarity of wording of questions.

Recruitment and data collection

The study was approved by the Division of Language and Communication Science Proportionate Review Ethics Committee, City, University of London on 7 August 2018. The Participant Information Sheet (four pages) and Consent Form (one page) were online, and once the respondent had given named and dated electronic consent, they then progressed through to the survey itself. This was a separate file in Qualtrics ensuring unlinked data and that anonymity of respondents was preserved. The survey was open from 10 August to 4 December 2018. Potential participants were targeted

strategically through organized professional networks, Twitter (@LUNA_Aphasia project handle and authors' personal account handles) and the project website (blogs.city.ac.uk/luna), and a National Health Service (NHS) Expression of Interest e-mail list created specifically for the broader research project. Organized professional networks included (1) British Aphasiology Society (BAS); (2) the Royal College of Speech and Language Therapists (RCSLT) Clinical Excellence Networks (CEN)—South West Aphasia CEN, Stroke East CEN, West Midlands Neuro Rehabilitation CEN, Aphasia Therapy CEN, ABICEN, London Adult Neurology CEN, and Northern Ireland Acquired Communication Disorders CEN; and (3) the RCSLT Hubs network Basecamp messaging system. The survey was also advertised by a quarter page print advertisement in the RCSLT professional monthly magazine *Bulletin*. An NHS e-mailing list was created from the 60 expressions of interest submitted by SLT Managers/Therapy Leads. Information regarding the survey including the Qualtrics survey link was e-mailed to representatives from each organization and to the nominated e-mail addresses of NHS managers, as well as posted on the project website and tweeted. Representatives agreed to cascade information to their e-mailing lists and/or include it in newsletters. Monthly reminders including updates on survey completion numbers were provided to contacts throughout the live period.

Data analysis

Data were exported from Qualtrics into Microsoft Excel and reviewed. Incomplete, that is, unsubmitted responses were removed from analysis, in line with project ethics and participant information sheets, which stated that only complete and submitted responses would be analysed. The section at which individuals stopped responding was noted.⁴ Detailed descriptive statistics are provided in the additional supporting information, with main findings reported in the Results. Percentages reported in the text are rounded to the nearest whole number. Data were analysed using chi-square analyses, analysis of variance (ANOVA) and regression analyses where appropriate. The large number of participants meant that parametric analyses were robust even where the measures were ordinal in nature. Free text responses for QQ5.3 and 6.3 and free text options (i.e., *Other* responses throughout survey) were copied to Microsoft Word and content analysis applied (Hsieh and Shannon 2005), analysed by authors DH and MC with peer debriefing conducted with the team. Content analysis, a research method used to analyse text data, was used in two ways with the survey data. Q6.3 elicited some list-type responses which were analysed quantitatively through

counting occurrences and descriptive statistics. Open, free-text responses were read through several times and analysed qualitatively using conventional content analysis and inductive, thematic category development (Renz *et al.* 2018).

Results

A total of 269 responses was recorded in Qualtrics of which 211 responses were eligible and complete (ineligible or did not respond to eligibility screening questions $n = 15$; incomplete $n = 43^5$). The majority of the sample was female (96%), aged 20–40 years, working in England, in the NHS (78%) and in multidisciplinary teams (86%), in full time positions (57%), and mostly in community, inpatient rehabilitation, or acute/subacute settings (table 1). There was a good range of educational background, years of clinical and aphasia experience, and aphasia representation on caseloads. Respondents with less experience in aphasia (< 5 years) tended to work in acute/subacute and inpatient settings, and respondents with more experience (≥ 16 years) tended to work in other settings mainly community. Within the sample, 167 respondents completed optional Q10.1, which explored how they knew about the survey: via a RCSLT CEN ($n = 58$), e-mail correspondence forwarded on by work colleagues and managers/leads ($n = 50$), Twitter ($n = 31$), NHS EOI e-mail list ($n = 29$), BAS ($n = 25$), and RCSLT HUB communication ($n = 8$), and *Bulletin* advertisement ($n = 3$) (the question allowed more than one option to be selected). Participants took on average 31 min and 9 s to complete the survey.

Research aim 1: Current practice

A total of 30% of respondents collected and used discourse analysis often (i.e., *always* and *usually*), 37% *sometimes* used discourse analysis and 32% used it infrequently (i.e., *rarely* and *never*) (figure 1) (and see additional supporting information 2). These three subgroups can be considered Super-users, Users and Non-users. Super-users were most likely to be part-time and/or community-based⁶ therapists with many years' experience of aphasia⁷ (≥ 16 years). However, a significant minority (30%) were full-time, hospital-based⁸ therapists with fewer than 16 years' experience (figure 2). When age, qualifications, work setting, part- versus full-time, NHS versus non-NHS, and years of aphasia experience were entered into a stepwise regression analysis, only years of experience with aphasia was a significant predictor of discourse analysis use in practice, and this factor only explained 2% of the variance in discourse analysis use (adjusted $r^2 = 0.024$, $F(1,210) = 6.24$, $p = 0.013$, $\beta = 0.17$). Subsequent analysis also showed no

Table 1. Participant demographic and clinical setting data (N = 211)

Question	Number	%
<i>Gender</i>		
Male	8	3.79%
Female	202	95.73%
Other/prefer not to disclose	1	0.47%
<i>Age range (years)</i>		
20–30	63	29.86%
31–40	76	36.02%
41–50	38	18.01%
51–60	30	14.22%
61–64	2	0.95%
≥ 65	2	0.95%
<i>Current work region</i>		
Scotland	10	4.74%
Northern Ireland	5	2.37%
Wales	4	1.90%
Greater London	31	14.69%
South East England	37	17.54%
South West England	30	14.22%
Midlands and East England	34	16.11%
North England	60	28.44%
<i>Highest level of academic achievement</i>		
Bachelor's	44	20.85%
Honours	63	29.86%
Postgraduate Certificate/Diploma	27	12.80%
Master's	65	30.81%
PhD/DPhil	12	5.69%
<i>Years of clinical experience</i>		
1	14	6.64%
2–5	63	29.86%
6–10	37	17.54%
11–15	29	13.74%
16–20	23	10.90%
> 20	45	21.33%
<i>Years of aphasia experience</i>		
1	13	6.16%
2–5	67	31.75%
6–10	36	17.06%
11–15	30	14.22%
16–20	27	12.80%
> 20	38	18.01%
<i>Current workplace</i>		
In the NHS	164	77.73%
In a non-NHS setting	22	10.43%
In both NHS and non-NHS settings	25	11.85%
<i>Current work settings (tick all that apply)</i>		
Acute/subacute	80	37.91%
Inpatient rehabilitation	92	43.60%
Outpatient rehabilitation	70	33.18%
Early supported discharge	56	26.54%
Community	114	54.03%
Long-term care	17	8.06%
Nursing homes	62	29.38%
Private practice	30	14.22%
Not-for-profit organization	6	2.84%
University	13	6.16%
Other	7	3.32%
<i>Main work setting (tick one only)</i>		
Acute/subacute	36	17.06%
Inpatient rehabilitation	44	20.85%
Outpatient rehabilitation	14	6.64%

Continued

Table 1. Continued

Question	Number	%
Early supported discharge	22	10.43%
Community	73	34.60%
Long-term care	0	0%
Nursing homes	0	0%
Private practice	14	6.64%
Not-for-profit organization	2	0.95%
University	3	1.42%
Other	3	1.42%
<i>Work in a multidisciplinary team</i>		
Yes	181	85.78%
No	30	14.22%
<i>Current work pattern</i>		
Full-time	121	57.35%
Part-time	90	42.65%
<i>Approximate percentage of caseload that contains people who have aphasia</i>		
≤ 5%	7	3.32%
10%	20	9.48%
30%	52	24.64%
50%	78	36.97%
75%	45	21.33%
100%	9	4.27%
<i>Approximate number of clients with aphasia seen per week</i>		
0	3	1.42%
1–5	127	60.19%
6–10	59	27.96%
11–15	16	7.58%
16–20	4	1.90%
> 20	2	0.95%

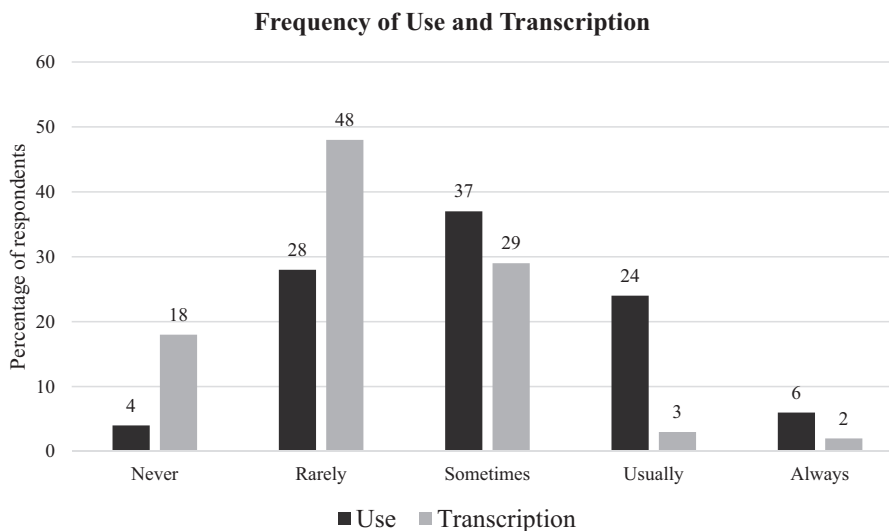


Figure 1. Frequency of discourse analysis use and transcription.

significant interactions between years of aphasia experience and the other factors.

Elicitation and genres

The majority of respondents collected discourse samples within an initial assessment battery (about

70%). Standardized test picture descriptions, that is, Cookie Theft, were most used approaches for collecting discourse samples (92%). Self-devised protocols were used by 27% of the sample and are summarized as follows. Respondents used picture description that was informal/complex/composite/sequenced and drew on local and Trust-specific pictures or used published

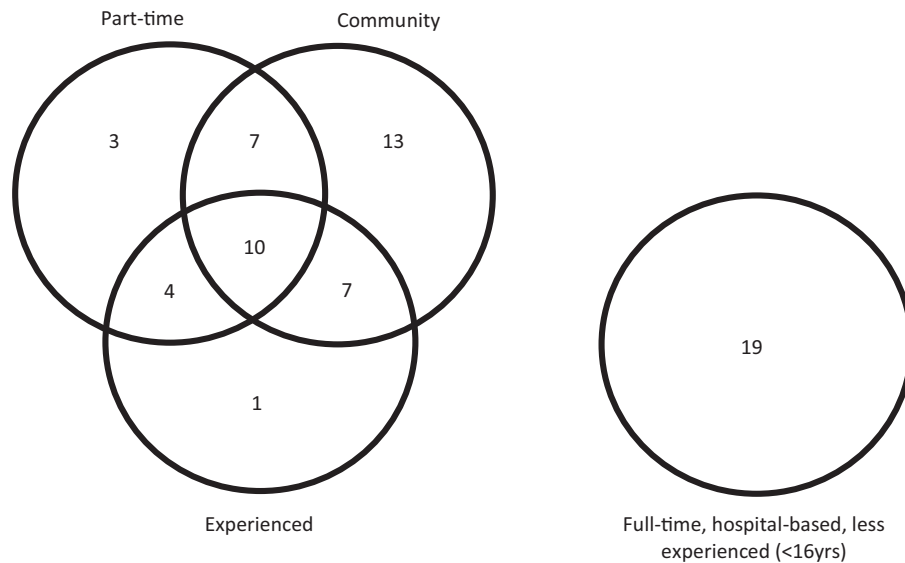


Figure 2. Characteristics of Super-users ($N = 64$).

resources ($n = 13$). They also used personal narratives or recounts ($n = 7$, e.g., tell about work/family/favourite memory or topic/hobby/holiday or events that happened during the week); procedural recounts (make a cup of tea, scrambled eggs, change a tyre; $n = 5$); and informal/bedside language or communication screening assessments ($n = 5$). Some also described a combined-samples approach ($n = 7$) such as video story retell and procedural narrative, or non-standardized picture description and autobiographical discussion. There were single instances of informal discussion and conversation, use of magazines, retelling a children's story, and use of a rating scale by patient and clinician. One response was notable for its creativity: 'Use a video making app on my iPad which asks "icebreaker" type questions and records the person's answer—it is not an app for aphasia—just a generic "fun" movie maker app' (ID93). *Other* approaches were reported ($n = 24$) and overlap was noted with the previous response option content. Approaches and elicitation tasks not already mentioned were discourse subtests from the Measure of Cognitive–Linguistic Abilities (MCLA; Ellmo 1995), spontaneous speech samples based on news, dinner party narratives, describing Pixar short films, recalling Cinderella fairy-tale and references to the methods of the Novel Approach to Real-life Communication: Narrative Intervention in Aphasia (NARNIA; Whitworth *et al.* 2015) and Promoting Aphasics Communication Effectiveness (PACE; Davis 2005).

Picture sdescription, recount (personal and procedural) and conversation were the main genres of discourse used by respondents (figure 3). *Other* methods (group conversation, video retell) were reported by 5%. Diagnosis and prognosis of the client (51–73%)

as well as time constraints and availability of resources (48–53%) influenced respondents' sampling choices. A significant proportion (27%) reported *other* influencing factors, primarily related to the client ($n = 38$), and to a lesser degree to the value of discourse analysis to the rehabilitation process ($n = 9$, goals and purpose of assessment, aim of intervention, and implications for or usefulness of in guiding therapy). Client-related factors included: goals/priorities/concerns; abilities (including language/aphasia severity, cognitive ability, medical status, health, stamina, confidence); interests (likes, dislikes, hobbies); and needs.

Purpose of discourse analysis

The majority of respondents collected discourse within initial assessment; however, 42% also used discourse analysis to follow up from standardized results. Respondents used analysis primarily to contribute to profile strengths and difficulties (92%) and clients' goal setting (94%), and less for diagnosing type and/or severity of aphasia (62%) and measuring intervention outcomes (68%) (see additional supporting information 2).

Recording and transcription

A minority of respondents recorded samples (16–33%) (and see additional supporting information 2) with transcription in real time being most favoured (69%) and analysis in real time *without transcription* also popular (36%). Respondents used *Other* to provide more detail about frequency and equipment used in recording. Once collected, making a clinical judgement of language ability was most favoured (95%) and detailed analysis

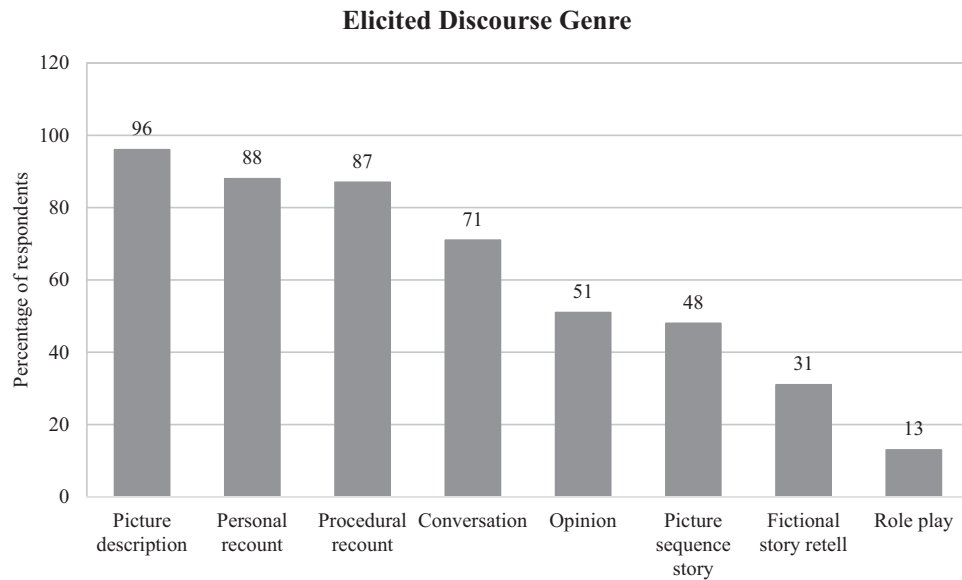


Figure 3. Genres of discourse elicited by respondents.

was undertaken by only 16%. Most respondents *rarely* (48%) or *never* (18%) transcribed with only 5% transcribing *usually* or *always* (figure 1). The majority (75%) undertook their own transcription and 6% used other means including SLT or rehabilitation assistants, students or paid research assistants.

Analysis of discourse samples

Manual counting (53%) and information and fluency judgements (37%) were the most frequently reported analytical procedures, with the majority (61%) following no specific procedure (see additional supporting information 2). One respondent used a known protocol, and there was no use of computerized procedures. Data from closed Q6.2 (figure 4) and open-ended Q5.3 (What are you looking or listening for in clients' discourse?) (see additional supporting information 4) largely mirrored each other. The vast majority of respondents (85–98%) (figure 4) analysed word-finding difficulties (WFDs), word classes, use of content words, sentence structure, communication of ideas and errors. Story structure and cohesion were analysed by three-quarters of respondents, and efficiency least analysed (50%). *Other* responses (6%) included using test guidelines, criteria and rating scales (Comprehensive Aphasia Test, Quick Aphasia Battery, MCLA) and protocols (Profile of Word Errors and Retrieval in Speech; Nicholas and Brookshire). Respondents identified the three discourse behaviours they were *most* and *least* confident in analysing accurately (QQ8.12 and 8.13) (see additional supporting information 2). Considering both questions together, respondents were: (1) most confident in analysing WFDs, word classes and communication

of ideas; and (2) least confident in analysing efficiency, cohesion, morphology, story structure and lexical diversity. Analysis confirmed that respondents were significantly more confident at word-level analysis (WFDs and word class) reliably choosing these behaviours in their top three more often than other behaviours (Friedman's Cochran $Q(12) = 629.08, p < 0.001$) and significantly less confident at morphology and story structure behaviours choosing these reliably more often in their bottom three behaviours (Friedman's Cochran $Q(12) = 559.77, p < 0.001$). Super-users were more likely to analyse cohesion (56/64; 87.5%) than other respondents in the sample (93/147; 63.2%) (Fisher's exact $p < 0.001$). None of the confidence variables was associated with whether or not respondents transcribed.

Qualitative findings echoed respondents' emphasis on words, sentences and errors as per above, but also demonstrated that respondents considered several factors when performing discourse analysis. These included: a broader range of macrostructure behaviours specifically completeness of information, sequencing of ideas, coherence and ability to convey gist; and novel⁹ behaviours such as (1) awareness and insight (of one's own language and the listener's needs, self-monitoring, use of strategies, self-corrections, problem solving, success of self-repair, and ability to use strategies when prompted); (2) spontaneous or prompted use of strategies and effect/success of these; and (3) effectiveness of functional ability to convey message and also pragmatics (topic selection, maintenance, repair, and non-verbal behaviours and other modalities). Respondents were also mindful of wider factors, for example, evidence of cognitive influences (attention, orientation, memory and sequencing), emotional aspects (confidence, frustration

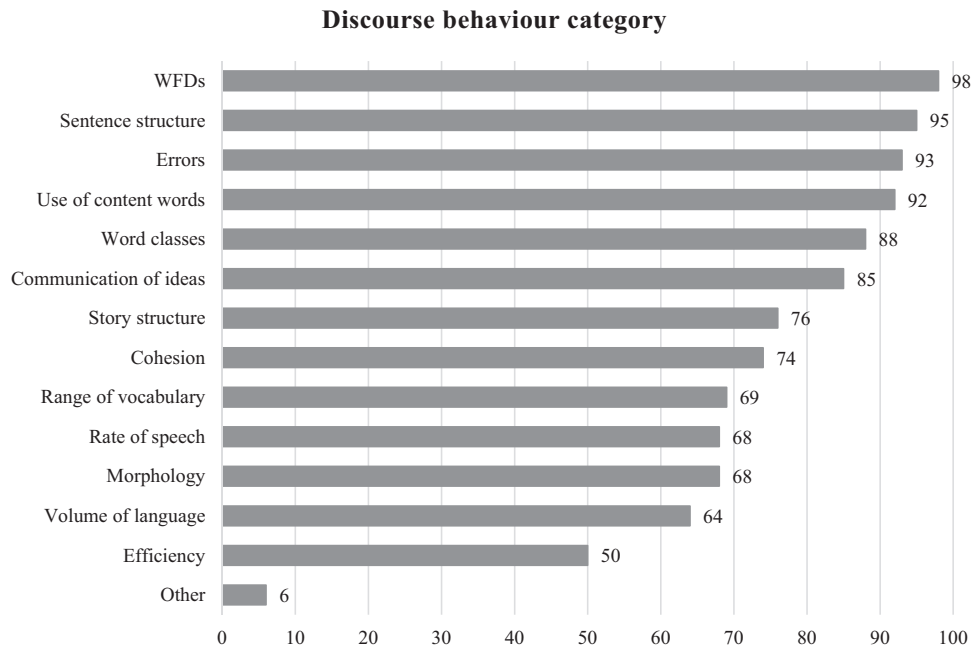


Figure 4. Categories of discourse behaviours analysed by the percentage of respondents.

and distress), and co-occurring difficulties (e.g., dyspraxia, dysarthria and sensory impairment). Respondents ($n = 202$) indicated the following frequency of use: mean length of utterance (MLU) ($n = 42$, 21%), main concepts ($n = 31$, 15%), CIU ($n = 22$, 11%), story grammar ($n = 18$, 9%), coherence ($n = 10$, 5%), and type token ratio (TTR) ($n = 6$, 3%). Respondents also described their own measures, the most frequent of which were information carrying words ($n = 11$) and grammar ($n = 6$). Many did not respond to this question $n = 37$ and many responded indicating none/not applicable ($n = 54$).

Research aim 2: Barriers and facilitators

The main barriers to collecting samples were time constraints (78%), lack of expertise (43%), lack of training (39%) and no access to computer hardware or software (38%) (see additional supporting information 3). *Other* main reported barriers were aphasia severity (severely impaired patients who have no verbal output or limited to single-word output) and clinician's judgement or impression (not considered applicable, appropriate or necessary for the patients'/clients' abilities or goals, not relevant or appropriate for patients in the acute setting). Additional individual barriers included lack of knowledge, skills and confidence in discourse analysis and using findings to inform treatment planning; unclear about evidence base for discourse therapies compared with other therapies; and lack of an appropriate space to listen back to recordings.

Nearly all aspects of the analysis process were barriers for the majority: transcribing (55%), selecting (71%) and completing (67%) the analyses, and interpreting the results (54%). *Other* reported barriers included lack of time, no recording equipment (e.g., negative experience of equipment loss in one trust meant staff not supported to collect recordings), and challenges in storing audio recordings and/or written transcripts in electronic patient systems. Barriers also included perceived inappropriateness of discourse analysis for acute patients/patient's abilities, uncertainty about how to use information gained or how relates to therapy approaches, and highly individualized challenges, for example, 'hospital requirements to complete formal mental capacity assessment prior to consent to audio record, and also gain agreement of patient's consultant psychiatrist . . . very time consuming' (ID199).

Respondents reported needing mainly professional development training (76%), access to assistive tools (74%), more time (71%) and new analytical tools (54%) to increase use of discourse analysis in the clinic (see additional supporting information 3). *Other* suggested facilitators included: equipment for voice recording of samples and making this easier, faster computer-based analysis, administration support for transcribing, addressing storage issues within electronic patient record systems, online training updates, evidence of value to warrant changing current approach, support from team lead, and increasing the priority for clinician and client.

Responses to TDF-framed questions (QQ8.1–8.11) show clear barriers and facilitators. Data are reported

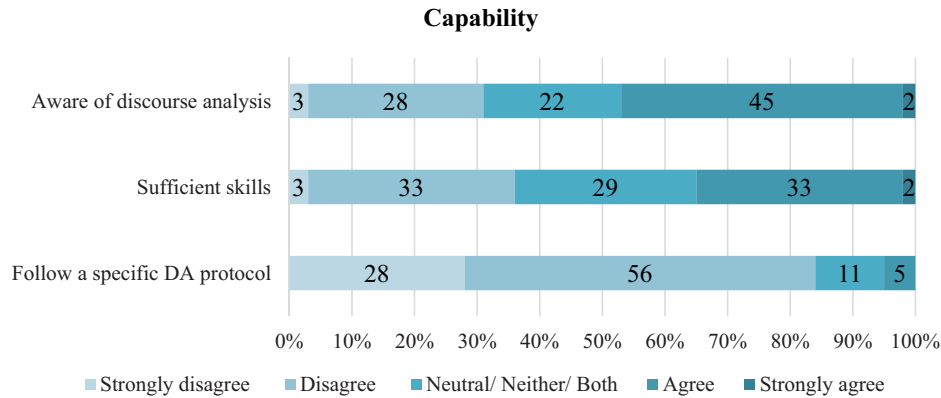


Figure 5. Capability findings. [Colour figure can be viewed at wileyonlinelibrary.com]

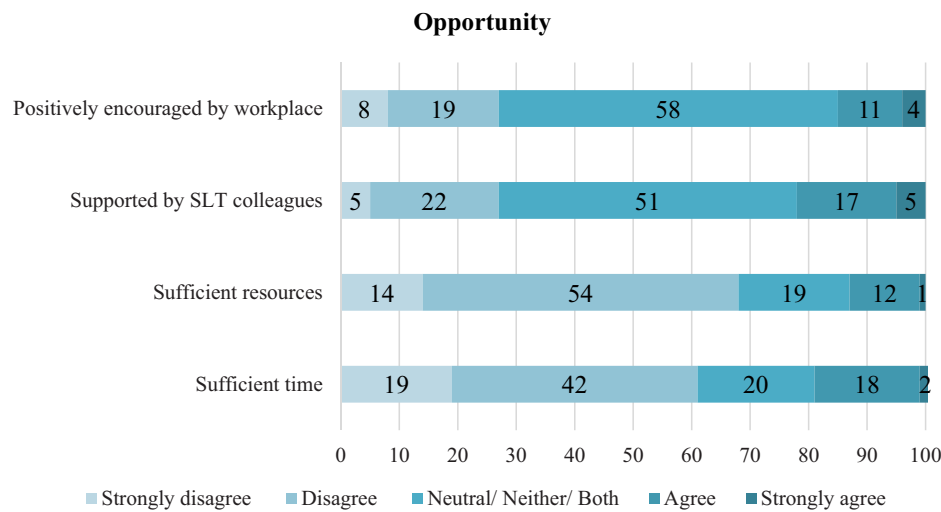


Figure 6. Opportunity findings. [Colour figure can be viewed at wileyonlinelibrary.com]

below in a series of three figures with the theoretical domains categorized according to Capability, Opportunity and Motivation (see Methods: *Survey design*). Questions within each were summed to create total scales. Statistical analysis of these three scales showed borderline acceptable internal consistency (Cronbach’s $\alpha = 0.65, 0.72$ and 0.60 , respectively) and so total scale findings (further below) should be treated with caution. Considering Capability (figure 5), awareness was a facilitator for 47% of the sample, sufficient skill was a facilitator for 35% and lack of a protocol was a clear barrier for the majority (84%). Regarding Opportunity (figure 6), insufficient resources (including time) was a clear barrier for 61–68%, more than half the sample had mixed views about workplace support (51–58%), and encouragement and collegial support was a facilitator for only 15–22%. With respect to Motivation (figure 7), cultural acceptance of discourse analysis was a clear facilitator (83–90%), lack of confidence was a barrier (47%) and respondents varied in how they felt (confused/frustrated or not) in response to completing discourse analysis.

Although above and below the Capability, Opportunity and Motivation findings are calculated and analysed independently, this separation does not reflect the interplay of factors as demonstrated by participant ID209’s unsolicited¹⁰ quotation:

Every stroke patient you meet says ‘I just want to be able to talk again’. In reality this means discourse, but my pre-reg training was very focused on single word-level interventions and not discourse, so it’s so hard to know a time-efficient and clinically evidence-based approach for discourse analysis. I’m highly motivated to do it, but time-poor and would really value training.

Three independent one-way ANOVAs comparing subgroups (Super-users, Users and Non-users) on the three scales revealed significant differences for Capability ($F(2,210) = 7.2, p = 0.001$); Opportunity ($F(2,210) = 5.2, p = 0.006$) and Motivation ($F(2,210) = 11.5, p < 0.001$). Post-hoc Scheffé analyses showed that for Capability, Non-users felt significantly less capable than Users ($p = 0.024$) and Super-users ($p = 0.002$) with

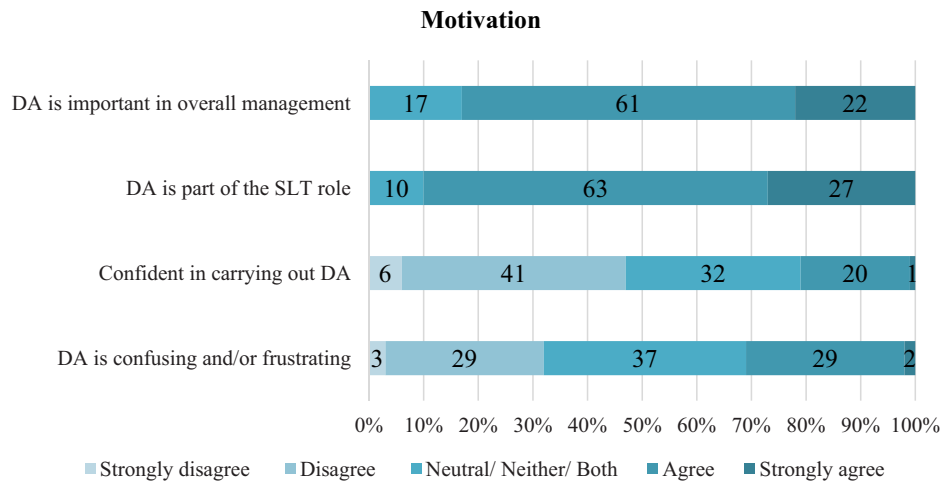


Figure 7. Motivation findings. [Colour figure can be viewed at wileyonlinelibrary.com]

no difference between the Users and Super-users ($p = 0.56$). For Opportunity, Super-users reported significantly more opportunity than Users ($p = 0.032$) and Non-users ($p = 0.013$), with no difference between the Users and Non-users ($p = 0.91$); and this pattern was also seen for Motivation where Super-users reported significantly more motivated than Users ($p = 0.004$) and Non-users ($p < 0.001$), with no difference between Users and Non-users ($p = 0.32$).

Research aim 3: Clinical feasibility

Respondents reported on their general *language and communication assessment* practices to provide context for clinical feasibility of discourse analysis/assessment. Focusing on modal responses, respondents spent 30–60 min on preparing and administering assessments, 15–30 min on scoring and interpretation, and 15–30 min on planning subsequent therapy goals (figure 8) (see additional supporting information 4). Various factors affected assessment practice, the main ones being respondents' experience (87%) and knowledge of assessments (81%), communicative ability of clients (84%), availability of tools (77%), and session time and administration time constraints (77% and 55% respectively) (figure 9). Other reported factors related almost entirely to the client (goals, needs, priorities, views, abilities, mood, cognition, medical status and ability to engage in assessment, time post-onset), purpose and aims of assessment (including how they link to goals of treatment often indicated as functional goals and practicality and usefulness to the patient), request from multidisciplinary team, extra time available in private practice, and extreme time constraints imposed in order to meet referral to treatment targets. Finally, based on a hypothetical scenario—that is, a comprehensive discourse analysis

package that included preparation, administration, scoring, interpretation and therapy goal identification—the main findings were that 40% of respondents would be prepared to spend up to 90 min in practice implementing it, and 35% would be prepared to spend up to 60 min only (see additional supporting information 4).

Main findings summary

According to self-report, 30% of respondents collected and used discourse analysis often. These respondents were mostly very experienced and working part-time in community settings, although a small group within these were less experienced and working full-time in hospital settings. Years of aphasia experience was predictive of discourse analysis use; however, most variance (98%) in frequency of use remained unexplained. Respondents used discourse analysis mainly to profile client's abilities and set goals, and less for diagnosis and outcome measurement. A total of 70% of respondents collected discourse samples within an initial assessment battery using standardized test picture descriptions; other common genres included personal and procedural recounts. Factors relating to the client and to availability of resources influenced genre sampling choices. Few respondents recorded samples (< 33%); as such transcription in real time was most favoured (69%) and carried out rarely (48%) with only 5% transcribing regularly. Analysis without transcription was also popular (36%). Most respondents made clinical judgements (95%) with detailed analysis carried out by only 16%. Most respondents followed no procedure for analysis and undertook manual counting of structures and/or made clinical judgements about information and fluency. Small numbers of respondents (< 20%) calculated MLU and CIUs and counted main concepts and story grammar. Most

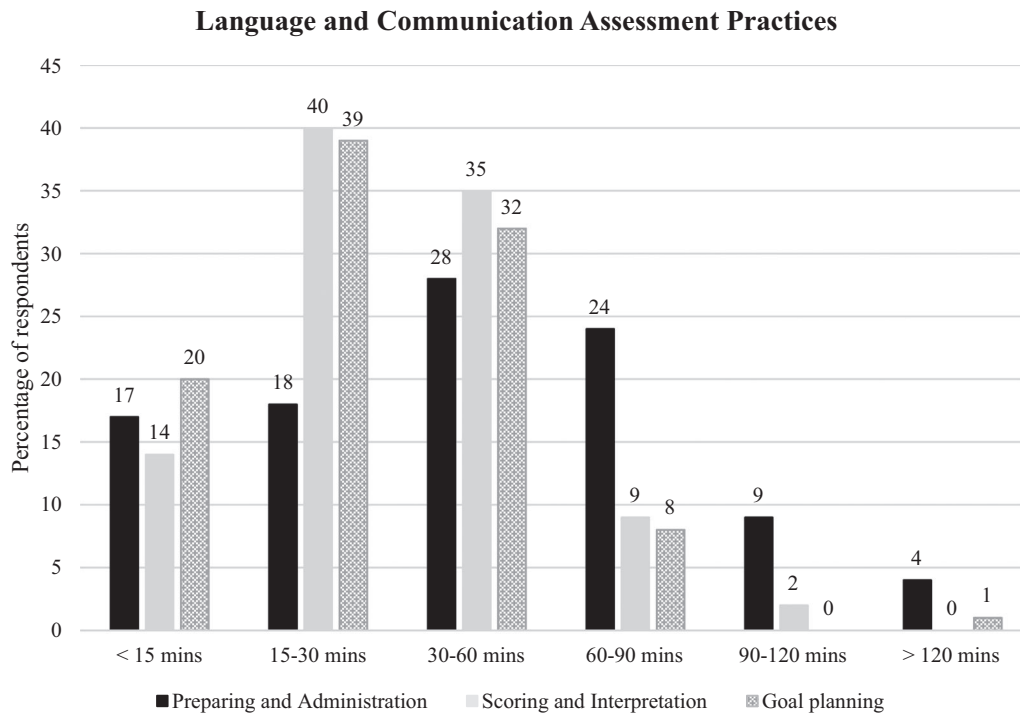


Figure 8. Time spent in language and communication assessment in aphasia rehabilitation.

respondents analysed WFDs, word class, use of content words, sentence structure, communication of ideas, and errors, and were confident in analysing word-level behaviours. Respondents also considered macrostructure discourse-level behaviours, awareness and insight, strategy use, effectiveness of functional ability, and other influences (cognition, emotion, and co-occurring communication disorder or sensory impairment). All aspects of the analysis process were barriers for more than half the sample, but notably selecting and completing the analyses were the most prohibitive. Several barriers to conducting discourse analysis in aphasia rehabilitation were revealed, the most substantial of which was time constraints (78%). Other barriers included a lack of expertise, confidence, training, and resources/equipment, and not having a set protocol to follow. Patient aphasia severity and clinician judgement of discourse goals as *not applicable* to patient were also influential. Respondents were also uncertain about workplace support and encouragement to carry out discourse analysis, and similarly varied in emotional response to discourse analysis. More than half the respondents wanted training, assistive tools, more time and new analytical tools. Most respondents considered discourse analysis within the SLT role and important in overall management. Discourse analysis Super-users (the 30% *usually* or *always* carrying it out) reported higher scores on the Opportunity and Motivation scales than other respondents. Non-users (the 32% *rarely* or *never* carrying it out)

reported lower scores on the Capability scale than other respondents. Finally, respondents spent between 60 and 120 min preparing, administering, scoring, interpreting, and setting goals from language and communication assessments. This time was influenced by clinicians' experience and knowledge of assessments, clients' communicative ability, availability of assessments, and time available (session and administration). Ultimately, 35% of respondents wanted discourse analysis to take no more than 60 min, and a further 40% were prepared to spend up to 90 min in the clinic implementing a new discourse package.

Discussion

The findings are first considered in the context of existing literature, then the novel contributions of this study are highlighted and explanations for findings are offered. It is plausible that discourse analysis in aphasia assessment is increasing. Earlier research studies in Australia and North America indicated that only 1–4% reported assessment or outcome measures were discourse related (Simmons-Mackie *et al.* 2005; Verna *et al.* 2009). In the current study, 30% of SLTs regularly collected and used discourse analysis in aphasia assessment, and Bryant *et al.* (2017) found 37% of SLTs did this. A confound here is the different study designs, wherein earlier research asked clinicians to report on *broader* aphasia management practices and may have attracted different

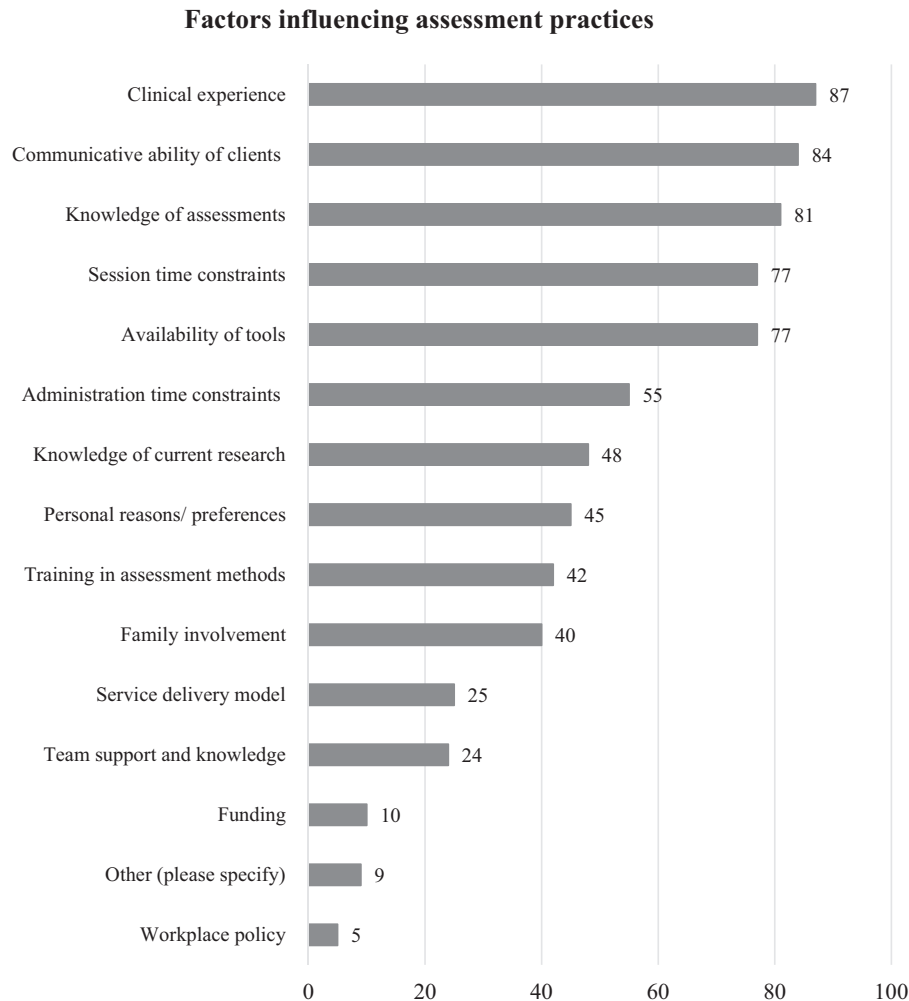


Figure 9. Factors affecting how and what to assess in aphasia rehabilitation as selected by the percentage of respondents.

clinicians volunteering to participate than those clinicians interested in discourse surveys. Nonetheless, researchers have noted an increase in the use of discourse analysis in aphasia research over time (Brady *et al.* 2016; Bryant *et al.* 2016; Dietz and Boyle 2018), and recent clinicians' consensus research also emphasizes dyadic communication as a priority outcome in aphasia treatment (Wallace *et al.* 2017). Similar to Frith *et al.* (2014), regular discourse analysis was more likely to be carried out by more experienced SLTs (significant in the present study; trend in Frith *et al.*) and those based in the community (significant in Frith *et al.*; significant but not in regression in the present study). There may be mediating or confounding factors for the effect of increased experience. SLTs who are more experienced may have had more time to develop their expertise in discourse analysis, may have had more opportunity to engage in training, may consider discourse more suited to tracking long-term outcomes for clients with aphasia, and finally they may have had different educational experi-

ences. Overall, though, whilst experience was a significant predictor in the present study, it accounted for only 2% variance, so most variation in practice remains unexplained.

The findings indicate more UK SLTs did discourse analysis *sometimes* compared with Bryant *et al.* (2017) and 10–20% less considered time, training and resources as barriers in doing so. Genre sampling choices were largely similar to Bryant *et al.*, although there was more use of recounts and less use of conversational samples by UK SLTs. Recording and transcription practices, and main analytical practices (manual counting and following no procedure) were similar across both studies. Contrastingly, there was no use of any formal protocol or any computerized analytical approaches in the UK SLTs compared with Bryant *et al.* where 12–25% used these. The general pattern for more word category analyses and fewer discourse (story structure and cohesion) category analyses is similar across studies; however, 15–20% more UK SLTs analysed sentence structure, communication

of ideas, word classes and content words compared with Bryant *et al.*; and about 10% fewer UK SLTs calculated MLUs and CIUs. Regarding beliefs, 33% more UK SLTs perceived discourse analysis important to the SLT role and subtle differences in question wording may likely to explain this finding. Similar proportions felt skilled in discourse analysis, and whilst similar proportions considered transcribing and completing discourse analyses a barrier, 15–30% more UK SLTs consider selecting and interpreting the analyses for clients a barrier. More time, tools and training are recognized as needed to enable more discourse analysis in future practice; however, UK SLTs emphasized training more than time with the reverse seen in Bryant *et al.* Available clinical time is a substantial factor influencing practice in both studies. We posit national differences between samples, wherein UK SLTs considered discourse analysis more their role and experienced barriers a little less than Bryant *et al.*'s sample, thereby more did it at least sometimes in clinic. However, UK SLTs' practices were limited by a lack of training generally and specifically in formal protocols, giving rise to challenges in selecting and interpreting findings for clients and subsequently emphasizing training needs.

The predominant picture emerging from the UK is that clinicians collected discourse samples via standardized test picture descriptions and recounts during initial assessment, which were sometimes or infrequently transcribed, but analysed nonetheless by manual counting or judgements made of word-level behaviours, sentence structure, communication of ideas and errors, and clinicians were confident in doing most of these accurately. Less formal practices were perhaps deemed suitable for profiling and goal setting which were the main purposes of discourse analysis in this study. Substantial barriers were noted. All aspects of discourse analyses were challenging with some likely to be influenced more than others by a simultaneous lack of expertise. This is coupled with time constraints and a lack of resources including actual recording equipment as well as assistive tools to speed up discourse practice. In the face of such challenge, it is heartening to see so much discourse sampling and analysis actually undertaken by those surveyed. Overall though it would seem that detailed linguistic discourse analysis from a transcript following an established protocol (undertaken typically by an experienced analyst with adequate time and resource) is a gold-standard practice largely reserved for research. Several aspects are worthy of discussion here in contrasting clinical and research practice.

Clinicians sampled the top three most frequently reported discourse genres used in research studies namely single picture description, personal recount and procedural recount (Bryant *et al.* 2016). There was, however, much less use of fictional story retell by clinicians

compared with researchers which is no doubt explained by the different purpose that discourse samples are intended to serve in these two contexts. It is noted that sampling across multiple discourse genres is desirable and demonstrated in practice (Bryant *et al.* 2017) and a common feature of research (Bryant *et al.* 2016). Our findings (figure 3) indicate that the most popular genres were each assessed by over 80% of respondents, indicating that there was at least a degree of sampling across genres in the current study. Genre is known to impact on semantic and syntactic performance in speakers with and without aphasia (Dipper *et al.* 2018).

In both research and clinical practice, transcription was typically completed manually, and there was similar limited use of computerized analysis tools. In stark contrast to research, *verbatim* transcription in the clinic was limited to just half the sample, with most clinicians making judgements rather than undertaking detailed analysis. Interestingly, transcription-less approaches to discourse analysis have been previously mooted. Armstrong *et al.* (2007) trained final year SLT students for 5 h in a transcription-less method which students then applied to three discourse tasks from individuals with aphasia. The transcription-less analysis was then compared with transcription-based analysis, with positive results in both terms of validity and reliability. However, this positive finding does not yet licence researchers and clinicians to analyse discourse without first transcribing because of the restricted measures explored in that study. With the exception of concept use, there is little overlap between measures in Armstrong *et al.* (2007) and the current study as well as both studies by Bryant *et al.* (2016, 2017). As such, transcribing rather than not transcribing should remain a preferred step in the discourse analysis process until demonstrated otherwise.

Regarding categories or measures of discourse behaviours, clinicians were much more interested than researchers (Bryant *et al.* 2016) in analysing WFDs, story structure or schema, and cohesion; similar to researchers in analysing syntactic complexity or sentence structure; and much less interested than researchers in analysing sample length. Note that the latter is the *most frequently reported* measure across the studies reviewed by Bryant *et al.* Similar to research, in the clinic there is a tendency to analyse multiple discourse measures or behaviours in one or across several samples. Again, sampling across different levels of behaviours is advised (Marini *et al.* 2011; Sherratt 2007), but as yet there is no consensus on which measures or behaviours constitute a core set (Dietz and Boyle 2018). Uniquely in this study, clinicians also used discourse to assess other macrostructure behaviours (sequencing, coherence, gist), awareness and insight (into own language ability and listener's needs), strategy use, and effectiveness in conveying message. These behaviours may be construed as reflecting more

pragmatic and functional elements of discourse performance, and contrast with the emphasis in research on linguistic discourse analysis (measures of language productivity, information content and grammatical complexity, Bryant *et al.* 2016) or the traditional understanding as informativeness and efficiency.

Several conclusions can be drawn from the TDF findings with respect to effecting behaviour change. Cultural acceptance of discourse analysis within the SLT remit is strong, meaning there is limited need for *persuasion* overall that discourse analysis is relevant and valuable (Michie *et al.* 2014). However, clearly further training—educational meetings and materials—is needed to increase use (EPOC 2015). This should focus the pre- and post-registration levels, so that SLTs enter the profession feeling equipped to undertake discourse analysis and have opportunities to refresh and develop their skills once practising. Developing a set protocol for discourse analysis, with careful regard to clinical feasibility, would likely further promote uptake, particularly if training were hooked to that protocol. Training needs to also equip SLTs to be able to make appropriate clinical decisions regarding which analyses to employ for which clients with aphasia, acknowledging the multifaceted and variable presentation of aphasia, and also acknowledging the broad definition of discourse. Supporting SLTs to become competent and proficient in the protocol may be aided by taking a stepped approach, focusing on individual analyses in turn until each is mastered. Furthermore, targeting the clients for whom discourse therapy is most relevant may reinforce the value of the approach for SLTs helping to strengthen their belief in the consequences/usefulness of discourse analysis. Support in the workplace, for example, involving buddying and team-based processes, might address the low opportunity felt by non-users. In behaviour change terms, this might represent identifying local opinion leaders and developing local or broader communities of practice to support clinicians to become and remain engaged (EPOC 2015). The problem of time, flagged by almost all respondents, calls for a multipronged approach, including managerial support and systems change. Here, as well, greater use of technology might achieve efficiencies, particularly with respect to transcription. Very recent research has explored the clinical feasibility of using automated speech recognition (ASR) software for transcribing the speech of stroke survivors with aphasia and apraxia (Jacks *et al.* 2019) with positive preliminary findings; however, the efficiency benefits of ASR were not investigated and remain a focus for future investigation.

A novel finding of this study is clinicians' substantial attention to individual clients with whom they work. SLTs' decision-making regarding their general assessment practices, broad views about appropriacy of discourse analysis for all clients with aphasia, and spe-

cific choices around sampling of discourse genres was strongly influenced by clients' diagnoses and prognoses as well as their broad abilities (language, cognition, medical status, health, stamina and confidence), needs, goals/priorities/concerns and personal interests. Severely impaired clients (those with no verbal output or limited to single words), those in the acute setting with rapidly changing profiles, and those whose goals did not consider discourse were unsurprisingly not considered likely candidates for discourse analysis and subsequent therapy. Whilst this individualized approach does come at the expense of the benefits afforded by more standardized approaches (namely consistency in behavioural regulation, automaticity and speed in skilled analysis and so on), it highlights the attunement of clinicians to clients' needs and aligns with patient-centred care in stroke. This is particularly important given that stroke patients with communication impairments continue to be excluded or minimally included in stroke insider perspective literature (Lawrence and Kinn 2012). It is possible that SLTs are mindful of the therapeutic relationship they create and develop with their patients/clients, which is important for patient engagement in rehabilitation (Bright *et al.* 2018). These findings also resonate with existing person-centred and social approaches in aphasia rehabilitation (Chapey *et al.* 2000), which are popular in clinical practice (Rose *et al.* 2014), and align with emphases on natural interaction, authentic communication contexts and incorporating the perspective of those affected (Simmons-Mackie 2008).

Finally, very practical and logistical issues face SLTs and make the task of discourse collection and use even more challenging. Data security concerns exist at many points along the discourse analysis process including at the outset, as highlighted above in the Results. Subsequent physical and virtual storage of data (both actual recordings as well as written transcripts) also poses a challenge for some SLTs using electronic record systems for patients, wherein there is no actual mechanism for importing and storing relevant patient data (and presumably a requirement to deposit all patient data within this system). There is a clear need for guidelines that support secure recording, transcription and storage of discourse analysis.

Limitations

Five key limitations are acknowledged. First, there is good representation within the sample for all demographic and clinical variables except for geographical location. Despite the UK-wide promotion of the survey, all but 20 respondents were based in England, meaning that Scotland, Wales and Northern Ireland were poorly represented in the sample. Second, the present study is based on clinicians' self-report and what they say they do may

not actually reflect their practice. An audit of clinical documentation or an observational study would address this limitation. Third, our approach to behaviour and behaviour-change as Capability, Opportunity and Motivation with subsequent independent analysis implies these fields are distinct from one another, which is limiting as there is suggestion that they are interdependent (see the above quotation from ID209 in the Results) and any subsequent interventions need to consider this interplay of factors. Fourth, the self-selecting nature of the participant sample introduces possible bias, and indeed, the majority agreed discourse analysis was important in client management and part of the therapist role. Finally, there is evidence within the data that clinicians are interested in using assistive tools, but limited information was gained. When adapting the original survey from Bryant *et al.* (2016), questions on clinicians' use and attitudes towards computer programs and analysis software were omitted to reduce respondent burden. Such information would have been valuable.

Implications

Professional development training is both wanted by those surveyed and warranted by the study's overall findings. Training in specified procedures and protocols would address the capability barriers identified and should ideally build on existing strengths (e.g., word-level analyses) in the clinical workforce to scaffold knowledge, skills and confidence. Protocols need to bear in mind what is clinically useful for client profiling and goal setting, which are the main clinical uses of discourse currently. Given the concerns around lacking psychometrics for discourse measures (Dietz and Boyle 2018; Pritchard *et al.* 2017), it may be that using discourse analysis for outcome measurement in the clinical setting is premature. Developing the psychometric evidence base is an emerging field. For example, Pritchard *et al.* (2017) have noted that main concepts and CIUs had the best reliability and validity findings amongst all the studies reviewed. Boyle (2014) also identified these measures as reliable (amongst other measures including number of words) and made an important distinction between measures appropriate for group analysis in research studies versus those appropriate for clinical decision-making for individual clients. Further research by Pritchard *et al.* (2018) identified story grammar, topic coherence, reference chains and predicate argument structure as being psychometrically robust. Time is a pervasive influential factor that warrants careful consideration in developing and advocating any such protocol. If the discourse assessment-to-goal-setting process could take ≤ 60 min, 75% of those surveyed would implement it in future clinical practice. Clearly time-efficient procedures *and* time-saving measures

must be pursued. Assistive tools would clearly be advantageous, for example, speeding up elicitation and transcription through voice-recognition software, and automated language analyses and reporting. Various ethical issues arise (e.g., confidentiality, data security, storage and access); however, these will need to be tackled and surmounted to take up such patently useful technological opportunities. In addition to post-registration training, this study may serve as encouragement to university teachers to reflect on discourse analysis in the current curriculum.

The current findings also have implications for future research. In both clinical and research practice, multiple genres are being sampled (as is advised) and multiple discourse measures/behaviours are being analysed (also advised). The challenge facing researchers thus is investigating the ideal core set of genres as well as discourse measures/behaviours that appropriately profile and baseline an individual's performance with sensitivity to change for future outcome measurement from discourse treatment.

Conclusions

Clinicians were highly engaged and relatively active in at least some aspects of discourse analysis practice. They reported largely using standardized test picture descriptions and personal and procedural recounts which they sometimes or infrequently transcribed, but then reported analysing nonetheless for mainly word and sentence behaviours, communication of ideas and errors. Super-users were distinguished by more opportunity and motivation than other clinicians, and tended to be experienced, part-time and community based although a significant subgroup were less experienced, full-time and hospital based. Time, training and tools, such as a standard protocol for discourse analysis, were desired. Making these available might assist in making detailed analysis of clients' discourse a routine feature of aphasia therapy.

Acknowledgements

The authors acknowledge Dr Lucy Bryant at the University of Technology—Sydney for generously sharing her unpublished discourse analysis survey that was employed with some adaptation in the present study. **Declaration of interest:** The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Notes

1. These questions tapped the Knowledge, Skills, and Behavioural Regulation theoretical domains.
2. These questions tapped the Social Influences, and Environmental Context and Resources theoretical domains.

3. These questions tapped the Emotion, Social/Professional Role & Identity, Beliefs about Capabilities, and Belief about Consequences theoretical domains.
4. See note 5 below.
5. Four respondents exited at Demographics, nine at Frequency, seven at Methods, six at Preparation, seven at Analysis, four at Feasibility, four at Perspectives and two at Optional, thereby indicating no specific pattern for attrition.
6. Community comprised Early supported discharge, Community, Private practice, Not-for-profit organisations, University and Other.
7. Response to survey Q2.6.
8. Hospital comprised Acute/subacute, and Inpatient and Outpatient rehabilitation.
9. Novel in that these were not listed in the possible options presented in Q6.2.
10. Respondent wrote this in the optional survey section 10.

References

- ARMSTRONG, L., BRADY, M., MACKENZIE, C. and NORRIE, J., 2007, Transcription-less analysis of aphasic discourse: a clinician's dream or a possibility? *Aphasiology*, **21**(3–4), 355–374.
- BOYLE, M., 2014, Test-retest reliability of word retrieval in aphasic discourse. *Journal of Speech, Language, Hearing and Research*, **57**, 966–978.
- BRADY, M., KELLY, H., GODWIN, J., ENDERBY, P. and CAMPBELL, P., 2016, Speech and language therapy for aphasia following stroke. *Cochrane Database of Systematic Reviews*, **Issue 6**, Art. No: CD000425.
- BRIGHT, F., KAYES, N., MCPHERSON, K. and WORRALL, L., 2018, Engaging people experiencing communication disability in stroke rehabilitation: A qualitative study. *International Journal of Language and Communication Disorders*, **53**(5), 981–994.
- BRYANT, L., FERGUSON, A. and SPENCER, E., 2016, Linguistic analysis of discourse in aphasia: a review of the literature. *Clinical Linguistics and Phonetics*, **30**(7), 489–518.
- BRYANT, L., SPENCER, E. and FERGUSON, A., 2017, Clinical use of linguistic discourse analysis for the assessment of language in aphasia. *Aphasiology*, **31**(10), 1105–1126.
- CANE, J., O'CONNOR, D. and MICHIE, S., 2012, Validation of the theoretical domains framework for use in behavior change and implementation research. *Implementation Science*, **7**, 37.
- CHAPEY, R., DUCHAN, J., ELMAN, R., GARCIA, L., KAGAN, A., LYON, J. and SIMMONS-MACKIE, N., 2000, Life participation approach to aphasia: A statement of values for the future. *ASHA Leader*, **5**(3), 4–6.
- DAVIS, G., 2005, PACE revisited. *Aphasiology*, **19**(1), 21–38.
- DIETZ, A. and BOYLE, M., 2018, Discourse measurement in aphasia research: have we reached the tipping point? *Aphasiology*, **32**(4), 459–464.
- DIPPER, L., PRITCHARD, M., WALKDEN, L. and CRUISE, M., 2018, How do speakers with and without aphasia use syntax and semantics across two discourse genres? *Aphasiology*, **32**(6), 720–738.
- ELLMO, W., 1995, *MCLA: Measure of cognitive-linguistic abilities*. (The Speech Bin, Inc.).
- EFFECTIVE PRACTICE AND ORGANISATION OF CARE (EPOC), 2015, *EPOC Taxonomy*, epoc.cochrane.org/epoc-taxonomy (accessed 03 Dec 2019).
- EYSENBACH, G., 2004, Improving the quality of web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES). *Journal of Medical Internet Research*, **6**(3), e34.
- FRITH, M., TOGHER, L., FERGUSON, A., LEVICK, W. and DOCKING, K., 2014, Assessment practices of speech-language pathologists for cognitive communication disorders following traumatic brain injury in adults: an international survey. *Brain Injury*, **28**(13–14), 1657–1666.
- HERBERT, D. *et al.* 2016, Canadian stroke best practice recommendations: stroke rehabilitation practice guidelines, update 2015. *International Journal of Stroke*, **11**(4), 459–484.
- HSIEH, H-F. and SHANNON, S., 2005, Three approaches to qualitative content analysis. *Qualitative Health Research*, **15**, 1277–1288.
- HUIJ, J., GEBHARDT, W., DUSSELDORP, E., VERHEIJDEN, M., VAN DER ZOUWE, N., MIDDELKOOP, B. and CRONE, M., 2014, Measuring determinants of implementation behavior: psychometrics properties of a questionnaire based on the theoretical domains framework. *Implementation Science*, **9**, 33.
- JACKS, A., HALEY, K., BISHOP, G. and HARMON, T., 2019, Automated speech recognition in adult stroke survivors: Comparing human and computer transcriptions. *Folia Phoniatrica et Logopaedica*, **71**(5–6), 286–298.
- LAWRENCE, M. and KINN, S., 2012, Defining and measuring patient-centre care: an example from a mixed-methods systematic review of the stroke literature. *Health Expectations*, **15**(3), 295–326.
- MADDY, K., HOWELL, D. and CAPILUTO, G., 2014, Current practices regarding discourse analysis and treatment following non-aphasia brain injury: a qualitative study. *Journal of Interactional Research in Communication Disorders*, **6**(2), 211–236.
- MARINI, A., ANDRETTA, S., DEL TIN, S., and CARLOMAGNO, S., 2011, A multi-level approach to the analysis of narrative language in aphasia. *Aphasiology*, **25**(11), 1372–1392.
- MICHIE, S., ATKINS, L. and WEST, R., 2014, *The Behaviour Change Wheel: A guide to designing interventions*. (Great Britain: Silverback Publishing).
- POWER, E. *et al.* 2015, Development and validation of Australian aphasia rehabilitation best practice statements using the RAND/UCLA appropriateness method. *BMJ Open*, **5**, e007641.
- PRITCHARD, M., HILARI, K., COCKS, N. and DIPPER, L., 2017, Reviewing the quality of discourse information measures in aphasia. *International Journal of Language and Communication Disorders*, **52**(6), 689–732.
- PRITCHARD, M., HILARI, K., COCKS, N. and DIPPER, L., 2018, Psychometric properties of discourse measures in aphasia: Acceptability, reliability, and validity. *International Journal of Language and Communication Disorders*, **53**(6), 1078–1093.
- RENZ, S., CARRINGTON, J. and BADGER, T., 2018, Two strategies for qualitative content analysis: an intramethod approach to triangulation. *Qualitative Health Research*, **28**, 824–831.
- ROSE, M., FERGUSON, A., POWER, E., TOGHER, L. and WORRALL, L., 2014, Aphasia rehabilitation in Australia: current practices, challenges and future directions. *International Journal of Speech-Language Pathology*, **16**(2), 169–180.
- SHERRATT, S., 2007, Multi-level discourse analysis: a feasible approach. *Aphasiology*, **21**(3–4), 375–393.
- SIMMONS-MACKIE, N., 2008, Social approaches to aphasia intervention, in R. Chapey (Ed.), *Language intervention strategies in aphasia and related neurogenic communication disorders*, 5th edition. Baltimore, Maryland: Lippincott Williams & Wilkins.
- SIMMONS-MACKIE, N., THREATS, T. and KAGAN, A., 2005, Outcome assessment in aphasia: a survey. *Journal of Communication Disorders*, **38**, 1–27.
- VERNA, A., DAVIDSON, B. and ROSE, T., 2009, Speech-pathology services for people with aphasia: a survey of current practice in

- Australia. *International Journal of Speech-Language Pathology*, **11(3)**, 191–205.
- WALLACE, S., WORRALL, L., ROSE, T. and LE DORZE, G., 2017, Which treatment outcomes are most important to aphasia clinicians and managers? An international e-Delphi consensus study. *Aphasiology*, **31(6)**, 643–673.
- WALLACE, S., WORRALL, L., ROSE, T., LE DORZE, G., CRUICE, M., ISAKSEN, J., KONG, A., SIMMONS-MACKIE, N., SCARINCI and GAUVREAU, C., 2017, Which outcomes are most important to people with aphasia and their families? An international nominal group technique study framed within the ICF. *Disability and Rehabilitation*, **39(14)**, 1364–1379.
- WHITWORTH, A., LEITAO, S., CARTWRIGHT, J., WEBSTER, J., HANKEY, G., ZACH, J., HOWARD, D. and WOLZ, V., 2015, NARIA: A new twist to an old tale. A pilot RCT to evaluate a multi-level approach to improving discourse in aphasia. *Aphasiology*, **29(11)**, 1345–1382.
- WORRALL, L., SHERRATT, S., ROGERS, P., HOWE, T., HERSH, D., FERGUSON, A. and DAVIDSON, B., 2011, What people with aphasia want: their goals according to the ICF. *Aphasiology*, **25(3)**, 309–322.

Appendix A: Survey questions

- 1.0 **[Information screen]**
LUNA (Linguistic Underpinnings of Narrative in Aphasia): UK SLT Survey
 This questionnaire is about UK discourse practice in aphasia.
 The questions should take no longer than 20–30 minutes to complete, and are split into sections:
- Participant background information
 - Frequency of discourse analysis
 - Methods used to collect discourse samples for analysis
 - Preparation of discourse samples
 - Analysis methods and measures applied to discourse samples
 - Feasibility of discourse analysis in the clinical environment
 - Perspectives on discourse analysis
- 1.1 **Section 1: Screening questions**
 The bar at the top of each screen will show your progress through the survey.
 Please use the forward and back buttons if you need to at any point in the survey.
 You can also pause the survey and return to it at a later time.
 Please confirm you are a qualified Speech and Language Therapist, registered with the HCPC
 [Yes/No]
'No' response → exit survey
- 1.2 Please confirm you currently work in aphasia rehabilitation in the UK (or worked within the last 6 months)
 [Yes/No]
'No' response → exit survey
- 1.3 Please confirm you have been practising in the UK for 6 months or more
 [Yes/No]
'No' response → exit survey
- 2.1 **Section 2: Participant Background Information**
- 2.2 My gender is
- Male
 - Female
 - Other/Prefer not to disclose
- 2.3 The age range I fall into is
- 20–30 years
 - 31–40 years
 - 41–50 years
 - 51–60 years
 - 61–64 years
 - 65+ years
- 2.4 My current work region is
- Scotland
 - Northern Ireland
 - Wales
 - Greater London
 - South East England
 - South West England
 - Midlands and East England
 - North England
- 2.5 My highest level of academic achievement is:
- Bachelor
 - Honours
 - PG Cert/PG Dip
 - Masters
 - PhD/DPhil
-

-
- 2.5 Years of clinical experience
- 1 year, I am a new graduate
 - 2–5 years
 - 6–10 years
 - 11–15 years
 - 16–20 years
 - Over 20 years
- 2.6 Years of aphasia experience
- 1 year
 - 2–5 years
 - 6–10 years
 - 11–15 years
 - 16–20 years
 - Over 20 years
- 2.7 I currently work
- In the NHS
 - In a non-NHS setting
 - In both NHS and non-NHS settings
- 2.8 I currently work in (tick all that apply):
- Acute/subacute
 - Inpatient rehabilitation
 - Outpatient rehabilitation
 - Early Supported discharge
 - Community
 - Long-term care
 - Nursing homes
 - Private practice
 - Not-for-profit organisation
 - University
 - Other (please specify) [open text box]
- 2.9 My main work setting is: (Tick one box only)
- Acute/subacute
 - Inpatient rehabilitation
 - Outpatient rehabilitation
 - Early supported discharge
 - Community
 - Long-term care
 - Nursing homes
 - Private practice
 - Not-for-profit organisation
 - University
 - Other (please specify) [open text box]
- 2.10 Do you work in a multidisciplinary team?
A multidisciplinary team is defined here as a team of health professionals including some or all of the following: medical, nursing, and allied health including Occupational Therapist, Physiotherapist, Speech and Language Therapist, Social Worker, and Dietitian.
- Yes
 - No
- 2.11 My current work pattern:
- Full time
 - Part-time
- 2.12 My current work pattern:
- Permanent
 - Fixed term
 - Casual
- 2.13 The approximate percentage of my caseload that contains people who have aphasia:
- 5% or less
 - 10%
 - 30%
 - 50%
 - 75%
 - 100%
-

-
- 2.14 The approximate number of clients with aphasia seen per week:
- 0
 - 1–5
 - 6–10
 - 11–15
 - 16–20
 - >20
- 2.15 **[Information screen]**
The next questions focus on your discourse practice. By discourse, we mean everything above a single simple sentence. Discourse can be informal e.g., describing something or telling a story within a conversation, or formal e.g., describing a scene within a clinical assessment.
- 2.16 **[Information screen]**
We are asking about spoken discourse that is produced as a monologue or within a dialogue (i.e., conversation). However, we are *not* asking about conversation, conversation partner training, or written discourse. There are lots of different ways clinicians and researchers analyse discourse. We are asking what you do in your practice. There are no right and wrong answers.
- 3.1 **Section 3. Frequency of use of discourse analysis**
How often do you collect and use analysis of discourse samples for assessment of aphasia?
- Never
 - Rarely
 - Sometimes
 - Usually
 - Always
- [Branch logic: if 'Never' is selected, proceed to question 7.3]
- 3.2 **[Skip logic: Display this question if 'How often do you collect and use analysis of discourse samples for assessment of aphasia?' 'Always' is not selected i.e., respondent answers Never, Rarely, Sometimes, Usually.]**
What factors influence your decision not to analyse discourse samples for assessment of aphasia? (Tick all that apply)
- Lack of training
 - Time constraints
 - Lack of expertise
 - No access to computer hardware or software
 - Not mandated by employer
 - Other (please specify) [open text box]
- 4.1 **Section 4. Methods used to collect discourse samples for analysis**
How do you typically use discourse analysis to assess aphasia? (Tick all that apply)
- As an initial assessment
 - Within an assessment battery
 - To follow up on standardised assessment results
 - Other (please specify) [open text box]
- 4.2 What approaches do you use to collect a sample of discourse? (Tick all that apply)
- Standardised Test (e.g., Boston Diagnostic Aphasia Examination 'Cookie Theft', Western Aphasia Battery 'Picnic Scene')
 - Existing protocol (e.g., Nicholas and Brookshire discourse protocol, Story Retell Procedure, AphasiaBank protocol)
 - Self-developed protocol (please provide details) [open text box]
 - Other (please provide details) [open text box]
- 4.3 What types of discourse samples do you use to assess discourse in aphasia? (Tick all that apply)
- Conversation (with children, family member, carer, etc.)
 - Role play (of a familiar interaction)
 - Personal recount (e.g., of stroke, a holiday, etc.)
 - Opinion (e.g., of a current event or news-piece)
 - Retell of a fictional story (e.g., a fairy tale, such as Cinderella)
 - Description of a single picture (e.g., The Cookie Theft)
 - Story from a sequence of pictures
 - Procedural recount (e.g., how to make a cup of tea)
 - Other (please specify) [open text box]
-

- 4.4 When making a decision regarding the discourse samples collected, what factors do you take into consideration? (Tick all that apply)
- Age of client
 - Diagnosis of client
 - Suspected prognosis of client
 - Time constraints
 - Availability of resources
 - Employer/departmental guidelines
 - Other (please specify) [open text box]
- 5.1 **Section 5: Preparation of discourse samples**
- Do you typically record the discourse samples you collect? (Tick all that apply)
- Yes-audio record
 - Yes-video record
 - No-transcribe in real time
 - No-analyse in real time without transcription
 - Other (please specify) [open text box]
- 5.2 Once you have collected a discourse sample, which steps do you undertake? (Tick all that apply)
- Listen to the recorded sample
 - Transcribe verbatim
 - Clinical judgement of language ability
 - Detailed analysis from transcripts
 - Other (please specify) [open text box]
- 5.3 What are you looking or listening for in clients' discourse?
[open text box]
- 5.4 How often do you transcribe spoken discourse samples for detailed analysis?
- Never
 - Rarely
 - Sometimes
 - Usually
 - Always
- 5.5 Who typically transcribes your discourse samples?
- I do
 - No one-samples are not transcribed
 - Other (please specify) [open text box]
- 6.1 **Section 6: Analysis measures and methods applied to discourse samples**
- How do you analyse your discourse samples? (Tick all that apply)
- CLAN-Computerised Language Analysis
 - SALT-Systematic Analysis of Language Transcripts
 - Other computerised analyses (please specify) [open text box]
 - QPA-Quantitative Production Analysis
 - LARSP-Language Assessment, Remediation and Screening Procedure
 - DLS-Derbyshire Language Scheme (e.g., information carrying words)
 - Information and fluency, as according to standardised assessments (e.g., WAB-Western Aphasia Battery)
 - No specific procedure
 - Other (please specify) [open text box]
- 6.2 What behaviours do you assess in discourse? (Tick all that apply)
- Sentence structure
 - Use of morphology
 - Word classes used (e.g., nouns, verbs)
 - Volume (amount) of language (e.g., total number of words)
 - Rate of speech
 - Use of content/information words
 - Communication of ideas
 - Range of vocabulary
 - Word finding difficulties/behaviours
 - Cohesion of language
 - Appropriate story structure
 - Efficiency-rate of information exchange
 - Errors
 - Other (please specify) [open text box]
-

-
- 6.3 What specific discourse measures do you use regularly in your analysis of discourse samples (e.g., TTR-Type Token Ratio, MLU-Mean Length of Utterance, CIUs-Correct Information Units, Main Concepts, Story Grammar, Coherence ratings) [open text box]
- 7.1 **Section 7: Feasibility of discourse analysis in the clinical environment**
Blank screen. Participants who earlier selected "Never" returned to the survey at 7.3.
- 7.2 Do you analyse discourse in order to: (Tick all that apply)
- Diagnose type and/or severity of aphasia
 - Profile strengths and difficulties
 - Contribute to setting goals for therapy/intervention
 - Measure outcomes from intervention
- 7.3 On average, how much time do you spend when assessing a client on preparing and administering the language and communication assessments you use?
- <15 minutes
 - 15–30 minutes
 - 30–60 minutes
 - 60–90 minutes
 - 90–120 minutes
 - More than 120 minutes
- 7.4 On average, how much time do you spend when assessing a client in scoring and interpreting the language and communication assessments you use?
- <15 minutes
 - 15–30 minutes
 - 30–60 minutes
 - 60–90 minutes
 - 90–120 minutes
 - More than 120 minutes
- 7.5 On average, how much time do you spend when assessing a client in using language and communication assessment findings to plan goals for intervention?
- <15 minutes
 - 15–30 minutes
 - 30–60 minutes
 - 60–90 minutes
 - 90–120 minutes
 - More than 120 minutes
- 7.6 Which of the following factors affect how/what you assess? (Tick all that apply)
- Personal reasons/preferences
 - Clinical experience
 - Knowledge of assessments
 - Training in assessment methods
 - Workplace policy
 - Service delivery model
 - Team support and knowledge
 - Availability of tools
 - Session time constraints
 - Administration time constraints
 - Funding
 - Communicative ability of clients
 - Family involvement
 - Knowledge of current research
 - Other (please specify) [open text box]
- 7.7 Hypothetically, if you were to learn a new discourse analysis for therapy technique (encompassing preparation, administration, scoring, interpretation, and therapy goal identification in one package), how long would you spend in clinic implementing this new technique for a client?
- <60 minutes
 - 60–90 minutes
 - 90–120 minutes
 - 120–150 minutes (i.e., 2–2.5 hrs)
 - 150–180 minutes (i.e., 2.5–3 hrs)
-

8.1–8.11 Section 8: Perspectives on discourse analysis in aphasia

Answer the following 11 items, indicating how much you agree/disagree with each statement.

- Strongly disagree
 - Disagree
 - Neutral-neither, or both disagree/agree
 - Agree
 - Strongly agree
- 8.1 I am aware of discourse analysis I could use with my clients
 8.2 I have sufficient skills to carry out discourse analysis
 8.3 I am confident in carrying out discourse analysis
 8.4 I find discourse analysis confusing and/or frustrating
 8.5 Discourse analysis is important in overall SLT management in aphasia
 8.6 Carrying out discourse analysis is part of the SLT role
 8.7 I am positively encouraged by my service/workplace to carry out discourse analysis
 8.8 I am supported by my SLT colleagues and/or team to carry out discourse analysis
 8.9 I follow a specific discourse analysis protocol or process in my service/workplace
 8.10 I have sufficient resources (e.g., clinical tools) in my job to carry out discourse analysis
 8.11 I have sufficient time in my job to carry out discourse analysis

8.12 With reference back to an earlier question, list up to three discourse behaviours you feel most confident about identifying accurately?

- Sentence structure
- Use of morphology
- Word classes used (e.g., noun, verbs)
- Volume (amount) of language (e.g., total number of words)
- Rate of speech
- Use of content/information words
- Communication of ideas
- Range of vocabulary
- Word finding difficulties/behaviours
- Cohesion of language
- Appropriate story structure
- Efficiency-rate of information exchange
- Errors

8.13 With reference back to an earlier question, list up to three discourse behaviours you feel least confident about identifying accurately?

- Sentence structure
- Use of morphology
- Word classes used (e.g., noun, verbs)
- Volume (amount) of language (e.g., total number of words)
- Rate of speech
- Use of content/information words
- Communication of ideas
- Range of vocabulary
- Word finding difficulties/behaviours
- Cohesion of language
- Appropriate story structure
- Efficiency-rate of information exchange
- Errors

8.14 What parts of the analysis process do you find most limit your application of discourse analysis for aphasia in the clinic? (Tick all that apply)

- Collecting a discourse sample
- Transcribing the discourse sample
- Selecting analysis methods
- Completing the analysis
- Interpreting results
- Other (please specify) [open text box]

-
- 8.15 What resources are needed to increase your use of discourse analysis in the clinic? (Tick all that apply)
- More time
 - Access to assistive tools
 - New analysis tools
 - Pre-registration training
 - Professional development training
 - No resources needed
 - Other (please specify) [open text box]
- 9.1 Thank you for completing this survey. We appreciate your time and contribution toward this topic. On the next page, there are two optional questions-relating to how you heard about this survey, and whether you have anything further you wish to tell the research team. You are not obliged to complete these questions and can exit now.
- Complete two optional questions
 - Exit survey
- [Skip logic: If 'Exit survey' is selected, skip to: End of survey]**
- 10.1 How did you hear about this survey research? (Tick all that apply)
- British Aphasiology Society
 - One of the RCSLT Clinical Excellence Networks
 - Expression of interest to participate in LUNA Phase 4 (SLT training programme)
 - Twitter
 - Other (please specify) [open text box]
- 10.2 Is there anything you wish to share with the research team? This may include any difficulties you may have experienced in completing the survey, or anything further that has occurred to you whilst completing the survey and there was no opportunity to reflect this in the predetermined survey questions.
- [open text box]
-

Supporting Information

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

Supporting Information