ASHA American Speech-Language-Hearing Association

AJSLP

Research Article

Treatment Time and Treatment Selection in Aphasia: A Preliminary Study Using Vignettes

Jacqueline Hinckley[a] and **Leticia Sanchez**[b]

[a] Department of Speech-Language Pathology, Nova Southeastern University, Fort Lauderdale, FL [b] Department of Communication Disorders, Carlos Albizu University, San Juan, Puerto Rico

ARTICLE INFO

Article History:
Received September 14, 2022
Revision received February 6, 2023
Accepted April 10, 2023

Editor-in-Chief: Michael de Riesthal
Editor: Sarah Elizabeth Wallace

https://doi.org/10.1044/2023_AJSLP-22-00294

ABSTRACT

Purpose: Little is known about the factors that clinicians use when selecting treatments. The purpose of this preliminary study was to explore a possible factor, available treatment time, in the aphasia treatment selection process.
Method: A case-based vignette survey was created using de-identified assessment data from the AphasiaBank database. Six vignettes varied by aphasia type and severity and were presented under two different treatment time alternatives: 7.5 or 60 hr. Respondents were asked to select the single treatment that they would "almost certainly use" under each treatment time scenario. Treatment options were obtained from the American Speech-Language-Hearing Association Practice Portal. Respondents also answered questions about their confidence level in administering the treatments and their primary reason for selecting a particular treatment for each case scenario.
Results: A total of 26 practicing speech-language pathologists with at least 5 years of clinical experience with aphasia completed the survey. A majority of respondents (76%–84%) changed the treatment they would "almost certainly use" based on a change in treatment time availability. The most frequently given reason for the overall treatment selection was that the treatment was likely to produce a functional outcome. Neither the respondents' reported confidence levels nor their years of experience were related to treatment selection.
Conclusions: This is one of the first studies to investigate how clinicians select aphasia treatment. Treatment time emerged as a consistent factor in selecting aphasia treatment in this preliminary study. Recommendations for next research steps are given. We suggest that aphasia treatment research be disseminated with clear information about required treatment time.
Supplemental Material: https://doi.org/10.23641/asha.23646855

Clinicians consider many things to pick the right treatment for each client. We do not know how clinicians make these decisions. Clinicians might pick a treatment because it matches the disorder or a treatment goal. They might use available treatment time. We surveyed aphasia clinicians to find out if they make decisions based on available treatment time.

Twenty-six aphasia clinicians with over 5 years of experience answered the survey. The survey presented six case scenarios. There were two different treatment times: a short treatment (7.5 hr) and a long treatment (60 hr). Clinicians made treatment decisions for each case scenario for short and long treatments.

Most of the aphasia clinicians (76%–84%) changed their treatment choice depending on how much treatment time there would be. Most of the clinicians said that their reason for picking a treatment was that the treatment would have a functional outcome. Future studies can find out whether clinicians use other factors to select aphasia treatment.

Correspondence to Jacqueline Hinckley: jh988@nova.edu. **Publisher Note:** This article is part of the Special Issue: Select Papers From the 51st Clinical Aphasiology Conference. ***Disclosure:*** *The authors have declared that no competing financial or nonfinancial interests existed at the time of publication.*

Introduction

Clinicians are called upon to make treatment decisions multiple times per day. These treatment decisions

probably rely on the consideration of many factors, but little is known about which factors clinicians use to select treatments and which of these factors may contribute more heavily to their choices.

Understanding how the best treatment selection decisions are made could have many potential applications. With more knowledge of how treatments are selected, preprofessional and professional development training might be more effectively designed. Tools and resources that could better support these decisions could be crafted for use by practicing clinicians. Finally, clinical research intended to address which treatment works best for different aphasia profiles might be enhanced by taking into account existing factors that influence the clinical decision-making process.

Factors in Treatment Selection Decisions

The American Speech-Language-Hearing Association (ASHA) mandates that speech-language pathologists (SLPs) use principles of evidence-based practice. Evidence-based practice is defined as "an approach in which current, high-quality research evidence is integrated with practitioner expertise and client preferences and values into the process of making clinical decisions" (ASHA, 2005). A broad basis for treatment selection is research evidence, clinician expertise, client values, and priorities. This framework, although important and pervasive, provides us with only broad categories of areas that help clinicians select treatments. It also lacks a category, such as contextual factors, that might include reimbursement or institutional policies, available treatment time, or other legal or ethical issues.

The complexity of selecting treatments sparked the development of a total evidence and knowledge approach (TEKA; McCurtin et al., 2019), which provides a framework for considering a range of possible factors. The categories of factors in this framework include description of a primary treatment and its alternatives; research evidence; practice evidence including individual clinical opinion and expert opinion; patient evidence including patient and caregiver preferences; contextual evidence including feasibility of using the treatment in the environment, resources, and cost; and judico-ethical evidence including legal and ethical issues for using the treatment. This framework helps substantiate the quantity and complexity of the factors that clinicians must consider when selecting appropriate treatments.

In a narrative review, Hinckley (2017) identified four broad categories of factors that may affect how clinicians select aphasia treatments. The first is the nature of the impairment itself; this category can include speech and language impairments, as well as related cognitive impairments. The second factor was therapy acceptability. Therapy acceptability is defined as how well a therapy is perceived to be "fair, reasonable, appropriate for the given problem, and nonintrusive" (Kazdin, 1980; Mautone et al., 2009). Therapy acceptability refers to whether the client perceives the treatment to be appropriate and reasonable and is part of the "client values" segment of the evidence-based practice framework. Therapy acceptability can also refer to how reasonable the clinician believes the treatment to be under regulatory, institutional, and clinical circumstances and thus fits in to the "clinician expertise" segment of the evidence-based practice framework. The third factor is the delivery format, such as individual or group therapy sessions. Clinicians make decisions regarding what is available and acceptable to clients. Finally, the fourth factor is therapy time, which refers to the total number of sessions, number of therapy sessions per week, or duration of any given therapy session.

To date, no single framework seems to accommodate all the possible factors that clinicians use to select treatments, although the TEKA (McCurtin et al., 2019) seems to be the most comprehensive thus far. The complexity of the decision-making process for speech-language therapy was described in an article that compared two different treatment selection processes for the same stuttering case (Bernstein Ratner, 2018). Arriving at different treatment options for the same case could be based on a range of factors, such as the available evidence base, parent/client factors and preferences, and clinician skill and adherence.

Treatment Time in Aphasia Management

Among the many factors that may contribute to treatment selection decisions, treatment time is dominant in the daily practice of all clinicians. Every day, clinicians must schedule and bill services based on the amount of time available for each client. Scheduling is a complex matter that reflects reimbursement and institutional policies.

Productivity is a practice area routinely investigated in ASHA's SLP Health Care Survey (ASHA, 2021). In the most recent survey (ASHA, 2021), two thirds (66%) of SLP respondents in a health care setting reported having a productivity standard, which is the number of hours of direct patient care divided by the number of hours worked. The average productivity standard was 79%. This observation underscores that most clinicians in health care settings manage time expectations routinely relative to minutes and hours per patient.

Recently, Cavanaugh et al. (2021) analyzed the actual treatment times of patients with the diagnoses of

stroke and aphasia from utilization data of a large regional health care provider. They observed that patients received a median of 10 treatment sessions, with a median of 7.5 treatment hours. Comparing the actual utilization data to a sample of 303 aphasia treatment studies in a scoping review, they found that published treatment studies provided substantially more treatment on average than is typically administered. Specifically, Cavanaugh et al. observed that published interventions report effectiveness with a median of 20 hr of treatment. This aligns with a meta-analysis in which the greatest improvement in overall language and comprehension was associated with at least 20–50 hr overall of treatment dosage (RELEASE Collaborators, 2022). There is a disconnect between the number of treatment hours (dosage) that produces the greatest effect and the number of hours that are typically offered to individuals with aphasia (Cavanaugh et al., 2021; RELEASE Collaborators, 2022). This creates a tiered approach to treatment time and outcomes, the fewer number of hours that are typically received by individuals, in contrast to the greater number of hours that are associated with evidence-based gains.

Vignette-Based Surveys as a Method

Given the complexity of the treatment selection process, it is critical to identify an appropriate methodology that can tap into the active decision-making processes used by clinicians. When the research aim is to capture factors relevant to clinicians during decision making, vignette-based survey methodologies are a powerful approach. Vignettes, also referred to as clinical scenarios, can provide client details and context in which clinicians can exercise their typical clinical decision making.

As defined by Atzmüller and Steiner (2010), a vignette is a short, carefully constructed description of a person, object, or situation that represents a systematic combination of characteristics. Vignette studies in survey research provide situations or scenarios to survey respondents, which allow them to provide an opinion or judgment about these situations. "Within vignette studies, respondents are typically confronted not only with one single vignette but with a whole population of vignettes in order to elicit their beliefs, attitudes, judgments, knowledge, or intended behavior with respect to the presented vignette scenarios" (Atzmüller & Steiner, 2010, p. 129). Vignettes allow for the manipulation of one or more experimental variables, while gathering participant-reported responses to key questions (dependent variables). Vignette methodologies have supported many studies in clinical decision making, and meta-analyses suggest that vignette studies produce similar results to real-life observations or standardized patients (Evans et al., 2015). A vignette method is useful for investigating questions about clinical decision making because they are "easily administered, less costly, and can be used in all types of clinical practices" (Peabody et al., 2000).

Vignette-based surveys have been infrequently used in studies of speech-language pathology; however, the vignette-based survey of Selin et al. (2019) supported the utility of clinical vignette methodology in communication sciences and disorders. They used clinical vignettes to investigate clinical decision making for children with specific language impairments, and they recommended the vignette methodology as a way to investigate practice patterns and various factors in the clinical decision-making process. In another example, clinical scenarios were used in a survey to explore how clinicians made treatment selection decisions for spatial neglect (Chen et al., 2018). Easton and Verdon (2021) explored how clinicians respond to cases of nonstandard English dialects. In a vignette-based study of dysphagia, clinicians viewed video samples of videofluorographic swallow assessments, and the survey posed questions about the treatment areas that would be targeted and the rationale for the treatment recommendation (Vose et al., 2018). In these examples, the vignette methodology proved to be a useful tool for investigating complex decision-making processes. A high degree of variability in treatment selection was observed within the vignettes. There was a lack of convergence among respondents regarding treatment selection based on the clinical scenario. In one study (Chen et al., 2018), less experienced clinicians were more likely to select a wider range of treatment options in response to the same case vignette.

Purpose of This Study

Despite interest in the treatment selection process across a number of different specialties in speech-language pathology, no study has focused on aphasia treatment selection. One particular factor, treatment time, was selected as the primary focus of this study because of its concreteness, pervasiveness, and familiarity among clinicians. The purpose of this vignette-based survey was to investigate whether the anticipated amount of available treatment time affects aphasia treatment selection among experienced outpatient aphasia clinicians. Specifically, the following research questions were addressed:

1. Do clinicians change their aphasia treatment selection in response to shorter or longer amounts of available treatment time?
2. Is aphasia treatment selection related to confidence in being able to administer a treatment?
3. Is aphasia treatment selection related to aphasia type or severity?

4. What are the reasons for aphasia treatment selection for different amounts of treatment time?

Method

Study Design

Given the complexity of the clinical decision-making process, a vignette-based survey was selected as the most appropriate methodology. Specifically, we chose to implement a within-subject vignette design in which all respondents would answer questions about the experimental factor, available treatment time. This design enhances external validity in that clinicians are often faced with treatment selection decisions about similar clients for whom there are different amounts of treatment time available.

Survey Design

In accordance with the purpose of this study, vignettes were created to carefully control the type of information presented and ensure consistency across vignettes. In addition, the intent was to present each vignette under two conditions, namely, a shorter amount of available treatment time and a longer amount of available treatment time, based on the literature. Respondents were also asked to provide reasons for their treatment selection. Finally, we asked respondents to rate their own confidence levels when using each of the treatments. After the initial draft, the survey was sent to five different content experts to be trialed and evaluated, with the purpose of receiving feedback before finalizing it. Modifications after input included adding additional test data on fluency, auditory comprehension, and naming and adding a personal goal for each vignette. An example of one of the finalized survey vignettes is presented in Table 1. The complete survey is available in Supplemental Materials S1.

Vignettes

The finalized format for each vignette was as follows:

> *[Case] is a [age], [race], and [gender]. Prior to [pronoun] stroke, [pronoun] worked as an [occupation]. Administration of the Western Aphasia Battery (WAB) revealed an Aphasia Quotient of XX/100 and a score of XX/60 on the Yes/No Question subtest, as well as a XX/80 on the Commands subtest. [pronoun] also achieved a score of X/10 for Fluency and a X/10 for Repetition on the WAB as well. [Pronoun] received a score of XX/15 on the Boston Naming Test, Short Form. Based on the WAB scores, [pronoun] was diagnosed with a [severity level] [aphasia type]. Upon the initial interview, the client stated that [pronoun] wanted to achieve [social goal] and [vocational/avocational goal].*

Table 1. Sample of a case vignette and associated questions in the survey.

Below you will read six different cases. Answer the questions for each of the cases described below. Assume the following is true for each case: Single left hemispheric stroke Premorbidly right-handed Monolingual English Vision and hearing are within functional limits Sufficient cognitive abilities to fully participate in treatment No evidence of additional motor speech disorders Living at home with a support person
Case A. A is a 68-year-old White woman. Prior to her stroke, she worked as a nurse. She achieved an Aphasia Quotient of 89/100 on the Western Aphasia Battery (WAB). She earned a score of 57/60 on the Yes/No Question subtest and a 58/80 on the Commands subtest of the WAB. Additionally, she earned a 9/10 for Fluency and 8.5/10 for Repetition on the WAB as well. On the Boston Naming Test, Short Form, she received a score of 11/15. Based on her WAB scores, she was diagnosed with a mild anomic aphasia. Upon initial interview, the client stated that she wanted to be able to return to her weekly happy hours with friends and her volunteer job helping children improve their reading.
Imagine that you will have **ten 45-min outpatient treatment sessions (7.5 hr of total treatment time)** with Case A. Which one of the following treatments would you **almost certainly** use in this case?
Which one of the following reasons **contributes the most** to your choice?
Imagine that you will have **thirty 2-hr outpatient sessions (60 hr of total treatment time)** with Case A. Which one of the following treatments would you **almost certainly** use?
Which one of the following reasons **contributes the most** to your choice?

Tests, interviews, and demographic data were mined from the AphasiaBank database (MacWhinney et al., 2011) to ensure that the vignettes reflected real cases. Demographic and personal characteristics were dissociated from the test data. We only included data from cases who had suffered a single left hemisphere stroke, had a time postonset of greater than 60 days, and had data available from the WAB (Kertesz, 1982) and the Boston Naming Test (Kaplan et al., 2001). The six vignettes represented three cases of nonfluent aphasia (mild transcortical motor, moderate Broca's, and severe global) and three cases of fluent aphasia (mild anomic, moderate conduction, and severe Wernicke's). Diagnoses were obtained from the AphasiaBank database and based on the results of the WAB (Kertesz, 1982). Prior to seeing any of the vignettes, respondents saw a list of assumptions that should be made about each case, which are shown in Table 1. The assumptions included the following: (a) single left hemispheric stroke, (b) premorbidly right-handed, (c) monolingual English, (d) vision and hearing are within functional limits, (e) sufficient cognitive abilities to fully participate

in treatment, (f) no evidence of additional motor speech disorders, and (g) living at home with a support person.

Vignettes were presented only in written form, and the full survey is shown in Supplemental Material S1. Each written case vignette and its associated questions, as shown in Table 1, were presented on a single page of the electronic survey. Questions about short treatment times were presented first for each case vignette, and treatment time questions were maintained in the same order for each vignette and all respondents, in order to enhance response consistency in this preliminary study (Evans et al., 2015).

For each of the six vignettes, respondents were asked to identify the one treatment that they "would almost certainly use" under two treatment time conditions: a shorter treatment time (7.5 hr) and a longer treatment time (60 hr). We acknowledge that many clinicians may routinely use interventions that are not listed on the ASHA Practice Portal, and they could write in an open text box if they chose. The shorter treatment time was based on observations of the actual treatment times (Cavanaugh et al., 2021; Mullen, 2016). For a longer treatment time, we calculated the potential number of treatment hours that a client with aphasia might receive at a typical university clinic. We calculated 2hr per week for a 15-week semester and for two semesters, for a total of 60 hr. This treatment time is also at the high end of treatment hours associated with meaningful outcomes (RELEASE Collaborators, 2022). The respondents were required to select only one treatment from the list provided. A write-in option for "Other" was provided, so that respondents could select "Other" and write in a treatment that was not on the list. In cases where respondents selected "Other" but wrote in more than one treatment, that response was not counted because we were unable to determine which treatment was the most likely one for that respondent. When a respondent wrote the name of an alternative treatment, it was included in the list of treatments.

Treatment Options

Treatment options were taken from the published list of aphasia treatments on the ASHA Practice Portal (ASHA, n.d.-a) because it is a common source available to all practicing clinicians in the United States. We inspected all the aphasia treatment options on the ASHA Practice Portal and eliminated any treatment options that did not indicate that it would be appropriate for the type and severity of cases portrayed in the vignettes. The remaining 13 treatment options that were included in the survey are shown in Table 2. The respondents also had the option of an open comment box in which they could type an alternative treatment.

Reasons for Treatment Selection

Seven possible reasons that were abstracted from the literature were provided as options, along with an open comment box in which the respondent could type an alternative response. The reasons that participants could select from are presented in Table 5.

Confidence Ratings

We also asked respondents to rate their confidence levels for each of the 13 treatments on a 4-point scale, where 1 = *not at all confident*, 2 = *not very confident*, 3 = *somewhat confident*, and 4 = *very confident*.

Participants

Certified SLPs were eligible to participate in the survey if they worked in the United States and had provided

Table 2. Number of respondents reporting confidence levels on aphasia treatments from the American Speech-Language-Hearing Association Practice Portal, listed in alphabetical order by treatment name.

Treatment	Not at all confident (1)	Not very confident (2)	Somewhat confident (3)	Very confident (4)
Activity-specific practice, including role-playing or community outings	2 (5%)	2 (5%)	11 (25%)	29 (66%)
Constraint-Induced Language Treatment (CILT)	8 (18%)	9 (20%)	12 (27%)	15 (34%)
Conversation group	1 (2%)	2 (5%)	18 (42%)	22 (51%)
Gestural facilitation of naming (GES)	11 (25%)	2 (5%)	16 (36%)	15 (34%)
Melodic Intonation Therapy (MIT)	3 (7%)	4 (8%)	24 (56%)	12 (28%)
Promoting Aphasics' Communicative Effectiveness (PACE)	8 (18%)	9 (20%)	5 (11%)	25 (57%)
Response Elaboration Training (RET)	5 (11%)	3 (7%)	11 (25%)	25 (57%)
Script training	2 (5%)	3 (7%)	15 (34%)	24 (55%)
Semantic Feature Analysis (SFA)	1 (2%)	2 (5%)	5 (11%)	36 (82%)
Sentence Production Program for Aphasia (SPPA)	13 (30%)	8 (18%)	13 (30%)	10 (28%)
Treatment of Underlying Forms (TUF)	15 (34%)	16 (36%)	6 (14%)	7 (16%)
Verb Network Strengthening Treatment (VNeST)	4 (9%)	7 (16%)	6 (14%)	27 (61%)
Visual Action Therapy (VAT)	12 (27%)	9 (20%)	12 (27%)	11 (25%)

outpatient treatment for aphasia in the past 5 years and were proficient in English. Noncertified SLPs and SLPs without the required amount of aphasia experience were excluded.

Procedure

Recruitment posts were posted on social media, such as personal Twitter pages, the Medical SLP Forum on Facebook and Twitter, and an ASHA Special Interest Group blog. The survey was posted on the platform SurveyMonkey (http://www.surveymonkey.com), and a link was provided to those who chose to participate.

Results

Ethical Approval

This study was approved by the institutional review board of Nova Southeastern University. The first page of the online survey included the approved consent form, and respondents were required to read and agree to participate to proceed into the survey.

Survey Respondents

Screening questions to ensure that participants met the eligibility criteria were included at the beginning of the survey. These questions were checked to ensure that all participants qualified for the study based on self-reports.

A total of 44 respondents completed all confidence ratings, but only 26 completed all case vignettes. On average, it took respondents 23 min to complete the survey. This is above the recommended length for an online survey, which should ideally be about 10 min but no longer than 20 min (Revilla & Ochoa, 2017). Data analysis was conducted on the 26 respondents who completed the entire survey.

Most participants reported a primary work setting in an outpatient clinic (8/26) or a hospital (7/26). Other participants' work settings included university clinic, 5/26 (19%); home health care, 3/26 (12%); rehabilitation hospitals, 2/26 (8%); and other settings, 1/26 (4%). On average, most participants' caseloads of people with aphasia ranged between 25% and 50% (12/26, 46%). Aphasia was a smaller percentage of caseload (10%–25%) for 27% (7/26) of the participants; however, for 19% (5/26) of the participants, aphasia was more than 75% of the caseload. The remaining 8% (2/26) of participants reported that aphasia made up 50%–75% of their caseload.

The majority of the respondents had been working as certified SLPs for more than 26 years (12/26, 46%), 10/26 participants (38%) had been working as certified SLPs for 6–15 years, and 4/26 participants (15%) had been certified SLPs for 16–25 years. The median range of years of experience for the respondents was 16–25 years. None of the respondents indicated that they had been working as an SLP for 5 years or less.

The majority of the participants, 19/26 (73%), identified as women; one respondent (4%) identified as a man; and 6/26 (23%) respondents opted not to respond. The gender distribution was comparable to that of clinical SLPs (ASHA, 2020).

Research Question 1: Relationship Between Treatment Time and Treatment Selection Change

Respondents were asked which of the treatment options they would "almost certainly use" under each of the two treatment time scenarios. A change in the treatment between the two treatment times was coded within the data set. A frequency count showed that the majority of respondents changed their choice of treatment between the two treatment times (76%–84% of participants depending on the case), and this is detailed by vignettes in Table 3. Although there was little variation between vignettes in the number of respondents who changed their treatment, treatment selection was changed the most for Case A (84%), who had mild anomic aphasia, and the least for Cases D and E (76%), who had mild transcortical motor aphasia and moderate Broca's aphasia, respectively. A binomial exact test was performed to test the hypothesis that the proportion of changed treatments was different than an expected proportion (0.5). Statistically significant values were obtained for Cases A through E, but not Case F. Probability values are shown in Table 3.

Table 3. Proportion of respondents who changed their treatment selection according to treatment time available for each case, with corresponding *p* values from the binomial test.

Case	% changed treatments	*p* value
A Mild anomic aphasia	0.84	< .001
B Moderate conduction aphasia	0.81	.003
C Severe Wernicke's aphasia	0.77	.043
D Mild transcortical motor aphasia	0.76	.008
E Moderate Broca's aphasia	0.76	.004
F Severe global aphasia	0.77	.093

Treatment Selection by Frequency

The number of times each treatment was selected across all cases is shown in Figure 1. Both activity-based (role-play) training and semantic feature analysis are notable for having been selected over 50% of the time across the six cases and two treatment times.

Research Question 2: Treatment Selection and Confidence

Confidence Ratings

Table 2 presents the results for the participants' confidence levels for the treatment options. Treatments for which the highest number of participants reported *very confident* were Semantic Feature Analysis (82%), activity-specific practice or role-play (66%), and Verb Network Strengthening Treatment (VNeST; 61%). On the other hand, treatments for which the most participants reported *not at all confident* were Treatment of Underlying Forms (TUF; 34%), Sentence Production Program for Aphasia (30%), and Visual Action Therapy (VAT; 27%).

Confidence Ratings and Years of Experience

The potential relationship between treatment confidence ratings and years of experience was also explored. Because years of experience were collected in ranges, we converted each range to an ordinal value (1 = 5 years or less, 2 = 6–15 years, 3 = 16–25 years, and 4 = 26+ years). Spearman rank correlations were performed between these experience range values and confidence ratings (on a scale of 1–4) for each treatment. A Bonferroni correction was set for multiple correlations at $\alpha = .003$

The only statistically significant relationship was between the range of years of experience and Promoting Aphasics' Communicative Effectiveness (PACE) confidence ratings ($r_s = .572$, $p = .002$). This suggests that respondents with more years of experience reported higher levels of confidence for administering PACE. No other meaningful relationships between years of experience and confidence in treatment options were found.

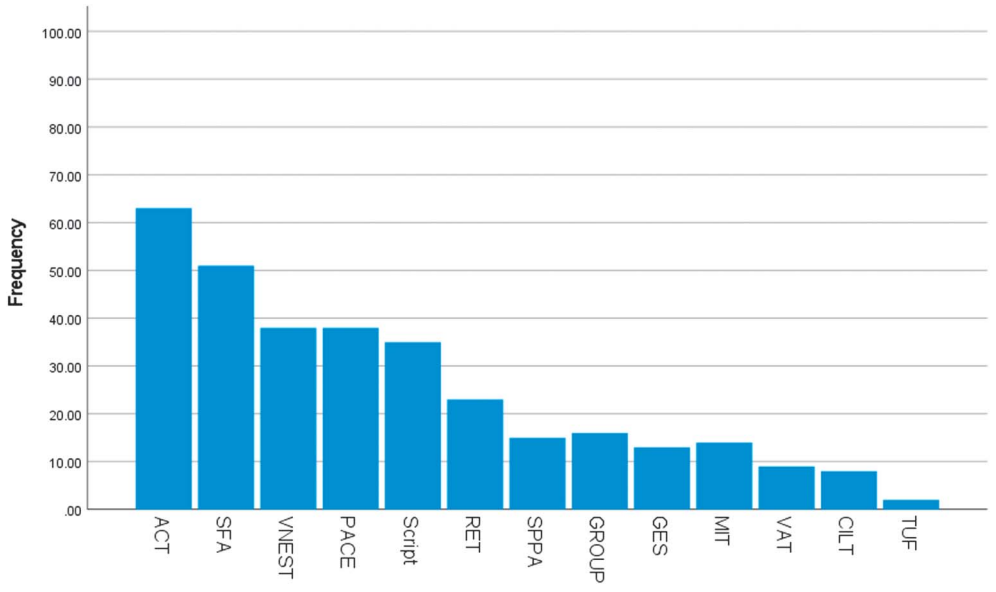
Confidence Ratings and Aphasia Caseload

The potential relationship between treatment confidence ratings and caseload was explored. Because the aphasia caseload was collected in ranges, we converted each range to an ordinal value (1 = less than 10%, 2 = 10%–25%, 3 = 25%–50%, 4 = 50%–75%, 5 ≥ 75%). Spearman rank correlations were performed between these caseload range values and the confidence ratings (on a scale of 1–4) for each treatment. Bonferroni corrections were again calculated for multiple comparisons. There were no statistically significant relationships between the aphasia caseload size and confidence ratings for any treatment.

Treatment Selection Related to Confidence

Spearman rank correlations were calculated to evaluate whether meaningful relationships existed between the

Figure 1. Frequency percentage for all selected treatments, across all case vignettes and participants combined (n = 26). SFA = semantic feature analysis; VNeST = Verb Network Strengthening Treatment; PACE = Promoting Aphasics' Communicative Effectiveness; RET = Response Elaboration Training; SPPA = Sentence Production Program for Aphasia; GES = gestural facilitation of naming; MIT = Melodic Intonation Therapy; VAT = Visual Action Therapy; CILT = Constraint-Induced Language Treatment; TUF = Treatment of Underlying Forms.



frequency with which treatments were selected and their reported confidence levels overall. A Bonferroni correction for multiple comparisons was set at $\alpha = .0019$. No significant relationships were found between treatment selection frequency and confidence ratings.

Research Question 3: Treatment Selection Based on Aphasia Type and Severity

Table 4 lists the treatments selected for each case in each treatment time scenario. On average, 10.8 different treatments were selected for each case and treatment time vignette. There was a slight difference in the overall average number of different treatments that were selected for the short treatment time (10) and long treatment time (11.5). The fewest number of treatment options was selected in the case of mild anomic aphasia (Case A) in the short treatment scenario, with only seven different treatments selected. The greatest number of treatments selected (14) was in the case of severe Wernicke's aphasia (Case C), for both short and long treatment times. Table 4 also includes verbatim the treatments entered in the "Other" option box for treatment selection. There was only one response for each case that listed multiple treatments, and it was therefore excluded from analysis.

Research Question 4: Reasons for Treatment Selection

Participants were asked to provide the primary reason for their treatment selection for each case and treatment time. These choices are presented in Table 5.

Across cases and treatment times, respondents selected "most functional impact" as the primary reason for selecting a treatment type (45.42%). The second most frequently selected reason was language fluency (20.08%). The most notable case-specific exception to this overall pattern was in the case of severe global aphasia (Case F), where aphasia severity (44%) was selected as a reason for treatment selection more often than functional outcome (28%) when treatment time was short and just as frequently (33%) as functional outcome (33%) when treatment was longer. The two least frequently selected reasons for choosing a treatment were familiarity with the treatment (3.16%) and aphasia type (9.83%).

An exploratory analysis was conducted to determine whether there were any patterns of relationships between treatment choice reasons and the type of treatment selected. As stated above, the most frequently selected reason for treatment selection overall was that the treatment was most likely to produce a functional outcome. For eight of the treatments, the highest frequency reason for selecting the treatment was something other than functional outcome. Specifically, three treatments were most frequently selected because the treatment was the best match with the expressive ability/language fluency of the client (gesture treatment, Response Elaboration Training, and VNeST). Three other treatments were most frequently selected because the treatment was the best match for the aphasia severity of the client (Melodic Intonation Therapy [MIT], PACE, and VAT). One treatment, TUF, was most frequently chosen because it was the best match for some other characteristics of the client, other than aphasia type, severity, or fluency. The rank orders with percentage frequencies for each treatment and the reasons the treatment was selected are shown in Table 6.

An important observation that emerged during this exploratory analysis was the individual variability between clinicians for selecting treatments and the reasons for doing so. For example, one respondent consistently selected only two different treatments across all cases and consistently indicated the same reason for selecting the treatments across all cases. Some respondents chose the same treatment across cases but identified different reasons for selecting it. One respondent consistently wrote in treatment options, never selecting any of the a priori treatment options from the ASHA Practice Portal.

Discussion

The primary research question was to investigate whether experienced aphasia clinicians used anticipated treatment time as a factor in selecting a primary treatment. These results indicate that the available treatment time is associated with aphasia treatment selection. The majority of respondents changed their treatment selection between short and longer treatment time scenarios. This finding suggests that treatment time should be maintained as a possible decision-making factor in future exploratory models and frameworks.

The richness of the vignette survey methodology enabled us to explore other potential relationships related to treatment selection. Reported confidence in being able to administer a treatment varied and was only significantly related to years of experience for PACE. Similarly, confidence in treatment was not related to the frequency of selection.

An interesting finding was the number of potential treatments selected for any given case vignette, ranging from seven to 14 different treatment options. To our knowledge, this is the first study to document the range of treatment selection for any given case among practicing

Table 4. Most frequently selected treatment(s) for each case per treatment time.

Case	Short treatment	Long treatment
Mild anomic	SFA (38%) Role-play (38%) Group therapy (9%) Script training (6%) MIT (3%) RET (3%) *Supported conversation (3%)*	Role-play (29%) Group therapy (19%) SFA (16%) Script training (10%) VNeST (10%) PACE (6%) SPPA (3%) *ARCS (3%)* *High-level supported conversation group (3%)*
Moderate conduction	Role-play (16%) SFA (16%) VNeST (16%) Script training (13%) PACE (10%) SPPA (6%) CILT (3%) GES (3%) RET (3%) *AAC options (3%)* *ARCS (3%)* *Supported conversation (3%)* *ORLA (3%)*	RET (16%) SFA (13%) VNeST (13%) Role-play (10%) Script training (10%) CILT (6%) GES (6%) PACE (6%) Group therapy (3%) SPPA (3%) VAT (3%) *Phonological treatment (3%)* *ARCS (3%)* *Supported conversation (3%)*
Severe Wernicke's	PACE (21%) MIT (14%) Role-play (14%) GES (7%) Script training (7%) TUF (7%) VAT (7%) SPPA (3%) VNeST (3%) *Constraint auditory comprehension therapy (3%)* *Clinician-specific program for Wernicke's (3%)* *Partner training/supported conversation (7%)* *Circumlocution training (3%)*	Role-play (17%) Script training (10.3%) SPPA (10.3%) VNeST (10.3%) GES (7%) PACE (7%) CILT (3.4%) Group therapy (3.4%) MIT (3.4%) SFA (3.4%) VAT (3.4%) *Attention training (3.4%)* *Clinician-specific program for Wernicke's (3%)* *Phonomotor treatment (3%)* *ARCS (3%)* *Circumlocution training (3%)* *Cognitive approach (3%)*
Mild TCM	Role-play (25%) Script training (21%) RET (18%) SFA (11%) VNeST (11%) SPPA (7%) CILT (4%) *Supported conversation training (4%)*	Role-play (28%) VNeST (21%) Group therapy (14%) Script training (7%) PACE (7%) RET (7%) SFA (4%) GES (4%) CILT (4%) *Word retrieval and comprehension strategies (4%)*
Moderate Broca's	Role-play (23%) VNeST (19%) SFA (15%) RET (12%) Script training (8%) SPPA (8%) GES (4%) MIT (4%) PACE (4%) *Supported conversation (4%)*	Role-play (22%) VNeST (19%) SPPA (15%) Script training (11%) PACE (7%) RET (7%) CILT (4%) Group therapy (4%) SFA (4%) TUF (4%) VAT (4%)

(*table continues*)

Table 4. *(Continued).*

Case	Short treatment	Long treatment
Severe global	PACE (24%) MIT (20%) GES (12%) Script training (8%) VAT (8%) RET (4%) Role-play (4%) *AAC (8%)* *Supported conversation (8%)* *Education (4%)*	PACE (32%) RET (16%) MIT (12%) Script training (12%) GES (4%) SFA (4%) SPPA (4%) VAT (4%) *AAC (4%)* *Counseling (4%)* *Supported conversation (4%)*

Note. Treatments that were written in the "Other" box are shown in italics exactly as they were entered by respondents. SFA = Semantic Feature Analysis; MIT = Melodic Intonation Therapy; RET = Response Elaboration Training; VNeST = Verb Network Strengthening Treatment; PACE = Promoting Aphasics' Communicative Effectiveness; SPPA = Sentence Production Program for Aphasia; ARCS = Attentive Reading and Constrained Summarization; CILT = Constraint-Induced Language Treatment; GES = gestural facilitation of naming; AAC = Augmentative and Alternative Communication; ORLA = Oral Reading for Language in Aphasia; VAT = Visual Action Therapy; TUF = Treatment of Underlying Forms; TCM = transcortical motor.

clinicians. There is no "gold standard" for selecting a treatment, and several different factors must be considered. In addition, there is very little evidence or guidance to clinicians about how to select the best treatment, and this is likely a contributing factor to the high variability observed in this study. High variability across clinicians for clinical decision making, such as that observed in this study, is consistent with previous vignette-based investigations in other specialties (Chen et al., 2018; Easton & Verdon, 2021; Vose et al., 2018).

Among the 13 treatments from the ASHA Practice Portal included as options in this survey, three treatments include candidacy based on aphasia type or severity as stated on the ASHA website (ASHA, n.d.-a). MIT has consistently been described as a treatment for severe nonfluent aphasia, VAT is associated with global aphasia, and TUF is associated with agrammatic (nonfluent) aphasia (ASHA, n.d.-a). In this survey, MIT was selected for treating mild anomic aphasia and severe Wernicke's aphasia, both types and severities that have not been associated with the treatment, as well as moderate Broca's and severe global aphasia. VAT was selected as a treatment option for moderate conduction and moderate Broca's aphasia, as well as for both cases of severe aphasia. Finally, TUF was selected in the case of severe Wernicke's aphasia, as well as moderate Broca's aphasia. The fact that these three treatments are limited in application to certain aphasia types and severities by evidence also probably contributed to why these three were among the four least frequently selected treatments overall.

The remaining treatment options have been shown to have effects across aphasia types and severities of aphasia. The observation that most treatment options given on the ASHA Practice Portal are broadly applicable across aphasia types and severities makes them perhaps more likely to be chosen overall. This may help explain why so many different treatments were selected for the same case; most of them have been applied across aphasia types and severities.

This also helps to explain why aphasia type and severity were unlikely to be selected as reasons for treatment selection, with the exception of severe global aphasia. Clinicians are mandated to prioritize and document functional outcomes (ASHA, n.d.-b); thus, it is not surprising that the belief that a treatment will lead to the most functional outcome is the most frequently cited reason for selection.

Limitations and Next Steps

This study confirms that treatment time is one of the factors that clinicians use to select treatment. There are several important limitations to this study that can inform the next steps in work designed to further understand treatment selection.

This study was designed as a within-subject vignette survey, but other designs could serve to increase our knowledge on this topic. One option is to design a between-subjects vignette study, in which a subgroup of participants respond to questions about one treatment time, and another subgroup responds to questions about a second treatment time, across all vignettes. Another research design enhancement would be to include control for order effects in which half of the participants receive a survey with short treatment times first, and the other half answer the survey with longer treatment times presented first. This would enhance the internal validity of this study and its conclusions. Future research could also include follow-up interviews or more open-ended questions to gather richer data that would reflect not just which

Table 5. The frequency of reasons for treatment selection by case and treatment time.

Case	Aphasia type	Aphasia severity	Language fluency	Other characteristics	Most functional	Most familiar	Other
Mild anomic: short	13%	0%	13%	3%	68%	3%	0%
Mild anomic: long	9%	3%	12%	9%	55%	6%	6% • *Can be done in the time allowed* • *Too much treatment time*
Moderate conduction: short	16%	3%	16%	9%	50%	3%	3% • Home program
Moderate conduction: long	3%	0%	41%	13%	34%	3%	6% • *Goal is self-cueing; impairment-focused treatment with longer time*
Severe Wernicke's: short	3%	21%	14%	21%	34%	6%	0%
Severe Wernicke's: long	7%	7%	18%	14%	46%	7%	0%
Mild TCM: short	7%	0%	38%	10%	41%	3%	0%
Mild TCM: long	11%	3%	22%	8%	56%	0%	0%
Moderate Broca's: short	8%	3%	22%	11%	48%	7%	0%
Moderate Broca's: long	16%	4%	16%	12%	52%	0%	0%
Severe global: short	12%	44%	8%	8%	28%	0%	0%
Severe global: long	13%	33%	21%	0%	33%	0%	0%
Average	9.8%	10.1%	20.1%	9.8%	45.4%	3.2%	1.3%

Note. "Other" responses that were written in are shown in italics. TCM = transcortical motor.

treatment was selected but also how clinicians are thinking about their selection. Think-aloud approaches are an example of how to gather more in-depth data about treatment decision making (Lundgrén-Laine & Salanterä, 2010). This would also allow for gathering data about how and when clinicians use multiple treatments in combination. Our study was limited to asking clinicians to select one treatment that they would certainly use and did not allow them

Table 6. Rank order (frequency) of reasons for selecting each treatment.

Treatment	Aphasia type	Aphasia severity	Language fluency	Other characteristics	Most functional	Most familiar	Other (write-ins)
Activity specific			3 (3%)	2 (9%)	1 (86%)		4 (2%)
CILT		2[a] (14%)	2[a] (14%)	2[a] (14%)	1 (43%)		2[a] (14%)
Group			2[a] (13%)	2[a] (13%)	1 (67%)		3 (7%)
GES	2 (25%)	1	1 (33%)	3[a] (16%)	3[a] (16%)		
MIT	2[a] (20%)	1 (40%)	2[a] (25%)	3[a] (7%)	3[a] (7%)	3 (7%)	
PACE	3[a] (9%)	1 (28%)	2[a] (25%)	3[a] (9%)	2 (25%)		4 (3%)
RET		34 (9%)	1 (39%)	3 (13%)	2 (35%)		5 (8%)
Script	4 (3%)		2 (20%)	3[a] (8%)	1 (60%)		3[a] (8%)
SFA	3 (15%)	7 (3%)	2 (26%)	6 (6%)	1 (29%)	4 (12%)	5 (9%)
SPPA	1 (31%)	4[a] (6%)	2[a] (19%)	3 (12%)	2[a] (19%)	4[a] (6%)	4[a] (6%)
TUF			2[a] (25%)	1 (50%)			2[a] (25%)
VNeST	4 (14%)	6 (3%)	1 (29%)	5[a] (6%)	2 (26%)	3 (17%)	5[a] (6%)
VAT	2[a] (25%)	1 (50%)	2[a] (25%)				

Note. Totals may not sum to 100% due to rounding error. CILT = Constraint-Induced Language Treatment; GES = gestural facilitation of naming; MIT = Melodic Intonation Therapy; PACE = Promoting Aphasics' Communicative Effectiveness; RET = Response Elaboration Training; SFA = Semantic Feature Analysis; SPPA = Sentence Production Program for Aphasia; TUF = Treatment of Underlying Forms; VNeST = Verb Network Strengthening Treatment; VAT = Visual Action Therapy.

[a]Tie rankings.

to include information about additional treatments they might also use in combination given the treatment time available.

The number of respondents who completed all six case vignettes was relatively small (n = 26). Larger sample sizes will increase the confidence of the findings through statistical power and provide the opportunity to apply more sophisticated statistical analyses. The current sample size was insufficient for more elegant analyses using predictive statistical approaches such as regression. Given these promising initial results, future work in this area should aim for larger sample sizes.

Sampling respondents of varying expertise levels might also be revealing. The respondents in our study were generally experienced as SLPs, but their experience may not have been all in aphasia. Comparing the treatment selection decisions of SLPs with different levels of experience in aphasia would be an interesting and important next step.

This study did not attempt to control or manipulate whether treatment options presented on the survey would be typically characterized as impairment focused or activity/participation focused; instead, we simply used treatments on the ASHA Practice Portal as a commonly available bank of treatment options. We do believe that further investigation of how clinicians select between impairment-focused and activity/participation-focused treatments, particularly under different treatment time conditions, would be an important avenue for follow-up.

The results of this survey are also limited because some respondents reported low confidence in their ability to use certain listed treatments; therefore, the resulting list of treatments that would be used given each case scenario has to be somewhat suspect. One way to circumvent this limitation in future work might be to provide respondents with informational summaries of treatment options during the completion of the case vignettes. This could help strengthen the confidence in the overall findings.

The use of case vignettes is a rich methodology, but it is time consuming for respondents. Our survey took an average of 23 min to complete, well above the recommended ideal length of 10 min and maximum of 20 min (Revilla & Ochoa, 2017). We were unable to offer incentives to the participants for the completion of the survey. We highly recommend that future work using the case vignette survey methodology ensure that participant incentives are appropriate to the amount of time required for a thoughtful response.

We limited our inclusion criteria to those who have worked with aphasia in outpatient settings but recommend investigation of the clinical decision-making process in other settings as well. In inpatient settings or long-term care, clinicians may be more likely to need to divide their treatment time between competing priorities such as dysphagia management and aphasia or other issues.

Considering that there was very limited support in these data for the use of aphasia type and severity characteristics for treatment selection, we also recommend that future work in this area reconsider the usefulness of designing and varying the case vignettes based on these characteristics. Since many of our textbooks and discussions are often organized by aphasia type and severity, it seemed logical to organize and vary our own vignettes in this study in that way. Based on our observations, aphasia type and severity may not be the most fruitful approaches for designing or categorizing vignettes for studies of clinical practice. Although we included a statement about the client's priorities in each vignette, the next step might be to manipulate more detailed functional performance descriptions.

Clinical and Research Implications

Available treatment time is a meaningful factor in treatment selection; therefore, we should begin to discuss whether treatments should be described, summarized, and packaged for implementation based on treatment time requirements. Should resources such as the ASHA Practice Portal describe treatments that have documented effectiveness with smaller or larger amounts? Should textbooks and professional development materials be presented with this in mind? Frequently, the amount of treatment required to produce an effect is an information bit that often requires digging through multiple research studies. Clinicians should consider requesting that treatment information be organized and disseminated with the currently known effective dosage highlighted, and those involved in the dissemination process should carefully consider this potential factor and be explicit about the treatment time required to produce clinical effects.

Accordingly, aphasia type and severity may not be the most effective ways to organize textbooks and clinician training materials. This is particularly true as it becomes clear how many treatment options are applicable across aphasia types and severity. Importantly, this observation underscores the need for fine-grained reporting of research participants and treatment procedures in our treatment research. Reporting guidelines such as DESCRIBE (Wallace et al., 2022), which is a checklist intended to ensure that aphasia research participants' details are included in a research study, and the Template for Intervention Description and Replication guidelines (Rose et al., 2018), which are aimed at detailed reporting of treatment procedures and characteristics, can help ensure that the information that clinicians need and are likely to use to

make treatment selection decisions will be included in initial research studies.

Little research has been conducted on how clinicians select treatments, and this study is the first step in considering the role of treatment time availability. We used a vignette methodology that has rarely been explored as an option in communication sciences and disorders. Additional studies on clinical decision-making processes are likely to improve the efficiency with which clinicians can make informed, effective decisions about appropriate treatments for their clients with aphasia.

Data Availability Statement

The data sets generated and analyzed during this study are available from the corresponding author upon reasonable request.

Author Contributions

Jacqueline Hinckley: Conceptualization, Formal analysis, Writing – original draft. **Leticia Sanchez:** Methodology, Writing – review & editing.

Acknowledgments

The authors acknowledge the respondents who contributed their time and expertise.

References

American Speech-Language-Hearing Association. (2005). *Evidence-based practice in communication disorders* [Position statement]. [Practice portal] https://www.asha.org/policy/ps2005-00221/

American Speech-Language-Hearing Association. (2020). *Profile of ASHA members and affiliates, year-end 2020*. https://www.asha.org/siteassets/surveys/2020-member-and-affiliate-profile.pdf

American Speech-Language-Hearing Association. (2021). *ASHA 2021 SLP Health Care Survey: Practice issues*. https://www.asha.org/siteassets/surveys/2021-slp-hc-survey-practice-issues.pdf

American Speech-Language-Hearing Association. (n.d.-a). *Aphasia [Practice portal]*. https://www.asha.org/practice-portal/clinical-topics/aphasia/#collapse_6

American Speech-Language-Hearing Association. (n.d.-b). *Overview of documentation for Medicare outpatient therapy services*. https://www.asha.org/practice/reimbursement/medicare/medicare_documentation/

Atzmüller, C., & Steiner, P. M. (2010). Experimental vignette studies in survey research. *Methodology, 6*(3), 128–138. https://doi.org/10.1027/1614-2241/a000014

Bernstein Ratner, N. (2018). Selecting treatments and monitoring outcomes: The circle of evidence-based practice and client-centered care in treating a preschool child who stutters. *Language, Speech, and Hearing Services in Schools, 49*(1), 13–22. https://doi.org/10.1044/2017_LSHSS-17-0015

Cavanaugh, R., Kravetz, C., Jarold, L., Quique, Y., Turner, R., & Evans, W. S. (2021). Is there a research–practice dosage gap in aphasia rehabilitation? *American Journal of Speech-Language Pathology, 30*(5), 2115–2129. https://doi.org/10.1044/2021_AJSLP-20-00257

Chen, P., Pitteri, M., Gillen, G., & Ayyala, H. (2018). Ask the experts how to treat individuals with spatial neglect: A survey study. *Disability and Rehabilitation, 40*(22), 2677–2691. https://doi.org/10.1080/09638288.2017.1347720

Easton, C., & Verdon, S. (2021). The influence of linguistic bias upon speech-language pathologists' attitudes toward clinical scenarios involving nonstandard dialects of English. *American Journal of Speech-Language Pathology, 30*(5), 1973–1989. https://doi.org/10.1044/2021_AJSLP-20-00382

Evans, S. C., Roberts, M. C., Keeley, J. W., Blossom, J. B., Amaro, C. M., Garcia, A. M., Stough, C. O., Canter, K. S., Robles, R., & Reed, G. M. (2015). Vignette methodologies for studying clinicians' decision-making: Validity, utility, and application in ICD-11 field studies. *International Journal of Clinical and Health Psychology, 15*(2), 160–170. https://doi.org/10.1016/j.ijchp.2014.12.001

Harvey, S. R., Carragher, M., Dickey, M. W., Pierce, J. E., & Rose, M. L. (2021). Treatment dose in post-stroke aphasia: A systematic scoping review. *Neuropsychological Rehabilitation, 31*(10), 1629–1660. https://doi.org/10.1080/09602011.2020.1786412

Hinckley, J. (2017). Selecting, combining, and bundling different therapy approaches. In P. Coppens & J. Patterson (Eds.), *Aphasia rehabilitation: Clinical challenges*. Jones & Bartlett Learning.

Kaplan, E., Goodglass, H., & Weintraub, S. (2001). *Boston Naming Test–Second Edition (BNT-2)*. Pro-Ed.

Kazdin, A. E. (1980). Acceptability of alternative treatments for deviant child behavior. *Journal of Applied Behavior Analysis, 13*(2), 259–273. https://doi.org/10.1901/jaba.1980.13-259

Kertesz, A. (1982). *The Western Aphasia Battery*. Grune & Stratton.

Lundgrén-Laine, H., & Salanterä, S. (2010). Think-aloud technique and protocol analysis in clinical decision-making research. *Qualitative Health Research, 20*(4), 565–575. https://doi.org/10.1177/1049732309354278

MacWhinney, B., Fromm, D., Forbes, M., & Holland, A. (2011). AphasiaBank: Methods for studying discourse. *Aphasiology, 25*(11), 1286–1307. https://doi.org/10.1080/02687038.2011.589893

Mautone, J. A., DuPaul, G. J., Jitendra, A. K., Tresco, K. E., Junod, R. V., & Volpe, R. J. (2009). The relationship between treatment integrity and acceptability of reading interventions for children with attention-deficit/hyperactivity disorder. *Psychology in the Schools, 46*(10), 919–931. https://doi.org/10.1002/pits.20434

McCurtin, A., Murphy, C.-A., & Roddam, H. (2019). Moving beyond traditional understandings of evidence-based practice: A total evidence and knowledge approach (TEKA) to treatment evaluation and clinical decision making in speech-language pathology. *Seminars in Speech and Language, 40*(5), 370–393. https://doi.org/10.1055/s-0039-1694996

Mullen, R. (2016). How long will treatment for aphasia last? *The ASHA Leader, 21*(10), 38–39. https://doi.org/10.1044/leader.OTP.21102016.38

Peabody, J. W., Luck, J., Glassman, P., Dresselhaus, T. R., & Lee, M. (2000). Comparison of vignettes, standardized patients, and chart abstraction. *JAMA, 283*(13), 1715–1722. https://doi.org/10.1001/jama.283.13.1715

RELEASE Collaborators. (2022). Dosage, intensity, and frequency of language therapy for aphasia: A systematic review-based, individual participant data network meta-analysis. *Stroke, 53*(3), 956–967. https://doi.org/10.1161/STROKEAHA.121.035216

Revilla, M., & Ochoa, C. (2017). Ideal and maximum length for a web survey. *International Journal of Market Research, 59*(5), 557–565. https://doi.org/10.2501/IJMR-2017-039

Rose, M. L., Ali, M., Elders, A., Godwin, J., Sandri, A. K., Williams, L. J., Williams, L. R., VandenBerg, K., Abel, S., Abo, M., Becker, F., Bowen, A., Brandenburg, C., Breitenstein, C., Copland, D., Cranfill, T., Di Pietro-Bachmann, M., Enderby, P., Fillingham, J., . . . Brady, M. C. (2018). Tidier descriptions of speech and language therapy interventions for people with aphasia; consensus from the RELEASE Collaboration. *Aphasiology, 32*(Suppl. 1), 183–186.

Selin, C. M., Rice, M. L., Girolamo, T., & Wang, C. J. (2019). Speech-language pathologists' clinical decision making for children with specific language impairment. *Language, Speech, and Hearing Services in Schools, 50*(2), 283–307. https://doi.org/10.1044/2018_LSHSS-18-0017

Vose, A. K., Kesneck, S., Plowman, K. E., & Hum, I. (2018). A survey of clinician decision-making when identifying swallowing impairments and determining treatment. *Journal of Speech, Language, and Hearing Research, 61*(11), 2735–2756. https://doi.org/10.1044/2018_JSLHR-S-17-0212

Wallace, S. J., Isaacs, M., Ali, M., & Brady, M. (2022). Establishing reporting standards for participant characteristics in post-stroke aphasia research: An international e-Delphi exercise and consensus meeting. *Clinical Rehabilitation, 37*(2), 199–214.