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Management of Aphasia: An Early Investigation Survey

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ABSTRACT

Background: Aphasia is one of problems needing special attention in assessment and intervention actions. Speech therapists in Indonesia are faced with aphasia intervention challenge with bilingual condition. Exploring data on the management of aphasia is needed to identify the management of aphasia. Exploring types of aphasia, aphasia problem, and aphasia case load in each of speech therapy service types is also necessary. This study aims to reveal the data on demography of aphasia management consisting of case load, action flow fulfilment, aphasia type and variation and language problem, and action in bilingual aphasia.

Method: This survey used an instrument with a total of 74 questions. The survey was distributed to certified speech therapists spread in 10 provinces. The survey was completed online. Data was analyzed in accordance with the context of descriptive data and inference.

Result: A total of 38 certified therapists have filled in the data completely. On average, 1-5 aphasia patients make visits per day (M=1.26, SD= 1.08), 1-30 patients make visit per week (M= 1.26, SD= 1.08), duration of intervention for aphasia patient is 30-60 minutes (M= 31.58, SD= 17.90), and aphasia intervention frequency is 1-5 per weeks (M= 1.13, SD= 1.69). Global aphasia is the one with highest number (M= 17.24, SD= 51.28), while primary progressive aphasia is the one with the lowest number (M= 2.63, SD= 7.18). Anomia is the problem found most widely by therapist (N= 26, 68.42%). Telepractice is the least implemented service (M= 1.18). The language ability least likely being the objective of assessment is pragmatic. In relation to the procedure for bilingual patients, the involvement of professional translator is still limited.

Conclusion: This study found data on varying management. There is important information in case load of aphasia management. The information on problem variation and aphasia type can be used as the material to be considered in further study. Action flow, assessment objective, and aphasia service in bilingual context need further exploration.

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INTRODUCTION

Aphasia is one of problems with high prevalence. Twelve percent (12%) – 33% post-stroke patients develop aphasia (Mitchell et al., 2018, 2021; Wu et al., 2020). This data shows that aphasia is a problem found most widely within society. In detail, aphasia has several types including among others: Global aphasia (27.9%), Broca aphasia (38.5%), Wernicke aphasia (12.5%), transortical motor aphasia (9.6%), transcortical

sensory aphasia (3.8%), isolation aphasia 1.9%, conduction aphasia 1.4%, and anomic aphasia (4.3%) (Lahiri et al., 2020).

Speech therapists plays an important role in the attempt of managing aphasia. Evidence-based management is something needed in aphasia service. global reccommendation gives implication that aphasia management needs comprehensive effort (Simmons-Mackie et al., 2017). As we know, aphasia is a language problem not only affecting communication but also having broad impact on the degraded quality of life (Worrall et al., 2011).

Aphasia intervention has several prognosis factors viewed from neurological, demographic, and therapeutic service provided (Chapey, 2008). The management of aphasia needs adequate intensity. Fulfilled frequency and duration are very important to consider in the management. The frequency recommended in the management of aphasia is 3-5 times per week (Bhogal et al., 2003). The ideal duration of therapy to improve language ability entirely is 20-50 intervention hours (Brady et al., 2022). In addition to duration and frequency, the level of complexity of action flow fulfilment will also have stronge intervention impact (Chapey, 2008; Hersh et al., 2012).

The exploration of aphasia management is required to identify the need for aphasia management. This relates to the need for an ethnocultural aspect-based aphasia management (Lorenzen & Murray, 2008). Indonesia is a big country with the very broad existence of language. Indonesia's national language is Indonesian language (*bahasa*) with 178 additional local languages distributed in Indonesia (https://setkab.go.id/). Thus, the management of bilingual aphasia is one of issues needing further exploration.

A study should be carried out to explore the description of aphasia management needed in the attempt of improving the quality of management. Indonesian speech therapists face some challenges in the need for examination instrument and intervention material. As a solution, an attempt is needed to explore the data of aphasia management in Indonesia. A survey is an urgency to see the description of aphasia management, therapist's demographic aspect, case variation, action flow, and experience with the management of bilingual aphasia.

Description of Aphasia Management in Indonesia

Speech therapist plays an important role in the management of aphasia in Indonesia. In healthcare facilities, the management of aphasia is more often found in medical rehabilitation installation. In Indonesia, speech therapists spread across sectors, including hospital, clinic, school, and special service. This is a strong reason why the management of aphasia has adequate opportunity. Aphasia is one of important elements studied in speech therapy service. Aphasia is one of courses taught in speech therapy colleges in Indonesia. To comply with competency, a speech therapist must pass successsfully through competency test. The compliance with competency is a crucial component to a speech therapist (Chapey, 2008).

Aphasia relates to a healthcare transformation attempt through governmental program. Through profession standard specified by the Minister of Health, Indonesia's speech therapists have areas to work in language problem, speech, sound, and resonance production, cognitive, literacy, speech fluency, eating and swallowing, auditory rehabilitation related to communication problem, and multimodal communication.

Broadly, therapists have diverse options in the process of assessment for the patient with putative aphasia (see Dharmaperwira-Prins, 2002). Another informal assessment is chosen to carry out contextual assessment. The need for assessment is inseparable from the adjustment of examination or assessment material. The need for various materials in assessment action is also needed as an attempt of complying with practice based on evidence (Ali et al., 2022). Several intervention materials have been available to bridge the management of aphasia (e.g. Pratomo, 2021; 2022)

METHOD

Participants

Participants in this research were 38 (12 male, 26 female) speech therapists verified in performing intervention for aphasia patient. Therapists have job experience of 10.26 years on average (SD= 6.74). Most (22) therapists have education level 5 (57.9%) and 16 (42.1%) therapists have education level 6. Regional general hospital is the facilities where most participants occupy (39.5%). In relation to the status of employee,

most (44.7%) participants are private employees. In the term of therapist distribution, there are 10 provinces where therapists spread (see appendix 1).

Table 1. Distribution of participants' province

Province	Frequency	Percentage
Bengkulu	1	2.6
Daerah Istimewa Yogyakarta (Special Region of Yogyakarta)	3	7.9
Daerah Khusus Jakarta (Special Capital Region of Jakarta)	6	15.8
Kalimantan Timur (East Borneo)	2	5.3
Kepulauan Riau (Riau Islands)	1	2.6
Jawa Barat (West Java)	5	13.2
Jawa Tengah (Central Java)	12	31.6
Jawa Timur (East Java)	6	15.8
Riau	1	2.6
Sulawesi Selatan (South Sulawesi)	1	2.6

Material

This survey is designed with some sections. The first section contains demographic information to explain the characteristics of participants and the characteristics of management consisting of 17 questions. The second section contains information on the experience with the fulfilment of action flow in aphasia patients, consisting of 17 questions with answer choices of "never", "occassionally", "often", and "always". In the third section, survey is designed to explore the therapists' experience in conducting assessment on aphasia patients. This section contains 10 questions with answer coices as same as those in the second section. The third section is an exploration of the number of aphasia cases dealt with using open-ended questions. The fourth section is a survey on the type of language problems in aphasia having ever been dealt with using answer choices as same as those in the second section. The last section is a survey on the therapist's experience in the management of aphasia in bilingual case with answer choices as same as those in the second section (see appendices A2, A3, A4, and A5).

Procedure

All participants are speech therapists enlisted to be the members of Indonesian Speech Therapist Association. This study used cross sectional approach to explore the therapist's experience in managing aphasia. This research was carried out in February – August 2024. All participants' responses were obtained through survey carried out online using google form application. The participants can approve directly the application attached to the informed consent.

RESULTS

In this section, it is explained the results of research and at the same time is given the Thirty eight (38) participants have answered all questions completely. The crude data were taken from google form application. In editing section, the result obtained from google form was then adapted to Microsoft Excel application. Data processing activity was carried out using SPSS for Windows 24 application. The result of survey is explained in sub sections of participants' demography, case variation, language problem, and experience in the management of aphasia.

Participants' Demography

The participants engage in this survey are aged 23-59 years on average (M= 32.71, SD= 8.87). The demography of patient management is represented in the number of patients' visit, i.e. 1-15 patient per day (M= 6.76, SD= 3.45), 1-96 patient per week (M= 35.61, SD= 22.87), and duration of intervention per patient (30-60 minutes) (M= 36.08, SD= 14.87). The demography of the management of aphasia patient is represented in the number of aphasia patient's visit, i.e. 1-5 patient per day (M= 1.26, SD= 1.08) and 1-30 patient per week (M= 5.21, SD= 6.01), duration of intervention for aphasia patient (30-60 minutes) (M= 31.58, SD= 17.90), and frequency of aphasia intervention (1-5 per week) (M= 1.13, SD= 1.69) (See Table 2).

Table 2. Variables related to the management of aphasia

Variable	Mean	SD	95% CI		Flow	Assess	Cases	Bilingual
			Lower	Upper				
Age	32.71	2.87	29.79	35.63	0.141	0.198	0.103	0.083
Job experience in year	10.26	6.74	8.05	12.48	0.076	0.146	0.165	0.083
Number of patient visit per day	6.76	3.45	5.63	7.90	0.098	0.096	0.061	0.038
Patient visit per week	35.61	22.87	28.09	43.13	0.184	0.046	0.148	0.086
Duration of generic patient	36.08	14.87	31.19	40.97	0.372*	0.170	0.311	0.105
Aphasia patient's visit per day	1.26	1.08	0.91	1.62	0.104	0.048	0.266	0.186
Aphasia patient's visit per week	5.21	6.01	3.24	7.19	0.043	0.105	0.378*	0.061
Duration of aphasia therapy	31.58	17.90	25.70	37.46	0.323*	0.219	0.423*	0.004
Frequency of aphasia therapy	1.68	1.69	1.13	2.24				

Note:
*Flow: total response to questions about the procedure of aphasia management.
*Assess: totan response to questions about the procedure of aphasia assessment.
*Cases: total response to questions about variation of aphasia case.
*Bilingual: total response to question about the procedure of aphasia management

Case Variation and Language Problem

The variation of cases is viewed from the number of patients in each type of aphasia. There are 10 types of aphasia explored in this study: Global aphasia with 0-250 patients (M= 17.24, SD= 51.28), mixed transcortical aphasia with 0-200 patients (M= 7.08, SD= 32.55), Broca aphasia with 0-127 patients (M= 9.55, SD= 21.29), transcortical motor aphasia with 0-122 patients (M= 5.76, SD= 19.15), Wernicke aphasia with 0-125 patients (M= 5.71, SD= 20.20), sensory transcortical aphasia with 0-156 patients (M= 6.74, SD= 26.69), conduction aphasia with 0-56 patients (M= 2.58, SD= 9.60), anomia pahasia with 0-52 patients (M= 3.97, SD= 8.78), subcortical aphasia with 0-22 patients (M= 1.84, SD= 4.80), and primary progressive aphasia with 0-35 patients (M= 2.63, SD= 7.18) (see Table 3).

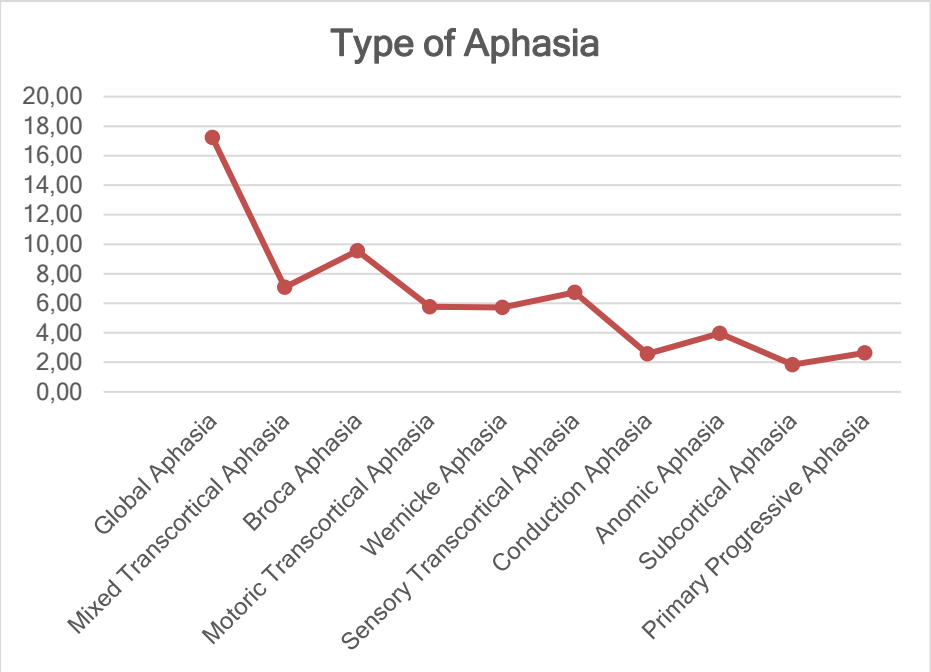

Figure 1. Chart of Aphasia Case Variation

Global aphasia is the type of aphasia reported most frequently. Meanwhile, the type of aphasia most rarely reported is subcortical aphasia. Each type of aphasia has different variation based on its mean score. The average number of aphasia cases is explained in the chart presented in Figure 1.

Aphasia problem is classified into 13 different types of case. Survey on language problem was carried out by telling the participants to answer the question with the answer choices of never, occassionally, often, and always. The problems found most frequently in the management of aphasia, in order, are anomia (N= 26, 68.42%), lack of speaking fluency (N= 21, 55.26%), perseverasi (N= 20, 52,63%), Literal paraphasia (N=19, 50%), Verbal paraphasia (N= 17, 44.74%), Jargon (N= 16, 42.11%), Agrammatism (N= 14, 36.84%), Verbal paralexia (N= 13, 34.21%), Telegram language(N= 13, 34.21%), Literal paragraphia (N= 12, 31.58%), Circumlocution (N= 9, 23.68%), Literal paralexia (N=8, 21.05), and Verbal paragraphia (N= 7, 18.42%). The data shows that the difficulty of naming proves that the ability of naming is an indicator of whether or not there is aphasia. The varying comparison of language problem experienced can be seen in Figure 2.

Table 3. Variation of Case Type

Type of Aphasia	Mean	SD	95% CI		N
			Lower	Upper	
Global Aphasia	17.24	51.28	0.38	34.09	38
Mixed Transcortical Aphasia	7.08	32.55	3.62	17.78	38
Broca Aphasia	9.55	21.29	2.55	16.55	38
Transcortical Motor Aphasia	5.76	19.15	0.53	12.06	38
Wernicke Aphasia	5.71	20.20	0.93	12.35	38
Transcortical Sensory Aphasia	6.74	26.69	2.04	15.51	38
Conduction Aphasia	2.58	9.60	0.58	5.74	38
Anomia Aphasia	3.97	8.78	1.09	6.86	38
Subcortical Aphasia	1.84	4.80	0.26	3.42	38
Primary Progressive Aphasia	2.63	7.18	0.27	4.99	38

Aphasia Management Experience

The aphasia management experience is divided into three big data: experience in action procedure, experience in making assessment, and experience in carrying out the management of bilingual aphasia.

Experience of Action Flow

The exploration to see therapist' experience in conducting or complying with the flow of speech therapy action is carry out through ask 17 questions. All questions have answer choices of never, occassionally, often, and always. The result of data analysis shows that the flow of action always implemented is the process of assessment involving family. This item is the question number 5. Twenty nine (76.32%) participants always involving family in the flow of therapy service. Telepractice is the flow or the service of speech therapy most therapist have never carried out (N= 33, 86.84%). The item is contained in the question number 14. The detail of survey result can be seen in appendices 2.

The Experience of Assessment

The experience of assessment in the management of aphasia was explored using 10 (ten) questions. The questions are posed with four answer choices just like the exploration of experience in the flow of service. Diagnosing aphasia is the objective of assessment the therapists mostly do. Twenty six (68.42%) participants choose the answer choice "always". The item is the question number 1. Measuring pragmatic ability is the objective of assessment implemented the therapist do most rarely. This item is contained in the question number 8. Fifteen (39.47%) participants chose answer choices "never" and "occassionally". The result of survey is explained in appendix 3.

Experience of bilingual aphasia management

Therapists' experience in dealing with bilingual aphasia is explained using the survey conducted with answer choices "never, occassionally, often, and always". A total of 10 questions were posed. The family's engagement in the process of special assessment on bilingual aphasia is always implemented by 17 participants (44.74%). In contrast to family, the engagement of professional translator in the process assessment is implemented most rarely by therapists (M= 1.29, SD= 0.77). Detailed information on the result of survey on the management of bilingual patients is presented in appendix 4.

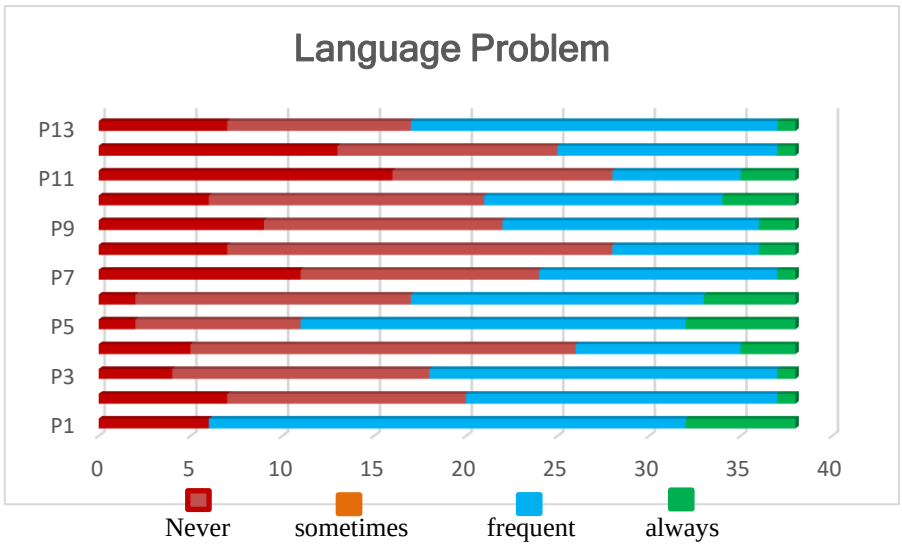

Figure 2. Variation of aphasia language problem

Note: P1= Anomia, P2= Verbal paraphasia, P3= Literal paraphasia, P4= circumlocution, P5= lack of speaking fluency, P6= Jargon, P7= Verbal paralexia, P8= Literal paralexia, P9= Agrammatism, P10= Telegram language, P11= Verbal paragraphia, P12= Literal paragraphia, P13= Perseveration.

Statistics of Inference

Demographic Variable

Demographic variable measured includes age, sex, education level, workplace, and employee status. The connected variables include varying type of aphasia, experience in the flow of action, objective of assessment, and experience in treating the patients with bilingual aphasia. Correlational analysis found that there is no correlation between age and varying type of aphasia (r= 0.240, p≥ 0.05). The score of correlation between age and experience in the flow of action is negative (r= -0.141, p≥ 0.05). There is no positve corelation between age and experience in formulating the objective of assessment (r= -0.198, p≥ 0.05). There is no correlation between age and experience in treating the patient with bilingual aphasia (r= -0.083, p≥ 0.05).

There is no correlation between varying type of aphasia (Z= -0.362, p≥ 0.05), experience in the flow of action (Z= -0.724, p≥ 0.05), objective of assessment (Z= -0.457, p≥ 0.05), and experience in implementing the procedure on the patients with bilingual aphasia (Z= -0.506, p≥ 0.05). Education level has low significance value in its correlation to varying type of aphasia (Z= -0.533, p≥ 0.05), experience in the flow of action (Z= -0.148, p≥ 0.05), objective of assessment (Z= -1.515, p≥ 0.05), and experience in implementing the procedure on the patients with bilingual aphasia (Z= -0.283, p≥ 0.05). Workplace has lower significance in its correlation to varying type of aphasia X^2= 9.96, p≥ 0.05), experience in the flow of action, (X^2= 4.05, p≥ 0.05), objective of assessment (X^2= 6.60, p≥ 0.05), and experience in implementing the procedure on the patients with bilingual aphasia (X^2= 4.88, p≥ 0.05). There is a correlation between status of employee and varying type of aphasia (X^2= 16.19, p≤ 0.05). The status of employee does not have significance in its correlation to the experience in the flow of action (X^2= 5.95, p≥ 0.05), objective of assessment (X^2= 4.21, p≥ 0.05), experience in implementing the procedure on the patients with bilinual aphasia (X^2= 6.09, p≥ 0.05).

Case Load

Case load consists of generic patients' visit per day, generic patients' visit per week, duration of therapy for generic patients, aphasia patients' visit per day, aphasia patients' visit per week, duration of therapy for aphasia patient and frequency of therapy. The connected variables include, among others, varying type of aphasia, experience in the flow of action, objective of assessment, and experience in implementing the procedure on the patients with bilingual aphasia. The result of correlational test can be seen in the Table 4.

Table 4. Result of correlational test

No		1	2	3	4	5	6	7	8	9	10
2	r	**0.86****									
	p	p≤0.01									
3	r	-0.43	**-0.40***								
	p	p≤0.01	p≤0.05								
4	r	0.27	0.27	-0.05							
	p	p≥0.05	p≥0.05	p≥0.05							
5	r	0.31	0.31	-0.10	**0.87****						
	p	P=0.05	p≥0.05	p≥0.05	p≤0.05						
6	r	-0.15	-0.10	**0.57****	**0.40***	**0.38***					
	p	p≥0.05	p≥0.05	p≥0.05	p≤0.05	p≤0.05					
7	r	0.12	0.23	0.05	**0.73****	**0.68****	**0.38***				
	p	p≥0.05	p≥0.05	p≥0.05	p≤0.05	p≤0.05	p≤0.05				
8	r	**0.42****	**0.38***	-0.25	**0.78****	**0.82****	0.22	**0.63****			
	p	p≤0.01	p≤0.05	p≥0.05	p≤0.05	p≤0.05	p≥0.05	p≤0.05			
9	r	-0.09	-0.18	**0.37***	0.10	0.04	**0.32***	-0.01	-0.08		
	p	p≥0.05	p≥0.05	p≤0.02	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05		
10	r	0.09	0.04	0.17	0.04	0.10	0.21	-0.07	-0.06	**0.78****	
	p	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≤0.05	
11	r	0.03	-0.08	-0.10	0.18	0.06	0.00	0.02	0.20	0.29	0.25
	p	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05	p≥0.05

Note

1= generic patients' visit per day, 2= generi patients' visit per week, 3 = duration of therapy for generic patients, 4= aphasia patients' visit per day, 5= aphasia patients' visit per week, 6= duration of therapy for aphasia patients, 7= frequency of therapy, 8= varying type of aphasia, 9= experience in the flow of action, 10= objective of assessment, 10= experience in implementing the procedure on the patients with bilingual aphasia.

DISCUSSION

This research was carried out to see the description of aphasia management in Indonesia. The objective of survey is firstly to see the demographic description. The result of exploration shows that speech therapists have demographic variation. The facilities of service provider become an important element in seeing the distribution of speech therapy service. More than a half of participants work as speech therapist in hospital. This indicated that most of services for aphasia is provided in hospital. The similar finding is also obtained. Fortyone percent participants state that aphasia service is held in hospital (Bennington et al., 2024).

Hospital is the foundation of aphasia management. The existence of speech therapiest in hospitals linear to the government policy stating that speech therapists are the part of healthcare workers as physical therapeutic workers. As we know, the incidence of aphasia oftens occurs due to brain injury. One of factors with largest contribution to aphasia is stroke (El Hachioui et al., 2016; Gerstenecker & Lazar, 2019; Law et al., 2009; Mitchell et al., 2021). Another consideration is the phase where problems arise, the treatment or management in acute phase and advanced rehabilitation phase.

In addition to demographic description, this study also focuses its attention on case load. The case load of aphasia per day is reported to be lower than that of regular patients (regular M= 6.76, SD= 3.45; aphasia M= 1.26, SD= 1.08). The data shows that the management of aphasia patient is less than the speech therapy service given to non-aphasia patients. Speech therapists have broad service coverage. The indication resulting from the data is the higher ratio of children case. However, post-stroke adult patients are on the highest rank in the number of patient visit (van der Gaag et al., 1999).

Duration and frequency of aphasia management is an important element in the attempt of treating aphasia. The result of study shows that the average duration of speech therapy service for patients with aphasia is 31.58 minutes with the frequency of 1.68 visits per week. We can estimate that the total duration of speech therapy service for aphasia patient is 53.05 minutes per week. This result is taken into account to recommend the speech therapists to increase the number of visit and the intervention duration to fulfil intervention dosage (see Harvey et al., 2020).

There has been no special recommendation about the ideal number of interventions, but some studies have provided evidence of aphasia duration and frequency. An intervention with 15 sessions will last for 4 – 12 weeks (Harvey et al., 2023). An intervention with duration of 8-10 hours per week for 12 weeks will have positive impact on aphasia intervention (Bhogal et al., 2003). It can be seen clearly that duration and frequency become strong part of recommendation to be implemented in the speech therapy service for the patirnts with aphasia.

Secondly, the objective of survey is also to see the description of aphasia case number specifically. Global aphasia is the type of aphasia found most frequently (M= 17.26). Mapping the types of aphasia is necessary as an attempt of fulfilling the improvement of speech therapy service quality in the patients with aphasia. The management of aphasia in 90 first days is an important element in the attempt of generalizing the patients with aphasia (Eley et al., 2024). Global aphasia is the type of aphasia needing the management designed to conform the treatment with functional output. The functional generalization in daily communication is the goal of intervention for the patients with aphasia (Mayer et al., 2024). The patients' improved ability of using gesture as communication modality can be targetted during intervention session (Rose et al., 2013).

Thirdly, the survey also aims to describe the variation of language problems. As we know, language problem in aphasia is divided into three big groups: the problem in lexico semantic area, the problem in morphosyntactic area, and the problem in phonologic area (Dharmaperwira-Prins, 2002). This problem mapping becomes important in determining prognosis and intervention choice. The identification of linguistic problems encountered by the patients with aphasia is one of early goals in the assessment process (Chapey, 2008).

The flow of action a standard or a guidance a therapist in dealing with an individual with aphasia. Speech therapists play a role in screening, evaluation, action planning, diagnosis establishment, intervention, and re-evaluation processes (Simmons-Mackie et al., 2017). The exploration found that telepractice (M= 1.18) and digital material (M= 1.84) are the ones used most rarely by the therapists. As we know, telepractice is one of intervention options for an individual with aphasia. Telepractice evidently has effectiveness in therapy process

(Hall et al., 2013; Weidner & Lowman, 2020). This finding implies an instruction to conduct further investigation to explore the reason why telepractice is used rarely. The next is digital media use. Digital media becomes necessity in daily life. In the service for an individual with aphasia, digital media is used not only for assessment purpose but also for measuring the successful intervention (Marshall et al., 2018). The need for the fulfilment of digital materia is required in the context of service for an individual with aphasia.

Aphasia is a very complex condition. Assessment is used to measure the need for further treatment (Shipley & McAfee, 2021). Once more, the investigation of aphasia problem specifically becomes one out of ten recommendations for individuals with aphasia (Simmons-Mackie et al., 2017). Aphasia is called language problem (Castro et al., 2023); thus, all language aspects including language form (phonology, morphology, and syntax), content (semantic), and use pragmatic (Paul & Norbury, 2012) must be measured. This study found that pragmatic ability is the least explored one (M= 2.89). It should be emphasized that language generalization is the end goal of aphasia intervention (Mayer et al., 2024) and therefore language use should be reinforced.

The use of varying languages is a challenge encountered in language management. The use of more than one language indicates a therapist should prepare assessment and intervention materials in diverse languages. Based on the memanagement of individuals with communiation disorder, the adjustment of treatment or action referring to ethnocultural aspect is an non-negotiable element (Kritikos, 2003). Bilingual aphasia has an existence in clinical activities of speech therapists (Lorenzen & Murray, 2008; Reyes, 1998). The family's engagement is a key to a successful treatment of aphasia with more than one language. This study found that the engagement of professional translator is found most rarely (M= 1.29). The facilitation of professional translator has a significant impact on the attempt of improving abilty (Chapey, 2008). Further exploration is needed on the engagement of professionals in aphasia services.

CONCLUSION

This study informs that the management of aphasia has varying contexts in each service. duration and frequency of intervention are the findings interesting to explore further. Global aphasia is the one found most frequently by clinicians. In addition to finding the types of aphasia found most frequently, this study also obtained the data indicating that anomia is the problem encountered most frequently by the therapist. It should be appreciated that recommendation and intervention are often decided by involving family. The type of assessment most frequently used is the assessment on pragmatic area. Telepractice is also the type of service rarely implemented by therapists. The treatment approach to bilingual aphasia by engaging professional translator in assessment and intervention is carried out very rarely. Although this study successfully obtained data about the management of aphasia, further study is needed to explore further the data of aphasia management in Indonesia. The development of assessment and intervention materials is recommended to cover all objectives of examination. The rare use of telepractice needs to be explored to see the potency of more comprehensive service.

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Appendix 1. Demography of Participants

Demographic Parameter	Category	Frequency	Percentage	n
Sex	Male	12	31.6	38
	Female	26	68.4	
Speech Therapy Education	*Diploma Tiga* (three-year higher education program)	22	57.9	38
	Sarjana Terapan (Applied Bachelor)	16	42.1	
Origin of Speech Therapy College	*Poltekkes Kemenkes Surakarta* (Health Polytechnic of Health Ministry of Surakarta)	28	73.7	38
	Akademi Terapi Wicara Jakarta (Speech Therapy Academy of Jakarta)	8	21.1	
	Politeknik Al Islam Bandung (Al Islam Polytechnic of Bandung)	2	5.3	
Workplace	*Rumah Sakit Umum Pusat* (Central General Hospital)	5	13.2	38
	Rumah Sakit Umum Daerah (Regional General Hospital)	15	39.5	
	Rumah Sakit Umum Swasta (Private General Hospital)	10	26.3	
	Growth and Development Clinic	6	15.8	
	Special Facilities	2	5.3	
Status of Employee	Private Employee	17	44.7	38
	Honorary employee	7	18.4	
	Civil Servant	10	26.3	
	Freelancer	3	7.9	
	Others	1	2.6	
Province	Bengkulu	1	2.6	38
	Daerah Istimewa Yogyakarta (Special Region of Yogyakarta)	3	7.9	
	Daerah Khusus Jakarta (Special Capital Region of Jakarta)	6	15.8	
	Kalimantan Timur (East Borneo)	2	5.3	
	Kepulauan Riau (Riau Islands)	1	2.6	
	Jawa Barat (West Java)	5	13.2	
	Jawa Tengah (Central Java)	12	31.6	
	Jawa Timur (East Java)	6	15.8	
	Riau	1	2.6	
	Sulawesi Selatan (South Sulawesi)	1	2.6	

Appendix 2. Response to question about the frequency of the action flow of therapy in aphasia

No.	Question	M	SD	Never		Occassionally		Often		Always	
				N	%	N	%	N	%	N	%
F1.	Did you carry oout some screening to detect whether or not the client leads to aphasia condition?	3.47	0.86	1	2.63	2	5.26	6	15.79	29	76.32
F2.	Did you conduct direct interview with the putatively aphasia patient?	3.42	0.82	1	2.63	6	15.79	5	13.16	26	68.42
F3.	Did the process of assessment on the putatively aphasia client use standardized assessment method?	3.00	0.95	1	2.63	5	13.16	9	23.68	23	60.53
F4.	Did the process of assessment on the putatively aphasia client use informal assessment method, for example with rating scale?	2.18	0.95	2	5.26	11	28.95	7	18.42	18	47.37
F5.	Did the process of assessment on the putatively aphasia client engage family?	3.66	0.71	1	2.63	14	36.84	7	18.42	16	42.11
F6.	Did you use special instrument to establish the type of aphasia developed by client or patient?	3.08	0.99	4	10.53	11	28.95	8	21.05	15	39.47
F7.	Did you set the long term objective of aphasia management in written form?	2.89	1.06	3	7.89	11	28.95	11	28.95	13	34.21
F8.	Did you set the short term objective of aphasia management in written form?	2.89	0.98	3	7.89	14	36.84	8	21.05	13	34.21
F9.	Did you prepare the list of aphasia management activities in written form?	2.82	1.01	6	15.79	16	42.11	8	21.05	8	21.05
F10.	Did you set the targe of aphasia management by referring to *International Classification of Functioning*?	2.08	0.91	4	10.53	15	39.47	12	31.58	7	18.42

F11.	Did you write a report on the result of evaluation/assessment for each of aphasia cases?	2.47	1.01	4	10.53	15	39.47	12	31.58	7	18.42
F12.	Did you use the material of aphasia management in book format?	2.26	0.86	6	15.79	18	47.37	7	18.42	7	18.42
F13.	Did you use digital-based aphasia intervention material?	1.84	0.88	8	21.05	21	55.26	3	7.89	6	15.79
F14.	Did you carry out telepractice (long-distance treatment or management) for aphasia patients?	1.18	0.56	11	28.95	16	42.11	8	21.05	3	7.89
F15.	Did you carry out re-evaluation on the long term objective of aphasia management?	2.58	0.91	7	18.42	17	44.74	11	28.95	3	7.89
F16.	Did you carry out re-evaluation on the short term objective of aphasia management?	2.58	0.91	16	42.11	14	36.84	6	15.79	2	5.26
F17.	Did out make assessment on the achievement of functional aspect in the result of aphasia management?	2.39	0.97	33	86.84	4	10.53	0	0,00	1	2.63

Note 1= never, 2= occassionally, 3= often, 4= always

Appendix 3. Assessment Action

No.	Objective of Assessment	M	SD	Never		Occassionally		Often		Always	
				N	%	N	%	N	%	N	%
A1.	Establishing diagnosis of aphasia.	3.45	0.89	1	2.63	7	18.42	4	10.53	26	68.42
A2.	Establishing diagnosis of aphasia specifically.	3.08	1.02	3	7.89	9	23.68	8	21.05	18	47.37
A3.	Determining the disorder secondary to aphasia	3.11	0.95	2	5.26	9	23.68	10	26.32	17	44.74
A4.	Examining the ability of understanding the content of language.	3.11	0.95	2	5.26	9	23.68	10	26.32	17	44.74
A5.	Examining the ability of producing the content of language.	3.08	0.94	2	5.26	9	23.68	11	28.95	16	42.11
A6.	Examining the ability of understanding the form of language.	3.05	0.95	2	5.26	10	26.32	10	26.32	16	42.11
A7.	Examining the ability of producing the language form.	2.97	1.00	3	7.89	10	26.32	10	26.32	15	39.47
A8.	Examining the pragmatic ability	2.89	0.95	2	5.26	13	34.21	10	26.32	13	34.21
A9.	Analysis cognitive ability.	3.11	0,95	2	5.26	9	23.68	10	26.32	17	44.74
A10.	Analyzing prognosis factors.	3.03	0.88	1	2.63	11	28.95	12	31.58	14	36.84

Note 1= never, 2= occassionally, 3= often, 4= always

Appendix 4. Frequency of language problem in aphasia

No.	Problem	M	SD	Never		Occassionally		Often		Always	
				N	%	N	%	N	%	N	%
P1.	Anomia	3.00	0.56	6	15.79	0	0.00	26	68.42	6	15.79
P2.	Verbal paraphasia	2.32	0.80	7	18.42	13	34.21	17	44.74	1	2.63
P3.	Literal paraphasia	2.45	0.72	4	10.53	14	36.84	19	50.00	1	2.63
P4.	Circumlocution	2.26	0.79	5	13.16	21	55.26	9	23.68	3	7.89
P5.	Lack of speaking fluency	2.82	0.76	2	5.26	9	23.68	21	55.26	6	15.79
P6.	Jargon	2.63	0.78	2	5,26	15	39.47	16	42.11	5	13.16
P7.	Verbal paralexia	2.11	0.86	11	28.95	13	34.21	13	34.21	1	2.63
P8.	Literal paralexia	2.13	0.77	7	18.42	21	55.26	8	21.05	2	5.26
P9.	Agrammatism	2.24	0.88	9	23.68	13	34.21	14	36.84	2	5.26
P10.	Telegram language	2.39	0.88	6	15.79	15	39.47	13	34.21	4	10.53
P11.	Verbal paragraphia	1.92	0.96	16	42.11	12	31.58	7	18.42	3	7.89
P12.	Literal paragraphia	2.03	0.88	13	34.21	12	31.58	12	31.58	1	2.63
P13.	Persevaration	2.39	0.82	7	18.42	10	26.32	20	52.63	1	2.63

Note 1= never, 2= occassionally, 3= often, 4= always

Appendix 5. The procedure of treatment in patients with bilingual aphasia

No.	Questions	M	SD	Never		Occassionally		Often		Always	
				N	%	N	%	N	%	N	%
B1.	Have you ever made assessment on the patients using more than one language?	1.92	0.67	10	26.32	21	55.26	7	18.42	0	0
B2.	Did you use examination (test) instrument with more than one type of language?	1.61	0.76	20	52.63	14	36.84	3	7.89	1	2.63
B3.	Did you engage family as translator during the process of assessment?	3.00	1.06	4	10.53	9	23.68	8	21.05	17	44.74
B4.	Did you enage a professional as translator during the process of assessment?	1.29	0.77	32	84.21	3	7.89	1	2.63	2	5.26
B5.	Did you establish diagnosis from each type of language in aphasia patients speaking more than one language?	1.68	0.80	18	47.37	16	42.11	2	5.26	2	5.26
B6.	Have you ever made intervention on the patient using more than one language.	1.87	0.70	11	28.95	22	57.89	4	10.53	1	2.63
B7.	Did you use intervention material with more than one language?	1.71	0.83	17	44.74	18	47.37	0	0.00	3	7.89
B8.	Did you engage family as translator during the process of intervension?	2.53	1.00	7	18.42	11	28.95	13	34.21	7	18.42
B9.	Did you engage a professional as the translator during the process of intervension?	1.34	0.78	30	78.95	5	13.16	1	2.63	2	5.26
B10.	Did you determine success or assess the intervention gain of each type of language in aphasia patients speaking more than one language?	1.92	0.91	13	34.21	19	50.00	2	5.26	4	10.53