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Review Article

Communication Therapy in Stroke Patients with Aphasia: A Narrative Review

Sally Syamima¹ | Urip Rahayu² | Nur Oktavia Hidayati^{3*}

^{1,2,3}Faculty of Nursing,
Padjadjaran University,
Sumedang, Jawa Barat,
Indonesia

*contact

nur.oktavia@unpad.ac.id

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Abstract

Aims: Stroke is the number one cause of death in Indonesia. The stroke had some effects. One of the common complications is aphasia. Aphasia is a disorder of speaking, understanding what others said, and even the ability to read and write too. This can lead to communication problems in a stroke patient. Communication therapy is one of the most effective ways to treat aphasia.

Objective: The aim of this article is to find out the types of communication therapy for stroke patients who suffered with aphasia.

Methods: We conducted a review and collected the articles by searching several databases such as PubMed, Science Direct, and CINAHL. We also used search engines such as Google Scholar. After the articles are obtained, the articles will be sorted by keywords. The keywords used were stroke patient OR post-stroke AND communication therapy OR language therapy OR speech therapy AND aphasia OR aphasic. Then, the articles are sorted by inclusion and exclusion criteria. After obtaining appropriate articles, the articles were analyzed by using thematic analysis.

Results: The search resulted in 708 articles. After several selection steps, 23 articles were analyzed, and seven types of communication interventions were found that can be applied to stroke patients who suffered aphasia.

Conclusion: The results of a review of all articles show that there are various types of communication therapy that can be given to stroke patients who experience aphasia. The therapy is grouped into 7 types of therapy, which include Constraint Induced Aphasia Therapy, Electronic-based therapy, Melodic Intonation Therapy, Intensive Therapy, Augmentative and Alternative Communication, Cognitive Therapy, and AIUEO.

Suggestion: Furthermore, researchers can conduct a systematic review related to which communication therapy is the most effective for treating aphasia, especially in stroke patients.

Keywords

Aphasia, communication therapy, SLT, stroke patient

INTRODUCTION

Stroke is a disease that causes death and nerve function damage. Globally, in 2019, 7 out of 10 diseases that cause the greatest number of deaths are non-communicable diseases, with stroke itself being the second leading cause of death in the world (1). In Indonesia, stroke cases based on clinical examinations at the age of 15 years have increased from 7% in 2013 to 10% in 2018 to 10.9% (2).

In the United States, about 5,000,000 people suffer from stroke and each year the number of stroke cases is estimated at around 750,000 cases. One third (225,000) of stroke patients suffered aphasia (6). The results of the study conducted by Khedr et al. said that of 180 patients suffering from ischemic stroke, 20% had aphasia. The mean age of ischemic stroke patients with aphasia was 55.8 ± 10.6 compared with non-aphasia patients was 56.29 ± 9.92 (3).

A study conducted in China stated that of 4,339,156 patients with AIS (acute ischemic stroke), 16.93% suffered from aphasia (7). Patients with aphasia increased from 13.34% in 2003 to 21.94% in 2014 (P.0001).. Aphasia's prevalence in Indonesia according to Purnomo, Sengkey & Damopolii (2015) study results revealed that 60 (13,2%) of 455 stroke patients suffered from aphasia and 395 (86,8%) others suffered strokes without aphasia (8).

Stroke has an impact on patients, namely difficulty communicating, also known as aphasia (3). According to the American Heart Association (4) , aphasia is a speech disorder that can affect communication ability. Stroke is the main cause of aphasia. It happens

because a stroke attacks the left hemisphere of the brain, which regulates language and speaking ability. Aphasia can cause patients to have difficulty speaking, listening, writing, and reading, but has no effect on individual intelligence (5).

Aphasia can cause negative effects. For example, the score of communication quality is worse than in stroke patients without aphasia. Patients with Brocha's aphasia will find it difficult to socialize and do daily activities (9). The poor quality of life also has a significant relationship with an increase in the severity of aphasia. Multivariable analysis showed that poor quality of life was associated with limited communication, impaired daily activities, fatigue and depression (10).

Based on a research report, the impact of aphasia on communication in stroke patients, namely the conversation chance with others is reduced, difficulty in communication, and even aphasia can cause psychological disorder (11). Other negative consequences experienced by stroke patients with aphasia are, for example, the relationship between the patient and other people is poor due to inadequate communication. Then, aphasia can also cause decreasing confidence (12).

There are several types of aphasia management, such as speech and language therapy (SLT), noninvasive brain stimulation (NIBS), and pharmacological therapy. In this narrative review, communication therapy was chosen, because SLT is the best type of communication therapy to improve communication and language skills in post-stroke patients with aphasia (5). Other research states that

SLT is an effective therapy to improve functional communication, and improve receptive and expressive language after stroke (13).

Moreover, based on Virginia Henderson's theory revealed that communication is one of the basic human needs (14). Communication plays one of the most important roles in nursing science (15). Communication built by nurses will be very beneficial for patients. Effective communication between patients and nurses will result in quality of care. In addition, patients will feel that they have the full attention of nurses because they can express their feelings about the illness.

Based on to the National Health Service, SLT is generally carried out by a speech therapist, but nurses also have an important role in the management of aphasia, especially in communication. Nurses can assist aphasic patients in controlling conversation and focusing on dialogue to achieve therapy goals. It is important for nurses to recognize each individual, so that they can regain independence, confidence, and freedom in controlling their lives.

Researchers conducted a review of communication therapy in stroke patients with aphasia because researchers have not found research that generalizes the types of aphasia therapy. Research conducted by Kong et al. (16) focuses more on the implementation of communication therapy with partners and uses a systematic review approach. As for other studies conducted by Cacciante et al. (17), they focused only on remote therapy, also known as telerehabilitation, and also used a systematic review approach. Therefore, researchers are interested in identifying

what types of SLT communication therapy are used in stroke patients with aphasia. So, the aim of this article is to find out the types of communication therapy for stroke patients who suffered from aphasia.

METHODS

Design: This study used a literature review method with a narrative review approach. This study uses a narrative review approach because the initial purpose of the study was to identify and summarize what SLT communication therapy is for stroke patients with aphasia, where the objectives are consistent with the objectives of the narrative review itself.

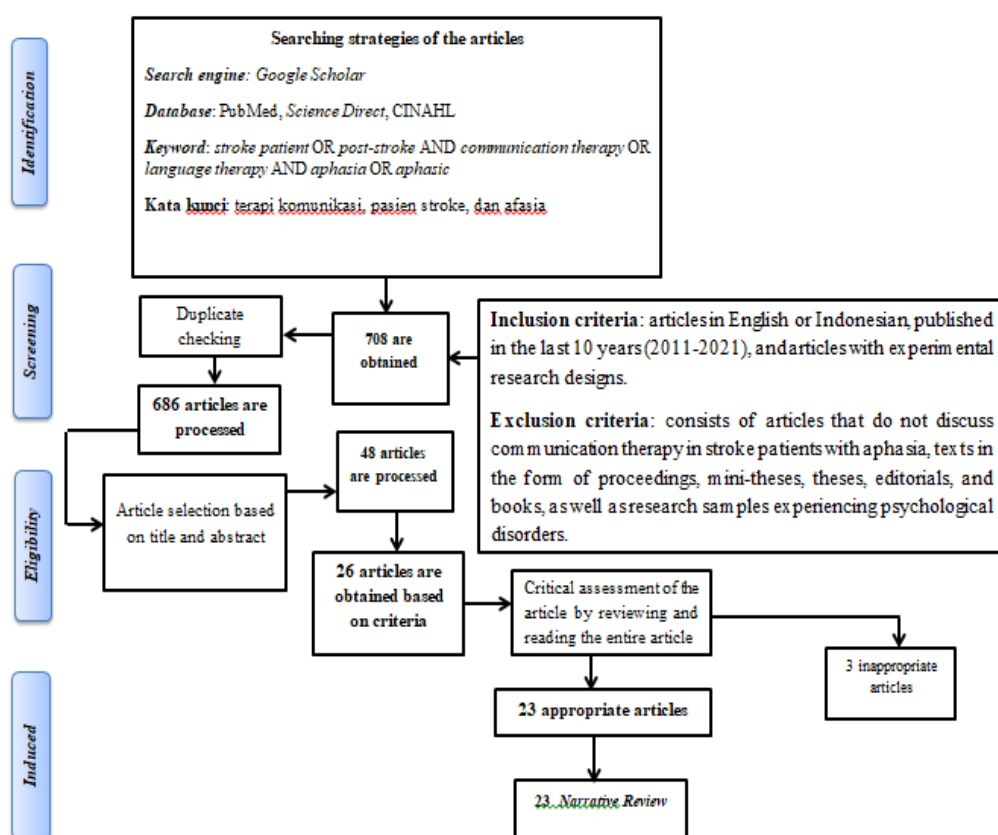
Searching strategies: In searching for the articles, the author used several databases, such as PubMed, Science Direct, and CINAHL, and used Google Scholar as a search engine. The keywords used are stroke patient OR post-stroke AND communication therapy OR language therapy OR speech therapy AND aphasia OR aphasic. Whereas the keywords for searching for articles using the Indonesian language are *afasia, pasien stroke, and terapi komunikasi*.

Inclusion and exclusion criteria: In this narrative review, inclusion and exclusion criteria have been determined. These are articles discussing communication therapy in stroke patients with aphasia, articles in English or Indonesian, published in the last 10 years (2011-2021), and articles with experimental research designs. Meanwhile, the exclusion criteria itself, which consists of articles that do not discuss communication therapy in stroke patients with aphasia, texts in the

form of proceedings, mini-theses, theses, editorials, and books, as well as research samples experiencing psychological disorders.

The analysis process of this narrative review uses thematic analysis. Narrative review is an essential part of the research process and helps to build the theoretical framework and context of your research (18). Thematic analysis

is an analysis process using a code from an information source that will produce a theme. These themes are the result of the interpretation of an existing phenomenon. Themes can be obtained deductively, namely based on theory or research that has been done previously, and they can also be obtained inductively, namely derived from raw data (19).



RESULTS

The search resulted in 708 articles, which were then sorted again by checking for duplication. The results of sorting by checking for duplication resulted in 686 articles. After that, the authors re-selected by reading the suitability of the abstract, which resulted in 48 articles. Then the 48 articles were re-selected based on a

critical assessment by reading the entire contents of the article. From the selection process, as many as 26 articles passed the selection. However, after the 26 articles were reviewed, only 23 articles were analyzed. The results of the review of each article that discusses communication therapy in stroke patients with aphasia can be seen in the table below.

Tabel 1. Article Analysis Results

No.	The title of article/ Author/ Country	Purpose	Methods/ Participant	Instrument	Results
1.	Effect of type of language therapy on expressive language skills in patients with post-stroke aphasia Author: (20) Country: Serbia	The aim of this research is to compare success of CIAT (Constraint Induced Aphasia Therapy) and traditional therapy with expressive language ability approach.	randomized within-subject crossover design Participant: 20 post-stroke patient who suffered from aphasia (all types of aphasia).	Boston Naming Test	The picture naming ability, sentence production, and number of information-carrying words in C1S2 group are more significant than in the group S1C2. Whereas, syntactic ability in both groups had no significant difference (<i>p value</i> > 0,16).
2.	Evaluating the Benefits of Aphasia Intervention Delivered in Virtual Reality: Results of a Quasi-Randomised Study Author: (21) Country: England	The aim of this research is to evaluate the intervention in aphasia patients who carried out virtual reality therapy, also known as <i>EVA Park</i> .	quasi randomised design Participants: 20 aphasia patients, at least 4 months suffered from a stroke (all types of aphasia).	Communication Activities of Daily Living (CADL-2)	The intervention group showed improvement in CADL-2 (Communication Activity Daily Living-2), verbal fluency, and communication confidence. Whereas, word finding and the number of narrative words had no significant results in both groups.
3.	Efficacy of intensive aphasia therapy in patients with chronic stroke: a randomised controlled trial Author: (22) Country: Germany	The aim of this article is for determine speech and language therapy's optimal daily dosage and intensive duration.	a randomised, parallel-group, blinded-assessment, controlled trial Participants: 30 post-stroke (>1 years) who suffered from chronic aphasia.	Aachen Aphasia Test (AAT)	The measurement of Action Communication Test effective in patients who received therapy with moderate-intensive intensity (2 hr/day).

No.	The title of article/ Author/ Country	Purpose	Methods/ Participant	Instrument	Results
4.	<i>Pengaruh Melodic Intonation Therapy terhadap Kemampuan Fungsional Komunikasi pada Pasien Stroke dengan Afasia Motorik</i> Author: (23) Country: Indonesia	The aim of this article is to identify effectiveness Melodic Intonation Therapy on functional communication ability in stroke patient with motoric aphasia.	pre and post test with control group Participants: 23 stroke patients with motoric aphasia	Derby Functional Communication Scale (DFCS)	This therapy can improve functional communication ability, but in both groups was no significant difference.
5.	Effects of a tablet-based home practice program with telepractice on treatment outcomes in chronic aphasia Author: (24) Country: United States	The aim of this article determine whether tablet-based home practice supported by weekly telepractice can improve the benefits of therapy and assist patients in developing their new language in stroke patients with aphasia.	Pre and post test group Participants: 21 stroke patients with chronic aphasia (all types of aphasia).	Boston Naming Test	Picture naming ability on untreated/practiced and untreated/unpracticed pictures had significant results, except in patients with severe aphasia. Patients with severe aphasia had 4% improvement from the pre-intervention period to intervention therapy, 21% improvement in moderate-severe, and 21% improvement in mild-moderate.
6.	The effects of modified melodic intonation therapy on nonfluent aphasia: A pilot study Author: (25) Country: United States	The aim of this article is to determine effect of modified melodic intonation therapy (MMIT), which is the early intervention for stroke patient with Brocha's aphasia.	randomized controlled single-blind Partisipan: 30 stroke patients with Brocha's aphasia	The type of instrument is not explained.	The intervention group had improvement in total score and responsiveness level. Whereas, the control group had improvement in total score and repetitive word ability.

No.	The title of article/ Author/ Country	Purpose	Methods/ Participant	Instrument	Results
7.	Constraint-induced aphasia therapy for treatment of chronic post-stroke aphasia: A randomized, blinded, controlled pilot trial Author: (26) Country: United States	The aim of this article is to provide an early overview of the effectiveness of Constraint Induce Aphasia Therapy (CIAT) compared with groups without intervention.	randomized, controlled, single-blinded, pilot trial Partisipan: 24 post-stroke patients with chronic aphasia (all types of aphasia).	Boston Naming Test	The patients who received CIAT (Constraint induced aphasia therapy) got a score of mini-CAL (mini-Communicative Abilities Log) that was higher than the control group. Score SFT (Syntactic Fluency Task) was slightly higher in the CIAT group than the control group two weeks after intervention.
8.	A randomized, rater-blinded, parallel trial of intensive speech therapy in sub-acute post-stroke aphasia: The SP-I-R-IT study Author: (27) Country: Portugal	The aim of this article isto compare the effectiveness of speech and language therapy in regular and intensive time.	two-centre, randomized, rater-blinded Participants: 114 stroke patients in sub-acute phase who suffered from aphasia	Aphasia Quotient (AQ)	In both groups, there was no significant difference in primary outcomes (aphasia severity, verbal fluency, object naming, and word understanding) and secondary outcomes (Aphasia Quotient and function of communication) in the 10 th week and 62 nd week.
9.	<i>Pengaruh Pemberian Augmentative and Alternative Communication (AAC) Terhadap Kemampuan Fungsional</i> Author: (28) Country: Indonesia	The aim of this artice is to evaluate the effectiveness of AAC Therapy on functional communication and depression.	quasi experiment post test non equivalent control group Participants: 21 stroke patients with motoric aphasia.	The type of instrument is not mentioned.	The analysis results concluded that there was no significant difference in the average score of functional communication ability between both groups.

No.	The title of article/ Author/ Country	Purpose	Methods/ Participant	Instrument	Results
10.	Self-managed, computerised speech and language therapy for patients with chronic aphasia post-stroke compared with usual care or attention control (Big CACTUS): a multicentre, single-blinded, randomised controlled trial Author: (Palmer et al., 2019) Country: England	Untuk mengkaji terapi wicara dan bahasa terkomputerisasi yang dikelola sendiri untuk memberikan terapi yang mudah diakses oleh pasien. The aim of this article is to assess computerized speech and language therapy which is self-managed to provide accessible therapy.	randomised, single-blind, parallel group trial Participants: 285 post-stroke patients with aphasia (all types of aphasia)	Communication Outcomes After Stroke (COAST)	There was significant improvement in naming ability in the CSLT group compared with the usual care group and control group. In functional communication ability, there was no significant difference. The average improvement in communication after stroke (COAST) function in the CSLT group and the other groups is not enough to show that CSLT intervention can improve self-perception of communication ability.
11.	Using language for social interaction: Communication mechanisms promote recovery from chronic non-fluent aphasia Author: (30) Country: Germany	The aim of this study is to evaluate the effectiveness of communicative language function, which is an intensive aphasia therapy outcome.	randomized controlled trial Participants: 18 stroke patients with global and broca's aphasia.	Aachen Aphasia Test (AAT)	Based on standardized Aphasia test battery, showed improvement in language ability significantly in the ILAT (Intensive Language Action Therapy) group. Otherwise, picture naming therapy is more beneficial if it is carried out in an early phase, but it is not effective if it is applied after intensive training.

No.	The title of article/ Author/ Country	Purpose	Methods/ Participant	Instrument	Results
12.	Efficacy of cognitive behavior language therapy for aphasia following stroke: Implications for language education research Author: (31) Country: Nigeria	The aim of this article is to know the efficacy of Cognitive Behavioral Language Therapy (CBLT) in stroke patients with aphasia.	group randomized trial Participants: 86 stroke patients with aphasia (all types of aphasia).	Porch index of communicative ability (PICA)	The analysis results revealed that CBLT therapy can reduce aphasia caused by stroke significantly and reduce SLUTBS (speech and language unhelpful thoughts belief) in the intervention group compared with the control group.
13.	Intensive Language Action Therapy in Chronic Aphasia: A Randomized Clinical Trial Examining Guidance by Constraint Author: (32) Country: United States	The aim of this article is to determine the effect of one of the basic principles of ILAT (Intensive Language Action Therapy), namely guidance by constraint, by comparing the two treatment groups, ILAT and PACE (Promoting Aphasic Communicative Effectiveness).	randomized block, single-blind, parallel-group study Participants: 24 stroke patients with chronic aphasia (all types of aphasia).	Porch Index of Communicative Ability (PICA) and Boston Naming Test	The results of this study, indicated a great benefit for naming TR images (treated), namely 40.4% for the ILAT group and 37.4% for the PACE group. A significant benefit was also seen in the UNTR (untreated) images, namely 23.4% in the ILAT group and 15.2% for the PACE group.
14.	Effectiveness of enhanced communication therapy in the first four months after stroke for aphasia and dysarthria: A randomised	The aim of this article is to examine the effectiveness of improved communication therapy	Externally randomised, pragmatic, parallel, superiority trial with blinded	Therapy Outcome Measure (TOM) and Communication Outcomes After	Communication activity (TOM) showed a significant gain, from a mean score before therapy of 2.4 to 3.2 after six months. Secondary Outcome: There is no

No.	The title of article/ Author/ Country	Purpose	Methods/ Participant	Instrument	Results
	controlled trial Author: (33) Country: England	in the first 4 months post-stroke compared to a control group (with unstructured social interactions).	Participants: 170 stroke patients who suffered from aphasia and dysarthria.	Stroke (COAST)	evidence of additional benefits of speech and language therapy and social contact on participant and caregiver perceptions of communication.
15.	Intensive speech and language therapy in patients with chronic aphasia after stroke: a randomised, open-label, blinded-endpoint, controlled trial in a health-care setting Author: (34) Country: Germany	The aim of this article is to examine whether intensive speech and language therapy carried out for 3 weeks can improve daily communication skills.	Randomised controlled trial Participants: 156 aphasia post-stroke patients (all types of aphasia).	Amsterdam-Nijmegen Everyday Language Test (ANELT)	The control group had almost the same improvement as the intervention group in verbal communication after 3 weeks of intensive language and speech therapy. 69 (44%) of 156 respondents experienced an increase in verbal communication skills on the ANELT A-scale score from baseline to 3 weeks after intensive therapy.
16.	Patients with aphasia and an infarct in Wernicke's area benefit from early intensive speech and language therapy Author: (35) Country: Sweden	The aim of this study was to assess the impact of SLT therapy as early as possible and its association with the location of cerebral infarction in stroke patients with aphasia.	Randomized controlled trial Participants: 118 ischaemic stroke patients and all types of aphasia.	Amsterdam-Nijmegen Everyday Language Test (ANELT)	14 of 18 (78%) participants in the SLT group with lesions in the Wernicke's, central, and Broca's areas of the brain experienced a significant improvement in ANELT-A scores compared with 4 of 16 (25%) patients in the control group. After 6 months, 13 participants in the SLT group showed significant improvement compared to 6 patients in

No.	The title of article/ Author/ Country	Purpose	Methods/ Participant	Instrument	Results
17.	Efficacy of early cognitive-linguistic treatment and communicative treatment in aphasia after stroke: A randomised controlled trial (RATS-2) Author: (36) Country: Netherlands	To determine the effectiveness of CLT (Cognitive-Linguistic Therapy) starting in the first 6 months, starting within 3 weeks post-stroke, which focuses on verbal communication, semantics, and phonological processes.	multicentre, randomised, parallel group trial with blinded Partisipan: 80 aphasia post-stroke patients.	Amsterdam-Nijmegen Everyday Language (ANELT) Test	the control group. There was no difference in the increase in ANELT-A scores. After 3 months, 22/38 patients (58%) of participants in the CLT (Cognitive-Linguistic Treatment) group had an improvement in their ANELT-A scores compared to 26/42 of participants (62%) in the communication group. After 6 months, 27/38 participants (71%) in the CLT group had an improvement in their ANELT-A scores compared to 31/42 participants (74%) in the communication group. Both groups experienced improvement in semantics and phonology, but there was no significant difference.
18.	Perbedaan Efektivitas Terapi AIUEO dan <i>Melodic Intonation Therapy</i> (MIT) Terhadap Waktu Kemampuan Bicara pada Pasien Stroke dengan Afasia Motorik di Rumah Sakit Panti Wilasa Citarum Semarang Author: (37) Country: Indonesia	The aim of this article is to determine the difference in effectiveness between AIUEO therapy and <i>Melodic Intonation Therapy</i> (MIT) on communication ability in stroke patients with motoric aphasia at Panti Wilasa Citarum Hospital Semarang.	Quasy Experimental with time series design Partisipan: 15 stroke patients with motoric aphasia.	Derby Functional Communication Scale	AIUEO therapy had more effectiveness compared with MIT therapy. Communication ability's average score which was measured after day 5 in the AIUEO respondents was 21,38 and 15,88 in the MIT respondents.

No.	The title of article/ Author/ Country	Purpose	Methods/ Participant	Instrument	Results
19.	Pengaruh Terapi AIUEO terhadap Kemampuan Bicara pada Pasien Stroke yang Mengalami Afasia Motorik di RSUD Tugurejo Semarang Author: (38) Country: Indonesia	The aim of this article is to determine the effectiveness of AIUEO therapy on communication ability in stroke patients with motoric aphasia at Tugurejo Hospital Semarang.	Pre-experimental with one group pre-post test design approach Participants: 21 stroke patients with motoric aphasia.	The type of instrument is not mentioned.	The research results showed that there was a great effect of AIUEO therapy on communication ability in stroke patients with aphasia.
20.	Pengaruh Terapi AIUEO Terhadap Kemampuan Komunikasi pada Pasien Afasia Motorik Pasca Stroke di Kota Pontianak Author: (39) Country: Indonesia	The aim of this article is to determine the effectiveness of AIUEO therapy on communication ability in post-stroke patients with motoric aphasia in Pontianak.	quasy-experimental with pre and post and control group approach Participants: 14 stroke patients with motoric aphasia.	The type of instrument is not mentioned.	The results of bivariate analysis revealed that there was an effect of AIUEO therapy on communication ability in stroke patients with motoric aphasia in the intervention group.
21.	Efektifitas Terapi AIUEO dan Terapi <i>The Token Test</i> terhadap Kemampuan Berbicara Pasien Stroke yang Mengalami Afasia Motorik di RS Mardi Rahayu Kudus Author: (40) Country: Indonesia	The aim of this article is to determine the effectiveness of AIUEO therapy and The Token Test in aphasia patients.	Quasi experimental Participants: 40 ischaemic stroke patients who suffered from motoric aphasia.	The type of instrument is not mentioned.	The results showed that AIUEO therapy provided benefits in improving speaking skills in aphasic patients. However, in The Token Test therapy, the results were not too significant, because the patient had difficulty remembering the name of the object mentioned by the researcher.

No.	The title of article/ Author/ Country	Purpose	Methods/ Participant	Instrument	Results
22.	Pengaruh Terapi AIUEO terhadap Kemampuan Bicara Pasien Stroke yang Mengalami Afasia Motorik Author: (41) Country: Indonesia	The aim of this study is to determine the effectiveness of AIUEO therapy on communication skills in stroke patients with motoric aphasia at RSUD Raja Ahmad Thabib Tanjungpinang	<i>quasi experiment with Nonequivalent Control Group</i> Participants: 18 stroke patients with motoric aphasia.	The type of instrument is not mentioned.	There is a significant effect on AIUEO therapy on the patient's speech ability. Of the 9 respondents, at the time of the pre-test there were 2 respondents with good speaking skills and 7 respondents with moderate speaking skills. After being given therapy, there was an increase in the number of respondents with moderate speech ability to 89%.
23.	Terapi AIUEO terhadap Kemampuan Berbicara (Afasia Motorik) pada Pasien Stroke Author: (42) Country: Indonesia	The aim of this article is to evaluate the effectiveness of AIUEO therapy on communication skills in stroke patients with motoric aphasia at Kerta Husada Hospital.	pre experimental dengan one group pre post test Participants: 28 stroke patients with motoric aphasia.	The type of instrument is not mentioned.	After AIUEO therapy, the results showed that there was an increase in the ability to speak in aphasia patients.

DISCUSSION

This article aims to identify the types of communication therapy in stroke patients with aphasia, where the search results found 23 articles discussing communication therapy with various types. The first type of therapy is constraint-induced aphasia therapy (CIAT) as carried out by Vuksanovic et al. (20) and Szaflariski et al. (26). The similarity between CIAT therapy in both studies is that they both use card games and facilitate patients' interaction with each other through other players, but what makes the difference is the procedure performed by Vuksanovic et al. (20). The card contained objects such as nouns, numbers, colors, and cards that describe a job. The cards used by Szaflarski et al. (26) aim to train visual skills, attention, and memory that are not specifically targeted.

The second type of therapy is electronic-based therapy, where the differences in aphasia therapy are carried out by Marshall et al. (21) using virtual reality, while that done by Kurland et al. (24) using 3 stages, namely cellphone stimuli, cellphone training, and telepractice, as well as research conducted by Palmer et al. (29) divided the patients into 3 groups. Patients in the CSLT (Computerized Speech and Language Therapy) group were assigned to complete a daily self-administered word search exercise that was tailored to the patient's needs by a speech therapist using a computer. The three studies have one thing in common, namely that the intervention can be carried out independently by the patient at home.

In addition, aphasia therapy can also apply using melodic intonation. Melodic Intonation Therapy (MIT) is

usually performed by a trained music therapist with a predetermined intensity of therapy. The participants received 10 to 15 minute music therapy sessions, which consisted of the music therapist teaching the participants melodic phrases. The music therapist exemplifies a phrase several times, then instructs participants to follow it. When singing phrases, music therapists assist participants in tapping the rhythm of the phrases using their left hand to provide additional cues that can assist motor skills in vocalization of phrases (25).

The next type of therapy is intensive aphasia therapy. Each article performs the intervention procedure in a different way. The intervention procedure carried out in Stahl et al. (22) research uses cards that depict an object or action, which later participants must understand the image on the card and ask other players for the same card. The procedure is almost the same as that performed by Stahl et al (30). Based on the article from Martins et al. (27), the intervention was carried out in several stages, namely naming the image confrontation, naming the definition and description; description of the picture using complete sentences, refinement of phrases; understanding of the exercise instructions, yes/no answers and questions 5 w 1 h; detection of syntactic and semantic errors in incorrect phrases; interpretation of proverbs; reading and retelling daily news or texts; and write for dictation. As for the article written by Kurland et al. (32), the procedure is almost the same as Stahl's, namely using card matching where players must remember the location of the image or word from the card. Players try to get cards from other players to match the

order of cards on the cards they have. The intervention procedure performed by Breitenstein et al. (34) uses best practice guidelines by combining a linguistic and communicative-pragmatic approach that is tailored to the condition of each patient and uses more computers. In the article written by Hoeg (35), the intervention focuses on a comprehensive image naming exercise. And that was done by Bowen et al (33), starting from the assessment stage to the direct contact stage. The direct contact stage is therapy to improve language skills. Impairment (improve language skills), activity (compensation strategy), and participation (develop self-confidence, accessible information). These interventions have similarities in that the duration of therapy is more than 2 weeks, emphasizes the patient's understanding of an image, and trains speech appropriately.

Another type of therapy is AAC (Augmentative and Alternative Communication), which is in the implementation of communication exercises, families are involved by using guidelines for daily activity needs that have been compiled by researchers with the task of mentioning, repetition, naming, spelling, reading, and writing and are carried out for 90 minutes (28).

Other aphasia therapies can be done by involving cognitive abilities. The first is CBLT (Cognitive Behavioral Language Therapy), which aims to reduce stroke aphasia by helping patients to use their remaining language skills; restore language skills as much as possible; and learn other ways to communicate, including using gestures, pictures, or electronic devices (31). The second is CLT (Cognitive-Linguistic Therapy), which includes BOX, which is a treatment program for semantics, and

FIKS, which is a phonology (paper and computer) treatment program. The BOX contains many tasks related to semantics using written words, sentences, and texts, which can also be presented orally. FIKS has a similar structure but is geared towards phonological abilities (36).

The last method is AIUEO therapy, which is one of the therapies for stroke patients who are suffering from aphasia, where the therapy aims to improve speech so that it can be understood by others by moving the tongue and lips (37). The method applied to AIUEO therapy is to use the imitation method, where the patient will follow every sound and movement of the speech organ that is produced by nurses. Sound is produced due to vibrations which are then received by the auditory nerves, which are then received by the brain as information (44). The research setting of the articles that discussed AIUEO therapy is Indonesia. The application of communication therapy in aphasia patients using this method can help recover aphasia from mild to moderate levels.

In compiling a review, there are several strengths and limitations in this article. Strengths: This review describes the types of communication therapy to treat aphasia given to stroke patients so that it can provide choices and considerations of which type of therapy can be applied to stroke patients according to the ability and condition of the patient. Limitations: This review only describes the types of therapy, but does not explain which therapy is most effective. In addition, more searching for articles should be done, but researchers have limitations in accessing several databases.

CONCLUSION

The results of a review of all articles show that there are various types of communication therapy that can be given to stroke patients who experience aphasia. The therapy is grouped into 7 types of therapy, which include Constraint Induced Aphasia Therapy, Electronic-based therapy, Melodic Intonation Therapy, Intensive Therapy, Augmentative and Alternative Communication, Cognitive Therapy, and AIUEO.

The seven types of therapy more evolved in developed countries were computer-based therapy and intensive therapy. In Indonesia, computer-based therapy is still underdeveloped due to limited resources, and AIUEO therapy is the most developed aphasia therapy because it is very easy to apply in daily life.

Suggestion for this article, furthermore, researchers can conduct a systematic review related to which communication therapy is the most effective for treating aphasia, especially in stroke patients and further development of other types of therapy so that interventions to treat aphasia can be varied.

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