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Effect of the basic speech and language therapy guidebook for aphasia patients to improve language and speaking skills: A trial phase

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ABSTRACT

Background: Aphasia patients should receive intensive speech therapy in order to recover their speech and language skills for optimal results. However, there are numerous limitations. One of which is the scarcity of speech and language pathologists. Thus, this research aimed to utilize the speech and language therapy guidebook for aphasia patients which can be used by caregivers to help those with aphasia at home. This guidebook will increase the comprehension and frequency of therapy.

Objectives: Firstly, to develop and study the content validity of the interview form for explicit problems and the satisfaction survey of the guidebook. Secondly, to conduct a pilot study for using the basic speech and language therapy guidebook at home. Limitations and caregivers' suggestions from using this guidebook had been studied by the interview method.

Materials and methods: This study consisted of 2 steps: The first step was the development of the interview form for explicit problems and the satisfaction survey of the guidebook. The second step was applying the guidebook with 3 aphasic clients by their caregivers for a week. Information from the first step was analyzed for content validity. The information from the second step was analyzed to explore the problems that occurred by using descriptive statistics.

Results: In the first step, the Index of Item-Objective Congruence (IOC) from 5 experts for the interview form and satisfaction survey showed total scores of 0.975 and 1, respectively, revealing that the content validity was acceptable. In the second step, the information from 3 samples showed problems with a lack of understanding concerning the use of the guidebook (100%). The reflection by 2 caregivers (67%) who undertook the training as assigned found that the guidebook could help develop the speech and language skills of the samples. For the practice benefits, 3 caregivers (100%) reflected that the guidebook facilitated self-therapy and provided them and the clients with more frequent, more convenient, and easier-to-follow instructions. They were satisfied with the guidebook but offered minor suggestions, such as making the book smaller, correcting for typos, and adding more exercises.

Conclusion: The guidebook yielded benefits for developing speech and language skills and provided benefits for the caregivers who help practice with the samples at home. The results of this research showed problems with using the guidebook and devised precautionary measures. The feedback will be applied to guidebook development in the future.

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Introduction

Patients with aphasia often have trouble using or/and understanding a language, including listening, speaking, reading, and writing.[1] For example, they are unable to communicate through verbal communication, comprehend speech, reach the lexicon, and speak with a lack of enunciation.[2] aphasia significantly impacts living and quality of life by increasing limitations on communication, social engagement, and social interaction, as well as risk and personal negativity towards life.[3-4]

Aphasia results from an abnormality in the central nervous system and pathology in the left brain which can be caused by stroke or other events that cause brain injury.[1, 5-6] Studies have found that roughly one-third of patients with a history of stroke suffer from aphasia.[7-9] Regarding the data on the incidence and prevalence of aphasia in the United States of America, National Institute on Deafness and Other Communication Disorders (NIDCD) reported that an estimated 180,000 people acquire aphasia each year, and approximately 1 million people had the disorder in 2016.[10] In Thailand, Nijasri Suwanwela also reported that the prevalence of stroke is estimated at 1.88% of adults 45 years and older.[11] Results of the previous study found that, when brain is damaged, the nervous system cannot spontaneously recover fully. Thus, resulting in partly recovered speech and language skills and the results differ among individuals. In addition, the first 3 months after an injury is the best duration for recovery but can be stimulated after 6 months if assessed and given proper treatment that is suitable to individual severity from a speech and language pathologist.[12-13] The previous study showed dramatic improvement in clients who received intensive therapy for at least 10 hours per week for 3 weeks.[7, 14-15]

Currently, the rehabilitation of aphasia in Thailand cannot be executed properly due to the aforementioned significant problems, as well as the lack of speech and language pathologists; it was found that Thailand only had 252 speech and language pathologists in 2022.[16] Approximately 70% of them are available in only Bangkok and the central region of Thailand.[17] Moreover, according to the criteria for the Art of Healing in the field of Communication Disorders, speech and language pathologists must have completed a Master's degree or above to be qualified to assign rehabilitation to those with aphasia.[18] Furthermore, there is a problem concerning the therapy program. Normally, aphasia patients in Thailand receive 30 minutes-1 hour of speech therapy per week with a speech and language pathologist. The program includes speech and language training activities that are appropriate for the patient's skills and short homework. However, the duration of the therapy at the speech therapy clinic cannot be considered as intensive practice. So, the caregivers must practice with the patients more frequently at home. They typically encounter the problem of assigning practices that are too complicated to achieve in the home environment, thus forgetting the stimulation techniques taught in the session due to several details in the process.[19]

In 2018, one of the researchers developed the basic speech and language therapy guidebook for aphasia patients.[20] The guidebook includes advice on aphasia, the principles of how to give practice to patients, and exercises that caregivers can do with patients at home under supervision. The guidebook helps patients to receive speech and language therapy properly and intensely, resulting in the effective improvement of speech and language skills. However, the guidebook has never been studied in terms of possible problems that can occur while using it, the results of the therapy, and the satisfaction of users. Thus, the objective of this research was a study for using the basic speech and language therapy guidebook for aphasia patients at home. The limitation of using this manual had been studied by using the interview method.

Materials and methods

This pilot study applies the 'Small-n Research' method. The samples included patients who were diagnosed with aphasia, and are outpatients who receive therapy at the Speech Therapy Center, Faculty of Associated Medical Sciences, Chiang Mai University. A total of 3 samples were selected through purposive sampling. The criteria are as follows

Inclusion criteria:

1. Patients must be diagnosed by doctors as having aphasia from abnormalities in the central cervous system or stroke.[5]
2. Patients must be native Thai speakers and must have been fluent before having aphasia.
3. Patients must have caregivers who can manage and attend to the research, as well as be able to take the patients to the Speech Therapy Center, Faculty of Associated Medical Sciences, Chiang Mai University, and be able to practice with the patients at home.
4. Caregivers must be able to literate and fluent in Thai at the communicable level.

Exclusion criteria:

1. Patients attend other studies that involve speech therapy at the same time as the current study.
2. Patients having trouble with vision or hearing which cannot be fixed by spectacles or hearing aids.

Research instruments

Assessment of the thai adaptation of western aphasia battery (WAB). [21-22]

Thai Adaptation of WAB is a standard assessment that has been used to evaluate the speech and language skills of patients including listening, speaking, reading, and writing in Thailand. The assessment has the same calculation systems as the original WAB and can be interpreted as the aphasia quotient (AQ), language quotient (LQ), performance quotient (PQ), and cortical quotient (CQ), which can be classified into levels of severity and 8 types of aphasia. The criterion of the AQ score for normal people is 94.7 or above. This research is interested in the changes in speech and language skills. AQ was measured as it refers to the ability to comprehend and express language.

Basic speech and language therapy guidebook for aphasia patients to improve language and speaking skills and record of results.[20]

The guidebook was developed from studying special topics related to communication disorders that one of the researchers is interested in investigating under the supervision of an advisor and the board of the subject, which also is one of the subjects of the Department of Communication Sciences and Disorders, Faculty of Medicine Ramathibodi Hospital, Mahidol University, 2012 Edition.[23] the development aimed to help those with aphasia who lack opportunities to receive speech therapy with proper frequency. Therefore, the basic speech and language therapy guidebook for home use under the care of speech and language pathologists has been developed. The researcher read literature related to speech therapy, and then adapted and designed the guidebook from the elements of language in the Thai adaptation of WAB assessment[21] in terms of spontaneous speech, comprehension, naming and repetition, Neuroplasticity,[24,25] and the theory of distributed practice[26] by having experts in communication disorders of the nervous system to be advisors and monitor the appropriation of the content in the guidebook, such as the vocabulary that fits the Thai context, the relevance between the vocabulary and the topics of the exercises, and difficulty level categorization - in categorizing vocabulary. The entire process was created before proposing to the board of specific subjects, consisting of 5 experts who are experienced in speech therapy for those with communication disorders from the nervous system. The guidebook was registered as the Intellectual Property of the Faculty of Medicine Ramathibodi Hospital, Mahidol University in 2019. The process of developing the basic speech and language therapy guidebook for aphasia patients to improve language and speaking skills showed in Figure 1.

Interview form for explicit problems that caregivers found during the use of the basic speech and language therapy guidebook for aphasia patients to improve language and speaking skills.

It is a semi-structured Interview form for gathering the opinions and problems found when using the guidebook that the researchers developed and goes through the process of studying the content validity. The responses of the caregivers were recorded during the interviews.

Satisfaction survey of the basic speech and language therapy guidebook for aphasia patients to improve language and speaking skills by caregivers.

It is a satisfaction survey for caregivers on the guidebook, which includes satisfaction levels on the content and form design, as well as exercise practicality, overall satisfaction with the given benefits, and suggestions. The survey was developed by the researchers and put through content validity. The survey will be used along with the study of the effectiveness of the guidebook in the future.

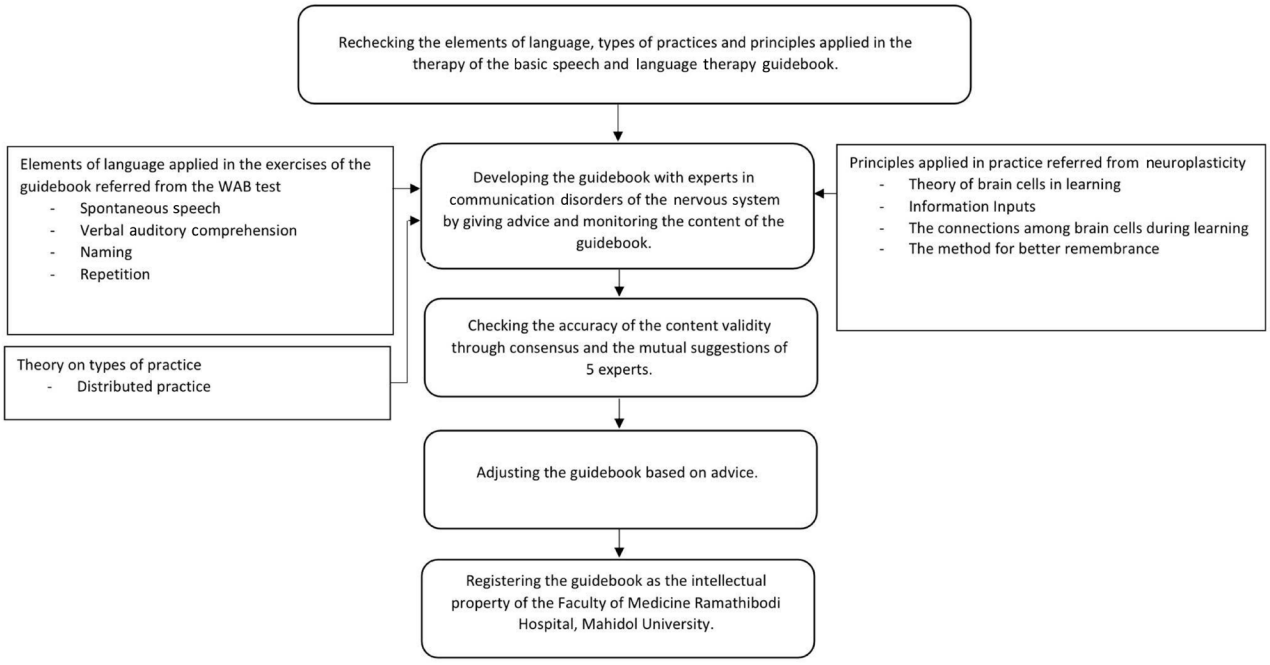

Figure 1 *Process of developing the basic speech and language therapy guidebook for aphasia patients to improve language and speaking skills.*

Research methods

The methods can be separated into 2 steps:

Step 1. Development of the interview form and satisfaction survey.

Firstly, the researchers developed a semi-structured interview form for the explicit problems that occurred during the use of the guidebook by the caregivers, which will be used further in Step 2. An interview consists of questions on the guidebook's instructions, difficulty in the process of use, results from use, and further suggestions. Secondly, Satisfaction Surveys of guidebook usage by caregivers, which will be conducted in the future and include questions concerning satisfaction with the design, content, practice in the guidebook, overall satisfaction, and other suggestions for guidebook improvement. After the development of both instruments, the researchers sent them to 5 experts in speech therapy for patients with aphasia for content validity and the relevance between vocabulary usage and Thai contexts to calculate the Index of Item-Objective Congruence (IOC).[27] Suggestions from experts will be used to improve the content of instruments.

Step 2. Applying basic speech and language therapy guidebook with aphasia patients.

The researchers selected 3 samples who passed the criteria for the research from the Speech Therapy Center, Faculty of Associated Medical Sciences, Chiang Mai University. The details are as follows:

1) Select the samples according to the criteria and evaluate the level of deficit using WAB test[21]

2) Schedule the samples and caregivers to meet the researcher at the speech therapy center for 60 minutes, once a week for a total of coupled times.

3) For the first visit, the samples receive speech therapy at the Speech Therapy Center. Afterwards, the researcher assigns the guidebook to the caregivers for home practice for 1 week, 3 sessions per day, and 30 minutes per session for a total of 90 minutes. Except for the day at the center, samples must do home practice for 1 session or 30 minutes because they already had 60 minutes of practice at the clinic.

4) The second visit, appoint the samples and caregivers when it reaches 1 week to follow the results and record the explicit problems during the use of the guidebook by applying the semi-structured interview form developed by the researchers.

5) Conclude the response from the interviews with the caregivers. This step takes approximately two weeks and has no re-evaluation.

Data Analysis

1) Analyze the content validity of the interview form and satisfaction survey by using IOC

2) Analyze general information about the samples including the problems that occurred, results from the guidebook use, and suggestions by applying descriptive statistics and then concluding responses from the interviews with the caregivers.

Results

Step 1: Development of the interview form for explicit problems during the use and satisfaction survey of the guidebook.

The interview form consists of 4 parts: the guidebook's instructions, difficulty in using, the results, and suggestions in the guidebook. In each part, the IOC values from the experts were 0.9, 1, 1, and 1, respectively, for a total of 0.975 (Table 1). The satisfaction survey consists of 4 issues: design, content, practice, and overall satisfaction, all of which show the IOC at 1 (Table 2).

Step 2: The guidebook was applied by 3 samples comprised of 2 men and 1 woman. They all have different ages, duration of stroke, types of aphasia, aphasia quotient, and other details (Table 3).

The guidebook's instructions resulted that the second sample (33%) failing to use the guidebook as the researchers assigned. However, the first and third (67%) were able to use the guidebook similar to what the researchers assigned. The practice took 7 days, 2-3 times per day, for approximately 85 and 86.42 minutes or 10 and 9.9 hours per week, respectively (Table 4).

For the difficulty in the process of use, the most prevalent problem was a lack of understanding in use, which was found in all 3 samples or 100%. The second problem was the caregivers' confusion in grading the samples' responses. For example, they couldn't decide on grading when the sample answered differently from a key answer. which was 67%. Lastly, the sample lacked understanding in terms of following the instructions in the guidebook. Further, the caregivers did not regularly record the results in the record form, which was 33% (Table 5).

The results from the guidebook use, the first and third samples (67%) found that the patients had better speech and language skills, which can be observed from the scores in the record that increase when the practice is repeated the next day. Also, the patients could answer correctly more than 80% of the time, so they could increase the difficulty level on the next exercises. However, it was found that samples were more tired when practicing with the guidebook than usual practice. For the second sample (33%), there was no change in speech and language skills, but the samples collaborated with the caregivers more compared to when the guidebook was not used (Table 6).

In terms of the benefits of home practice, all caregivers (100%) reflected that they were able to practice more frequently, more conveniently, and more easily. There were 2 samples (67%) that reflected the guidebook could be adapted for further practice on their own in the future. Reflections from the caregivers can be shown in Table 6.

Afterwards, 3 caregivers (100%) were satisfied with the form, design, and content of the guidebook when asked about recommendations, there were further suggestions as follows. Concerning the design of the guidebook, they want it to be more compact (33%). In

the content, they want the typos to be corrected (33%), decrease the number of words in the description (33%), improve the clarity of the choices (33%), as well as add more topics to the practice (33%). All suggestions can be found in Table 7.

Table 1 Index of Item-Objective Congruence (IOC) from the experts of the interview form for explicit problems during the use of the guidebook.

Consideration list	Scores and suggestions from the experts						
Part 1. Questions on the guidebook's use plan	**Expert 1**	**Expert 2**	**Expert 3**	**Expert 4**	**Expert 5**	**Total score**	**Suggestions**
1. Please tell us about your experience in using the basic speech and language therapy guidebook for aphasia patients to improve language and speaking skills of patients through home pratice.	1	1	0	1	1	4/5=0.8	The third expert agrees with the question but suggests that it be moved to part 3.
2. Can you practice with the patients using the guidebook as frequently as the researcher assigned or as you planned? why?	1	1	1	1	1	5/5=1	The third expert suggests that the question be changed to "Can you practice with the patients using the practice plans the researcher assigned or as you planned? why?"
Part 2. Questions on difficulty in the process of using the guidebook							
1. During home practice using the guidebook, were there any difficulties during or from the practice? If so, how?	1	1	1	1	1	5/5=1	The first expert suggests adding more questions on the difficulty of using the record form in the same question.
2. From the guidebook use, are there any parts of the content in which you lack understanding or need more explanation? If so, which part?	1	1	1	1	1	5/5 = 1	
3. Do you need further help from the researcher in home practice concerning the use of the guidebook? If so, how?	1	1	1	1	1	5/5 = 1	
Part 3. Questions about the results from the guidebook use							
1. Did you notice any changes in the speech and language skills of the patients after receiving the practice in the guidebook? If so, how?	1	1	1	1	1	5/5 = 1	
2. Do you think that the basic speech and language therapy guidebook for aphasia patients yields benefits for home speech therapy? If so, how?	1	1	1	1	1	5/5 = 1	The fifth expert suggests that the question be changed or given specifications to convey the specific meaning of the question.
Part 4. Questions concerning further suggestions for enhancement of the basic speech and language therapy guidebook for aphasia patients to improve language and speaking skills							
1. Do you have any more suggestions for improving the basic speech and language therapy guidebook for aphasia patients? If so, how?	1	1	1	1	1	5/5 = 1	The third expert suggests separating the question into suggestions and what they want to improve. 1. General design of the guidebook. 2. Content of the guidebook.

Table 2 Index of Item-Objective Congruence (IOC) from the experts on a satisfaction survey of guidebook usage by caregivers.

Consideration list	Scores and suggestions from the experts						
Part 1. Questions on the guidebook's use plan	**Expert 1**	**Expert 2**	**Expert 3**	**Expert 4**	**Expert 5**	**Total score**	**Suggestions**
1. The size of the guidebook is proper.	1	1	1	1	1	5/5 = 1	
2. The design of the guidebook is pleasant and beautiful.	1	1	1	1	1	5/5 = 1	
3. The text font is easy to read and pleasant.	1	1	1	1	1	5/5 = 1	
Content in the guidebook							
1. The content is grouped and easy to read.	1	1	1	1	1	5/5 = 1	
2. The number of exercises is adequate for the duration of home practice.	1	1	1	1	1	5/5 = 1	
3. The content of the guidebook will help caregivers understand therapy principles for patients with aphasia.	1	1	1	1	1	5/5 = 1	
Practice in the guidebook							
1. The information and practice can be adapted into home speech and language therapy.	1	1	1	1	1	5/5 = 1	
2. The guidebook helps increase the frequency of practice for patients.	1	1	1	1	1	5/5 = 1	
3. There are better changes in the speech and language skills of the patients after using the guidebook.	1	1	1	1	1	5/5 = 1	
4. The time assigned in the guidebook is sufficient for the number of practices.	1	1	1	1	1	5/5 = 1	
Overall satisfaction with using this guidebook	1	1	1	1	1	5/5 = 1	

Table 3 General information of the samples.

N	Gender	Age	Duration of aphasia	Types of aphasia	Aphasia quotient	Caregiver(s)	Age of caregivers	Time with patients
1	Woman	70 years 8 months	2 years 2 months	Broca's aphasia	58.5/100	Son	40 years 8 months	All day
2	Man	62 years 7 months	3 years 7 months	Global aphasia	13.2/100	Daughter	29 years 11 months	7-8 hours
3	Man	39 years 4 months	4 months	Global aphasia	23.6/100	Wife	26 years 5 months	All day

Table 4 Results of the guidebook use concerning problems with the guidebook's instruction.

N	Problems with using the guidebook		Number of days practicing	Average time for practice	Hours/week
	Able to follow most of the principles	Unable to follow the principles			
1	√		7/7 days	86.42 minutes	10
2		√	4/7 days	37.50 minutes	2.5
3	√		7/7 days	85 minutes	9.9

Table 5 Results of the guidebook use concerning problems and difficulties in the process of use.

Problems	Caregivers of patients who encountered problems			Number of those who encountered problems	Percentage (%)
	1	2	3		
Caregivers lack understanding of the process.	√	√	√	3	100
Caregivers are confused about how to grade the response of the patients.	√	√		2	67
Caregivers need more instructions and examples in the practice.		√	√	2	67
Samples lack understanding in following the practice.		√		1	33
Caregivers do not routinely record the results.		√		1	33

Table 6 Results from the guidebook use.

Results	Samples			Percentage (%)	Significant topics from interviews with the caregivers
	1	2	3		
Speech and language skills					
The samples have better speech and language skills.	√		√	67	*"I feel like the patient began to utter the words with longer syllables, like 2 or 3 syllables. I also noticed that, when words are repeated, the patient will be more fluent in using that word."*
"The patient has better repetition after being partly wrong and right."					
The practice is more frequent, more convenient, and easier.	√	√	√	100	*"I get a lot of benefits because it would be impossible if we had to come up with our thoughts."* *"There is no difficulty. It seems like the practice is even easier."*
It can be adapted for further use in practice on your own.	√	√		67	*"This provides me with the topic, so I follow that. When I get used to the topic, I can adapt to the context on my own."* *"This guidebook can be used as examples for the practice."*
The practice has more principles and systems.	√	√	√	100	*"The guidebook instructs how to start and how to go on because most of the words the doctor has listed are daily words, and the next one will be more difficult. It is very systematic and convenient."* *"It's beneficial. I don't have to come up with my own practice because there are given topics, and it makes the practice neat."*
Others					
The samples get more tired compared to the usual practice.	√		√	67	*"90 minutes is quite tiring compared to what we have practiced because it usually takes only 30-40 minutes per day, but this practice takes 7 days in a row. It is quite tiring."*
The samples pay more attention to the practice.		√		33	
The samples collaborate more with the caregivers in the practice.		√		33	*"It's like there are guidelines and examples. It gives my father confidence to follow the guidelines because, before this, we only practiced with a piece of paper. My father really likes the story in the pictures. He loves to point out the story in the pictures."*

Table 7 Results of the guidebook use concerning further suggestions for improvement of the guidebook.

Satisfaction and Suggestions	Samples			Percentage (%)	Significant topics from interviews with the caregivers
	1	2	3		
Satisfaction with the design	√	√	√	100	*"It's actually already ok (laugh). It's good."* *"I think content like this is ok."* *"The physicals are ok. There's no problem."*
Satisfaction with the content	√	√	√	100	
Suggestions on the design of the guidebook					
		√			*"The design looks like a scientific book. The picture quality is very good, but I prefer smaller ones."*
Suggestions on the content of the guidebook					
Correct the typos in the guidebook	√				*"If the small details are fixed, that would be good, like the typos and colors for example."*
Decrease the number of words in Chapter 1 to make it easier to read		√			*"The placement of the pictures is very interesting and readable, but there are too many words in the beginning. There must be an adjustment to make it more readable."*
Improve the clarity of the choices in the practice		√			*"When I point at the shirt, there will be a shirt and a sweater*. I'm afraid he will get confused so I have to repeat that it is the shirt, not a sweater" (in Thai, both words start with 'Sua')*
Add more topics		√			*"I want you to add more topics like when we started practicing, such as mouth moving, when there are new patients."*

Discussion

From the content validity of the interview form and satisfaction survey, the researchers improved and modified the content of the instrument based on the suggestions of the experts before applying it in this pilot study and the study of the effectiveness of the guidebook in the future. Besides, the IOC of the interview form and satisfaction survey were 0.975 and 1, respectively (Tables 1,2), which is a great number of validities that can be evaluated. It is consistent with the study of Ongiem and Vichitvejpaisal, which stated that questions that have suitable validity must have an IOC of more than 0.5.[27]

The problems occurred in the guidebook's instructions that the caregiver was unable to follow the schedule resulted from a lack of collaboration in practicing and the conditions that made the sample unprepared for practice, such as stress and fatigue. There was also a lack of readiness from the caregiver due to the workload and time management. This is consistent with the research of Gunning *et al*.,[28] which showed that intensive speech therapy yields benefits, but is often more difficult to practice compared to usual practice due to different problems such as fatigue, time management, and individual problems. The previous study also suggests the significance of sample selection, stating that patients who undertake intensive speech therapy must be eager to practice, flexible, and able to self-control, as well as have body stamina. The researchers need to consider this for the selection process in the future. For example, the samples and caregivers must be eager to practice in order to improve speech and language skills and be interested as well as patient enough to practice throughout the assigned duration in the guidebook.

Although the guidebook has detailed instructions and all caregivers come from diverse backgrounds, the most found problem was the lack of understanding from the caregivers about the guidebook, such as stimulating the samples with more exercises than the assigned plan, being unable to correctly practice the exercises, or being unable to change to the next exercise. This is in agreement with the study of Kurland, Wilkins and Stokes which examined a therapy program that could be further practiced at home.[29] The study found problems in using the instrument by the samples, such as samples being unable to match the exercises with their capability, being unable to use the instrument as assigned due to a lack of understanding and having individual problems. Thus, the suggestions for successful results include the patients having an eagerness to use the instrument and being trained accordingly. With that being said, the researchers have devised prevention plans for the aforementioned problems as well as other secondary problems for the study of the guidebook's effectiveness in the future, such as arranging training sessions, providing instructions on how to use the guidebook properly before home use, and following the results during the week.

The superiority of this guidebook is intensive practice. According to the guidebook schedule, it was found that samples who are able to practice as assigned by the instructions will improve speech and language skills, which can be observed from the grading recorded by the caregivers in the record of results. The outcome had the same direction that when the samples practiced the exercise regularly, they usually had a higher score the next time of practice. Frequently, they were also able to answer the questions correctly with 80% accuracy, so they could start the next level of exercise. The caregivers reported that the patients could think of words, interact, repeat more quickly and stutter less. This agrees with the study of Des Roches *et al*.,[30] which stated that the samples that did home practice received more frequent practice, resulting in more changes in speech and language skills than those who only practiced at the speech therapy center. This also agrees with the study of intensive speech therapy by Breitenstein *et al*.,[14] which found that at least 10 hours of intensive speech therapy per week and at least 3 weeks for patients with chronic aphasia helps improve speech and language skills at a significant level, which agrees with the intensity found in this research (Table 4). Additionally, the caregivers found that using the guidebook could facilitate home practice without having to come up with the stimulus themselves; they can adapt the guidebook on their own for home practice in the future. This aspect agrees with the study of Kurland, Wilkins and Stokes,[29] which showed that the samples are satisfied with how freely they can choose time and exercises and how conveniently they can do home practice, without going to the speech therapy center. However, intensive speech therapy in the guidebook caused more fatigue than usual practice and this condition affected the effectiveness of the exercise. To clarify, the subjects might not cooperate well in the tired condition. Thus, the caregivers were unable to train and utilize the guidebook effectively. This agrees with the study of Gunning *et al*.[28] which found that intensive practice causes more fatigue and suggests that the patients should rest and get support from family.

Although the caregivers are satisfied with the guidebook, there are a few suggestions that the researchers should take into consideration. In the design, the caregivers want the size of the guidebook to be reduced. As the current size is equal to A4, which cannot be stored in a pocket. Some caregivers want the guidebook to be smaller so it can be portable but still keep the quality of the pictures. In the content, they want the guidebook to correct the typos so that reading can be more fluent, and adjust the scientific descriptions to be more concise because there are detailed descriptions of the scientific theory in the current version, and the caregivers feel that there are too many words, making it uncomfortable to read. It also includes the suggestion to add the topics of the practice, such as practice that exercises the speech organs or the articulation for vowels, which would be useful for those who are still not fluent in speaking or unable to utter words. All of the suggestions will be collected by the researchers to improve and modify the guidebook in the future.

Conclusion

The study of the explicit problems during the use of the basic speech and language therapy guidebook for aphasia patients to improve language and speaking skills, which the researchers studied for the development of the interview form concerning the problems found during use and satisfaction survey, found that the content validity of 2 instruments was at an impressive level. The results from the trial phase of using the guidebook by caregivers 90 minutes a day for a week with 3 Aphasic clients found that repetitive practice as assigned by the guidebook yielded benefits for the samples in terms of speech and language skills improvement. It also benefits the caregivers who do the home practice. However, it can cause more fatigue compared to usual practice. During the use of the guidebook, the caregivers reported that difficulties and problems occurred during the use process, most of which were from a lack of understanding about usage. The researchers have acknowledged the problems during the guidebook use and devised precautionary measures from the study in this research. The suggestions will be adapted for guidebook improvement in the future.

Acknowledgments

In publishing this research, only the results from the study of the development process of the instruments are used in the research and the guidebook trial, which will aid the researcher to reveal the tendencies of the results from the guidebook and the problems that occurred during usage. This will help devise precautionary measures for the next phase of the study, which will involve the study of the effectiveness of the guidebook as well as the satisfaction of caregivers towards the guidebook.

Conflicts of interest

The authors declare no conflicts of interest in the execution of this work.

1.Ethics approval

This research gained ethical approval from the Faculty of Associated Medical Sciences, Chiang Mai University (AMSEC-64EX-116) in order to study humans. All samples and participants received all necessary information related to the research and informed written consent was gathered before enrolling in the research.

2.Recommendations for future directions

A further study should be conducted with the satisfaction of the guidebook in a multi-category, e.g., the design, content, activity of exercise, and overall satisfaction in order to revise the better version of the guidebook in the future.

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