Application of Drill Play Method in Receptive Language Disorders of Children with Down Syndrome: A Single Case Study

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Abstract

Background: Down syndrome is a chromosomal abnormality that occurs during the prenatal period. This condition causes a child to experience several disorders, one of which is receptive language disorder or understanding. This receptive language disorder can occur due to short-term memory impairment. Seeing this, an intervention is needed to optimise the receptive language skills of children with Down syndrome.

Purpose: This study aims to determine the effectiveness of the application of the drill play method in improving the receptive language skills of children with Down syndrome.

Method: using a single subject experiment, using a one group pretest-posttest design. The research subject was a girl with Down syndrome aged two years and three months and had receptive language disorder. Data collection was done through interviews with the client's parents, direct observation of the client, tests, and document studies. Speech therapy was conducted for 10 meetings with the drill play method which emphasises repetition of exercises for client's receptive language understanding. Perceptual assessment by comparing word-level receptive language skills before and after therapy.

Results: There was no improvement in word-level receptive language skills.

Conclusion: the application of the drill play method in receptive disorders of children with down syndrome has not increased due to the lack of therapy sessions conducted and the provision of material that is less familiar to the client's daily life.

Keywords: down syndrome, receptive language disorder, drill play method.

INTRODUCTION

Down syndrome is a genetic disorder in the form of trisomy on the pair of chromosome 21 (1). Children with down syndrome are usually recognized by their physical characteristics, such as a relatively smaller head shape compared to normal people (microcephaly), narrow eye shape with a middle angle forming folds (epicanthal folds) and a small mouth with a large tongue (macroglossia) so that it appears protruding out (2). In addition to physical problems, children with Down syndrome turned out to have disorders in communicating such as errors in articulation, expressive language delays, and receptive language delays (3). Expressive and rceptive language disorders in children with down syndrome are caused by short-term memory problems (4).

According to Kent and Vorperian explained that lack of short-term memory skills affects the ability to language and speech in children down syndrome (5). Language disorders, precisely in receptive language in down syndrome children cause children to have difficulty communicating with their surroundings because children do not yet have the ability to understand words and language that involve the acquisition of information (6). Seeing the presence of r acceptive language disorders in children with down syndrome e, intervention is needed to be able to optimize the receptive ability of children with down syndrome e. One method that can be done is the drill play method.

Drill play is a method that emphasizes the repetition of exercises along with providing motivation to children during exercise. Providing motivation can be done by giving rewards before the client makes the target and after the client succeeds in doing the target. In practice, speech therapists can provide rewards for motivating clients before the therapist gives instructions and models exercise targets to clients. Furthermore, when the client brings up the target production, the speech therapist will again reward the client to motivate the client (7).

METHODOLOGY

This study used a quantitative approach with Single Subject Research (SSR) research. Single Subject Research (SSR) research is an experimental research method to see and evaluate a particular

intervention on the behavior of a single subject with repeated assessments at a certain time (8). The sole subject in this study was a client of a two-year-three-month-old girl residing in the city of Greater Bogor. The experimental design used in this study was One Group pretest-posttest design, which use done subject (single case) and measured ability before treatment or therapy (pretest) and after therapeutic treatment (posttest). If the flow chart of one group pretest-posttest design is depicted as follows:

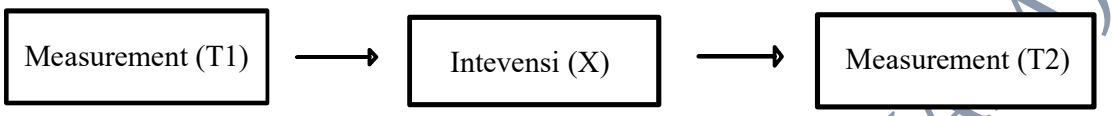

Figure 1. Design Experiment (One Group Pretest-Posttest Design)

Information:

T1 : group experiment before being given Drill Play training treatment (pretest)

X : application of Drill Play exercises

T2 : experimental group after being given Drill Play training treatment (posttest)

Table 1. How To Calculate The Difference Between The Initial Test And The Final Test

Pre-Test	**Treatment**	**Post Test**
T0	X	T1

Success Criteria

The criteria for the success of therapy use 3 rating scales, namely successful, quite successful, and unsuccessful by calculating the difference between the final test and the initial test. The value of the success criteria is as follows:

1. Success: If the client scores 4-5 points
2. Simply Successful: If the client scores 2-31/2 points
3. Unsuccessful: If the client scores 0-11/2 points

Research instruments in the form of tools selected and used by researchers in collecting data so that research becomes systematic. The data collection techniques used in this study were interviews

with the client's parents, the client's speech, motor and sensory skills, and various tests. Data collection techniques can be seen in table 2 below.

Table 2. Techniques, Respondent Instruments and Research Indicators

No	Data Collection Techniques	Instruments	Respond	Indicator
1	Interview	Interview form and Inform Consent	Client's Parents	Obtain data on client entity id, causal factors, health history before and after illness, family history.
2	Observation	Form Conservation	Client	Know the physical condition, speech skills, motor skills, and sensory abilities.
3	Early Detection Test for Communication and Language Disorders (DDGKB)	DDGKB Form	Client	Know the client's ability to communicate whether it is age-appropriate for the calendar or not.
4	Speech Tool Checker (PAW)	PAW Form	Client	Know the structure and function of the speech organs, and know whether or not there is damage to the client's speech organs both anatomically and physiologically
5	Initial test and Final test	Initial Test Form and Final Test	Client	Know the success of the therapy achieved.

Case Description

The client was a two-year-old girl with a diagnosis of down syndrome. The client was the third of three children. The client has not yet gone to school. The client does not use hearing aids (ABD) and glasses. The client is able to sit upright and stand without assistance, as well as walk with the help of holding his mother's hand. Based on the information, clients routinely follow speech therapy.

Therapeutic Goals

The purpose of this drill play therapy method is to provide an understanding of a targeted original object. The retrieval of this method is adjusted to the modality and age of the client. This method also trains the client to understand the simple command "fetch". In addition, clients also prefer play activities so that this drill play therapy method is given.

Therapy Program

Increase receptive ability at the word level, noun type, fruit category by taking picture cards according to the stimulus as much as 5 words.

Therapy Materials

The therapy material consists of 5 fruit category nouns, namely apple, orange, banana, salak and dragon fruit with therapeutic media, namely picture cards and original objects.

Therapy Methods

The drill play method is an approach that emphasizes repetition of exercises by providing some motivation into the structure of the exercise. In this method, motivation is given at the beginning before the client teaches the target. So, there are two motivations in the drill play method, the first is the provision of motivation before the training begins and the second is motivation followed by strengthening the target. For example, before starting the practice of naming objects, give stickers first to motivate clients. Then, the exercise will be done with several repetitions.

The therapist will provide reinforcement for the correct exercise targets and allow the client to take stickers as motivation (9). The drill play method was chosen because it looked at the client's modality on expressive language skills, namely non-verbal and still in subdomain 1, and the results of receptive language skills that were not in accordance with their age based on DDGKB test results showed that the client's abilities were under 6-12 months old.

Therapeutic Steps

1. The therapist shows the cloth bag containing the stimulus device (picture card of the targeted word) then asks the client to take one of the stimulus devices (picture card of the targeted word) contained in the cloth bag.
2. After the client takes the stimulus device (picture card of the targeted word) from the cloth bag, the client takes the stimulus device (picture card of the targeted word) and then introduces or explains the word contained in the stimulus device (picture card of the targeted word).
3. As reinforcement, the therapist points toa picture card that is different from the word or the

original object.

4. After the therapist introduces or explains the word contained in the stimulus device (targeted picture card), the therapistasks the client to respond, which can be done by pointing/holding/taking the stimulus device (targeted picture card) according to the therapist's instructions. If the client's response is correct, the therapist allows the client to stick a sticker with the image of the targeted word on the board provided.

RESULTS AND DISCUSSION

Based on the results of interviews with the client's parents that have been conducted, data were obtained that the client was diagnosed with Down Syndrome due to trisomy abnormalities on chromosome 21. The number of chromosomes in normal children is 46 chromosomes, but in children with Down syndrome the number of chromosomes exceeds the number of chromosomes in normal children, which amounts to 47 chromosomes (11). Furthermore, the data was also reinforced by the results of interviews with the client's mother, that the client's mother was pregnant when she was 39 years old. This can be a factor causing children to experience Down SyndromeYndrome. This is supported by Reynolds' contention that a woman under 30 is less than 1 in 1000 in 1000 , but that for a 35-year-old woman the odds increase to 1 in 400 (12) .

After conducting the assessment, it was found that the client's history of language development was delayed, namely the client did not pass the reflex stage of vocalization, lalling and echolalia. Clients only pass abbling when they are 24 months old, and true speech when they are 26 months old. According to Kent, saying that tan retardation or language impairment is an early visible sign of mental retardation (13). The presence of speech language delays that clients experience can be a major indication of cognitive problems because it turns out that cognitive function has an impact on the language development of children with Down syndrome(14).

Furthermore, based on the results of the assessment in the form of observation and examination of speech instruments, results were obtained in the form of the client's general condition, namely

narrow eyes, eyelids there are skin folds covering the inner corners of the eyelids, swollen under-eye bags, snub nose, small mouth, the arch structure of the client's hard palate impressed deep and shaped "V", short neck, thumb toes separated with other fingers, and hypotonia. The size of the client's tongue seems thick and large, the client is able to stick out and insert his tongue, but the client is unable to stick his tongue up, down, right and left. Then, the structure of the speech organ also affects the speed and accuracy of motion during speech due to errors in placement and coordination in the speech organs of children with Down Syndrome (15).

Based on the results of the DDGKB test in the oral ability section that is in accordance with the client's age, which is 2-21/2 years, data is obtained that the client's ability is not in accordance with the client's ability. At the time of the test, the client is also less cooperative and his attention is easily distracted, the client is busy with his own toys, and sometimes does not respond. The following are the results of the DDGKB oral ability test aged 2-21/2 years:

Table 3. DDGKB Table of Oral Ability

Client Age	**Oral Skills**	**Value** +/-
2 – 2 1/2 years	2-digit repetition	-
	Name an object	-
	Sentence repetition	-
	Consonant pronunciation I (imitation of consonants)	-

In accordance with the results of the DDGKB test on oral ability above, data was obtained that the client was unable to repeat numbers as many as 2 digits in a row. When the researcher asks the client to repeat numbers such as (4-7) the client does not respond, (5-8) the client does not respond , (3-9) the client does not respond. From these data, it can be concluded that the client has difficulty in repeating 2 consecutive digit numbers due to poor short-term memory (short term memory) which is characteristic of children with down syndrome. This is consistent with the theory that children with Down syndrome experience short-term memory problems and become their weakness (9).

Based on the results of the DDGKB test in the oral comprehension section that is appropriate for the client's age, which is 2-21/2 years, data was obtained that the client's oral comprehension was

not in accordance with the situation, at the time of the test, the client was also less cooperative and his attention was easily distracted, the client was busy with his own toys, and sometimes did not respond. Here are the results of the DDGKB oral comprehension section test:

Table 4. DDGKB Table of Oral Comprehension

Client Age	Oral Comprehension	Value +/-
2 – 21/2 years	Understand the concept of "one"	-
	Size comparison	-
	Understand the use of nouns	-
	Understand simple commands	-

Based on the results of observations of the client's language skills using the language subdomain observation format, the client's language skills are in domain one. The results are as follows:

Table 5. Subdomain Table

No	Item	Already	No
	Abilities that need to be observed for clients who are not yet verbal		
1	Whether the child uses gestures or gestures to speak	✔	
2	Are there meaningless vocalizations	✔	
3	Are there meaningful vocalizations	✔	
4	How children react to verbal stimuli	✔	
5	Whether the child has eye contact	✔	
6	Does the child use objects and toys as they should?	✔	
7	Can the child repeat a word?		✔
8	Can the child try to produce words spontaneously?	✔	
9	Can the child try to communicate (slight hand and verbal cues)		✔
10	Will the child be able to follow simple instructions?		✔
11	Can the child name objects from pictures or those in his environment		✔

RESULT

After collecting data and obtaining data on client abilities, then the implementation of therapy for 10 meetings and 1 time for evaluation. The following is a table of the results of the implementation of therapy.

Table 6. Results of therapy implementation

Implementation to-	Stimulus	Client Response
1 & 2	Unveiling: The researcher invites clients to sit opposite each other. The researcher invites the client to read a prayer.	Wed-1: Clients are willing to sit opposite each other. Clients want to when invited to pray.
		Wed-2: Clients are difficult to be conditioned to sit and face each other. The client is difficult to condition, the client just wants to play.
	Core activities: The researcher gave a cloth bag containing a stimulus device then asked the client to take it 1 original object targeted, which is an apple. Researchers introduce or explain the word of the original object. Researchers provide reinforcement by showing picture cards from the target while playing the picture cards. The researcher asked the client to retrieve the targeted original object.	Wed-1: The client is less cooperative, the client is willing to take the original object in the bag with repeated stimulus. The client does not want to sit in one place, the client does not want to pay attention and listen to instructions The client wants to look at other objects from the target word, but the picture card is immediately discarded by the client. The client is engrossed in his own toys, the client does not want to take the original object from the pocket.
		Wed-2: The client is less cooperative, the client does not want to take the original object in the bag. The client does not want to pay attention, the client is engrossed in his own toys. The client does not want to see the picture card given. The client does not want to take the original object targeted, the bag given is immediately disposed of by the client.
	Cover: a. IInvite clients to pray.	

	b. Researchers record the results of therapy.	
3 & 4	Unveiling: The researcher invites clients to sit opposite each other. The researcher invites the client to read a prayer.	Wed-3: Clients are willing to sit opposite each other. Clients want to be invited to pray together.
		Wed-4: Clients don't want to sit across from each other. The client does not want to be invited to pray, the client does not seem in the mood to do therapy.
	Core activities: Researchers gave cloth bags containing stimulus devices then asked clients to take 1 original object targeted, namely apples / oranges. Researchers introduce or explain the word of the original object. Researchers provide reinforcement by showing picture cards from the target while playing the picture cards. The researcher asked the client to retrieve the targeted original object.	Wed-3: The client was less cooperative, the client responded by pulling the bag that the researcher was holding and throwing it away. The client does not want to pay attention to the research. The client responds by pulling the picture card and throwing it. The client does not want to take apples/oranges that are in the bag.
		Wed-4: The client does not want to see the given bag. The client does not want to pay attention. The client discards the picture card that is being shown, the client's emotions are unstable. The client does not want to take apples/oranges that are in the bag.
	Cover: Invite clients to pray. Researchers record the results of therapy.	
5 & 6	Unveiling: The researcher invites clients to sit opposite each other. The researcher invites the client to read a prayer.	Wed-5: Clients are willing to sit opposite each other. Clients do not want to be invited to pray
		Wed-6: Clients don't want to sit across

		from each other. Clients are less cooperative and just want to play.
	Core activities: Researchers gave cloth bags containing stimulus devices then asked clients to take 1 original object targeted, namely apples / oranges / bananas. Researchers introduce or explain the word of the original object. Researchers provide reinforcement by showing picture cards from the target while playing the picture cards. The researcher asked the client to retrieve the targeted original object.	Wed-5: The client wants to take the original object from the bag according to the target with repeated stimulus. The client wants to pay attention to the explanation of the research. The client wants to see the image shown by the researcher. The client has not been able to retrieve the targeted original object, which is a banana. Researchers asked clients to take apple and orange targets, clients were also not able to.
		Wed-6: The client shook his head, unwilling to take the original thing from the bag. The client is engrossed in his own toys, the client does not want to pay attention to the explanation of the research. The client is engrossed in his own toys, the client does not want to see the picture cards shown. The client has not been able to take bananas. When the researcher asked the client to take apples and oranges, the client still couldn't afford it.
	Cover: Invite clients to pray. Researchers record the results of therapy.	
7 & 8	Unveiling: The researcher invites clients to sit opposite each other. The researcher invites the client to read a prayer.	Wed-7: Clients are willing to sit opposite each other. Clients want to be invited to pray together.
		Wed-8: Clients are willing to sit opposite each other. The client is less cooperative,

		the client just wants to play.
	Core activities: Researchers gave cloth bags containing stimulus devices then asked clients to take 1 original object targeted, namely apples / oranges / bananas / salak. Researchers introduce or explain the word of the original object. Researchers provide reinforcement by showing picture cards from the target while playing the picture cards. The researcher asked the client to retrieve the targeted original object.	Wed-7: The client wants to take the target salak from the bag. The client wants to pay attention to the explanation of the research. The client wants to see the card shown. The client has not been able to retrieve the original object of salak.
		Wed-8: The client is willing to take salak from the bag with repeated stimulus. The client does not want to show an explanation of the research, the client just wants to play. The client does not want to look into the given image. The client has not been able to take salak from the bag. The client is able to take bananas.
	Cover: Invite clients to pray. Researchers record the results of therapy.	
9 & 10	Unveiling: The researcher invites the client to sit face to face. The researcher invites the client to read a prayer.	Wed-9: Clients are willing to sit opposite each other. Clients want to be invited to pray together.
		Wed-10: Clients are willing to sit opposite each other. Clients want to be invited to pray together

		Core activities: Researchers gave cloth bags containing stimulus devices then asked clients to take 1 targeted original object, namely apples / oranges / bananas / salak / dragon fruit. Researchers introduce or explain the word of the original object. Researchers provide reinforcement by showing picture cards from the target while playing the picture cards. The researcher asked the client to retrieve the targeted original object.	Wed-9: The client is willing to take the targeted fruit from the bag with a repeated stimulus. The client wants to pay attention to the explanation of the research. The client wants to see the picture card shown. The client has not been able to retrieve the original object on target.
			Wed-10: The client is willing to take the original object on target from the bag with a stimulus repeated many times. Clients are difficult to condition to pay attention to explanations. Clients are difficult to condition to see the picture cards shown. The client has not been able to take the original object of dragon fruit, when the client asked the client to take the banana the client was able but not consistent.
		Cover: Invite clients to pray. Researchers record the results of therapy.	
	11	Evaluation	Evaluation

Table 6. Preliminary Test Table and Final Test

No	Test Materials	Initial Test		Final Test	
		Client Response	**Value**	**Client Response**	**Value**
1	Appeals	The client retrieves all image items	0	The client shook his head, unwilling to take pictures	0
2	Orange	Dragon fruit	0	The client pushed the given cloth bag, unwilling to take pictures	0

3	Banana	The client shook his head, unwilling to take pictures	0	The client pulls the given cloth bag, then discards all the illustrated carts that are inside	0
4	Salak	The client retrieves all image items	0	Client does not respond	0
5	Dragon Fruit	The client retrieves all image items	0	The client shook his head, unwilling to take pictures.	0
Sum			0		0

After 10 meetings of speech therapy with the drill p lay method, it was found that there was no improvement in word-level oral comprehension in clients. Attention deficits or executive functions occur in childhood and become more pronounced with age (14). Research on the drill play method shows that there is success in the form of increasing the ability to use the drill play method in children with Down S Yndrome. In the study, it was explained that the drill method was carried out repeatedly so that what was learned could be remembered. The research study was conducted for a month with a total of 15 meetings divided into three cycles into three pre-test sessions, one session for intervention, and three sessions for post-test.

Based on the study, the results of the intervention there was an improvement that can be seen in the post-test results (16). Furthermore, based on the results of the data in this case, there has been no improvement in oral comprehension at word levels can be caused by lack of therapy sessions or interventions carried out. This is also reinforced by the theory that therapy sessions conducted for children with Down syndrome to improve language comprehension skills require therapy sessions 2 times a week for 6 months (17).

CONCLUSION

Research on the application of drill play methods in receptive disorders of children with Down syndrome has not increased in this case. This is due to various factors that can occur, one of which is the lack of therapy sessions carried out. This study only conducted 10 therapy sessions. Meanwhile,

some studies show that children with Down syndrome are effective given therapy as many as 15 times up to 6 months. This shows that there is an increase in receptive language skills with down syndrome if the frequency of therapy sessions is increased. Then, the application of the drill play method will also be more effective if the therapeutic material provided is daily activities.

SUGGESTION

Further research needs to be done on how effective the frequency of therapy in children with down syndrome using the drill play therapy method so that it can be used as a reference for speech in determining the number of therapy meetings.

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