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The Effect of Baby Massage on Language Development Disorder (Speech Delay)

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Abstract

This research is directed to answer the following problems; Is there an Influence of Baby Massage on Language Development Disorders (Speech Delay). This study uses a pre-experimental design, because there are variables outside the independent variables that can affect the dependent variable. The research design used was Two Group Pre-Posttest Design (Nuryadi, et al, 2017). The treatment given is; 1) Group I = given Speech Therapy without Oromotor (Speech Therapy Massage) = 16 people; 2) Group II = given Speech Therapy with Oromotor (Speech Therapy Massage) = 16 people. Therapy was given for 3 consecutive months. This research activity was carried out in two places, namely NU_Kids Integrated Therapy 1 and 2. The results of the analysis showed that; 1) Most of the children who were given treatment only with speech therapy (Group I) had severe autism, namely 11 people (68.8%) then most of the children who were given a combination treatment, namely Speech Therapy and Oromotor (Speech Therapy Massage)) (Group II) also experienced severe autism, namely 9 people (56.3%). This shows that children with severe autism really need speech therapy to deal with communication disorders that can be detected through speech delays (Speech Delay); 2) The results of the different language development test using the Wilcoxon Signed Ranks Test (asymp sig 2-Tailed) showed that in Group I; only children with severe autism category have differences in language development in pre and post treatment; Then in Group II; children with moderate and severe autism categories have differences in language development in pre and post treatment; 3) The ANOVA test results obtained that the F table value from the calculation is 4.17, which is, the calculated F value is in the rejection area (F arithmetic > F table), then H0 is rejected and H1 is accepted. The conclusion is that the speaking ability of the two groups is significantly different, so that it is found that there is "The Effect of Baby Massage on Language Development Disorders (Speech Delay)".

Keywords
speech delayed; baby massage; language

I. Introduction

Language skills are a combination of the entire system of child development. Language skills involve motor, psychological, emotional and behavioral abilities. Language development disorders in children can be caused by various factors, namely genetic factors, hearing loss, low intelligence, lack of interaction between children and the environment, late maturation and family factors. (Amri NA., 2017).

Children with moderate to severe criteria for phonological disorders usually have speech development delays. Another possibility, even though it's been 2 years, but the ability to speak is still at the bubbling stage or meaningless, like “ma…ma…pa…pa”. However, the receptive language or reception is quite good, so that if he is asked or spoken

to, he will understand. Things like this should also be taken for consultation because if it is allowed to continue, it is likely that the child will experience more severe phonological disorders. That's because, if since the age of 10 months or a year, the child begins to be able to say "mama/papa", but after 2 years it has not increased, we must be suspicious and quickly seek expert help. You can take him to a psychologist/psychiatrist first to find out if he has a phonological disorder due to mental retardation, neurological disorders or other reasons (Devianty R, 2016).

Language is one of the most important things in the life of every human being. Each of them is of course inseparable from language, the first time a child gets a language that is heard directly from the father or mother when the child is born into this world (Purba, N. et al. (2020).

Globally, every year 180–200 million children under five show developmental delays and 86% occur in developing countries such as India compared to developed economies only 8%. Meanwhile, data from developed countries shows that 10%-15% of developmental delays are reported and global developmental delays are 1%-3% of children under 5 years of age. Other data show that about 16% of children under five years old (toddlers) in Indonesia experience neurological and brain development disorders ranging from mild to severe, every two out of 1,000 babies experience motor development disorders and one in 100 children have low intelligence and speech delays (Solama). & Hipson, 2021).

National data from the Ministry of Health of Indonesia as many as 11.5% of children under five in Indonesia have growth and development disorders. Data from Dr. Hospital. Kariadi at the Child Development Polyclinic found that 22.9% of the 436 new visits came with complaints of speech delay, 13 (2.98%) of whom had language development disorders. Meanwhile, survey data from the Indonesian Pediatrician Association (IDAI) show that about 5 to 10% of children experience development that is not in accordance with age, so it is necessary to carry out an early assessment of the development of toddlers. In Palembang City, of the 85 toddlers who attend kindergarten, 36.5% of toddlers experience abnormal growth and development (with special needs) (Purwasih, et al, 2020).

One of the children with special needs is a child with autism spectrum disorder. This disorder causes children to experience limitations in terms of communication, social interaction and behavior. Therefore there is a need for handling in individual programs and special education by parents of children with autism. Where childhood autism is a pervasive developmental disorder that affects social interaction, communication, and behavior that has been seen before the age of 3 years. Pervasive meaning means that this disorder affects a person very broadly, heavily, and deeply. People with autism have different symptoms from one another, so in recent years the term GSA (Autistic Spectrum Disorder) has emerged for people with autism (Indah, RN., 2017).

To prevent delays, verbal behavioral intervention (VB) is given, which is also known as a type of therapy that focuses on children with autism spectrum disorder. Verbal behavior intervention is related to applied behavior analysis by inviting children to learn language through words that match what they want to convey. Then for growth and development disorders there are several therapeutic modalities such as Neuro Development Treatment (NDT), Baby Massage (facial massage), hydrotherapy and kinesio tapping. From the various modalities of therapy, researchers chose to use Baby Massage (facial massage). Oromotor massage is good for children with speech impediments or even speech disorders. In addition, continue to provide stimuli such as teaching and introducing a lot of vocabulary accompanied by real objects or flash cards. Don't forget to give a reward every time the child tries to make a sound or word. Facial massage for speech-delayed children is

mainly carried out by the therapist for Children with Special Needs, namely speech therapists. Massage is done using hands and with or without oil (in this case usually using baby oil), baby oil is useful for making the surface slippery and moist on the child's face. Where facial massage is a massage intervention that can improve the health and well-being of children which aims to improve motor development and provide stimulation through touch to increase sensory sensitivity. Management of Baby Massage is effectively given 20 minutes of each therapy, 2 times a week for 12 weeks (Purwasih, et al, 2020).

Research results Amri, NA. (2017) found that providing stimuli in the form of sounds, reading stories, poetry, playing letter or word cards are part of several activities that can be done to improve children's language skills. Hetherington (Amri, 2017) also said, "the acceleration of children's language development occurs as a result of the development of symbolic functions".

According to research conducted abroad, three-year-old children should be able to master 1,000 new words, 80 percent of which can be understood. Errors that children make are usually only in syntax, for example putting on, in, or at. The results also show that the factors that influence speech and language delay are multifactorial, including intrinsic factors such as mental retardation and hearing loss. In addition, it can also be caused by extrinsic (psychosocial) factors which can be in the form of television viewing patterns (Rahayu, et al, 2020).

The results of the research by Siregar et al. (2019) showed the factors causing speech delays in children aged 6 years at Aisyiyah 29 Padang Kindergarten that: 1) most of the children were not able to recognize letters, numbers and colors well. 2) the child is confused about using language. 3) in speaking the child is soft, slow so that it is not clear and cannot be understood. 4) parents are busy and pay less attention to children's development, so children are invited to play or talk when they are not busy. 5) All children have no problems with hearing, tongue or nose.

The results of research by Khoiriyah, et al (2016), children who experience delays in speaking aged 4-6 years at PAUD Khalifah Aceh 2 and PAUD Cinta Ananda show characteristics of difficulty expressing expressions, inaccuracy of spoken words and unsupportive vocabulary mastery. Then based on the results of research Solama & Hipson (2021) also showed that the economic status of the family affects the needs for growth and development of toddlers, for example the fulfillment of nutrition. A low economy usually tends to make mothers look for additional income by doing work outside the home so they pay less attention to the growth and development of their children.

II. Research Method

This study uses a pre-experimental design, because there are variables outside the independent variables that can affect the dependent variable. The research design used was the Two Group Pre-Posttest Design (Nuryadi, et al, 2017), namely observations/measurements were made on both groups of respondents before being given treatment (treatment) and observing the development of respondents after being given treatment (treatment), so that the results obtained were more accurate.

The treatment given is; 1) Group I = given Speech Therapy without Oromotor (Speech Therapy Massage); 2) Group II = given Speech Therapy with Oromotor (Speech Therapy Massage). Therapy was given for 3 consecutive months. This research activity was carried out in two places, namely NU_Kids Integrated Therapy 1 and 2.

III. Results and Discussion

3.1 Results

a. Characteristics Subject Study

Respondents in this study were all children with autism who were regular visitors to Nu_Kids 1 and 2 Integrated Therapy located in;

1. Nu_Kids 1; Lr. Matahari, Perum. Yuka Residence, Blok A, No.28, Kel. Sukamaju, Kec. Sako, Palembang 30961.
2. Nu_Kids 2; Jl. Srijaya No.294D, Srijaya, Kec. Wide Reeds, Palembang City, South Sumatra 30151

There are 32 respondents, male and female, with an average age of 2-12 years and their parents/guardians have signed an informed consent form.

Testing is done by separating respondents based on the treatment given, namely Group I and Group II, namely:

a) Group I were respondents who were given only speech therapy without *oromotor* (*speech therapy). massage*);
b) Group II is the respondent who is given *a combination* of Speech Therapy and Oromotor (*Speech Therapy) treatment massage*)

In each group, there are respondents with three categories of autism, namely mild, moderate, and severe. All of them will be analyzed by univariate and bivariate.

b. Univariate Analysis

Table 1. Autism Category Group I

Autisme	Kriteria	Jumlah	%
Ringan	1	2	12,5
Sedang	2	3	18,8
Berat	3	11	68,8
Total		16	100

Based on table 1, it shows that most of the children who were given only speech therapy treatment (Group I) had severe autism, namely 11 people (68.8%).

Table 2. Autism Category Group II

Autisme	Kriteria	Jumlah	%
Ringan	1	3	18,8
Sedang	2	4	25,0
Berat	3	9	56,3
Total		16	100

Based on table 2, it shows that most of the children who were given a combination treatment, namely Speech Therapy and Oromotor (Speech Therapy Massage) (Group II) experienced severe autism, namely 9 people (56.3%).

c. Bivariate Analysis

1. Normality test

The respondents of Speech Therapy without Oromotor (Speech Therapy Massage) (group 1) and Speech Therapy with Oromotor (Speech Therapy Massage) (group 2) were tested for normality using the Saphiro-wilk statistical method because the data had a small sample size.

Table 3. Normality Test Results

Sumber Data	Kelompok *Treatment*	Shapiro Wilk	Keputusan
Perkembangan Bahasa	Terapi Wicara tanpa Oromotor (*Speech Therapy Massage*)	0,000	Tidak Normal
	Terapi Wicara dengan Oromotor (*Speech Therapy Massage*)	0,000	Tidak Normal

Based on table 3, all sig values are 0.00; 0.00, which are all <0.05, it can be concluded that the research data is not normally distributed. Because the data is not normally distributed, the next method to be used is the Non-Parametric Test.

d. Language Development Difference Test

Hypothesis Formulation:

1. H0: There is no difference in the respondent's language development before and after given *treatment*
2. H1: There are differences in the language development of the respondents before and after being given *treatment*

Decision-making:

a) If sig count < 0.05, then H0 is rejected and H1 is accepted
b) If sig count > 0.05 then H0 is accepted and H1 is rejected

The data looks at;

Table 4. Results of Different Tests of Pre and Post Treatment Language Development

Perkembangan Bahasa (Pretest dan Posttest)	Wilcoxon Signed Ranks Test (asymp sig 2-Tailed)		Wilcoxon Signed Ranks Test (asymp sig 2-Tailed)	
	Kelompok I	Keputusan	Kelompok II	Keputusan
Autisme Ringan	1,000	Tidak ada Perbedaan	0,317	Tidak ada Perbedaan
Autisme Sedang	0,083	Tidak ada Perbedaan	0,046	Ada Perbedaan
Autisme Berat	0,025	Ada Perbedaan	0,008	Ada Perbedaan

Based on Table 4 it can be seen that; For respondents with Treatment (Speech Therapy Only) (Group I) category; a) Mild Autism probability value is 1,000 (significance > 0.05); b) Moderate Autism probability value is 0.083 (signification > 0.05); c) Autism Weight probability value is 0.025 (significance < 0.05). The conclusion is in Group I; only children with severe autism category have differences in language development in pre and post treatment.

Respondents with Combination Treatment (Speech Therapy with Oromotor/Speech Therapy Massage) (Group II) categories; a) Mild Autism probability value is 0.317 (significance > 0.05); b) Moderate Autism probability value is 0.046 (signification < 0.05); c) Autism Weight probability value is 0.008 (signification < 0.05). The conclusion is in Group II; children with moderate and severe autism categories have differences in language development pre and post treatment.

e. Anova Test

Table 5. Average Speech Development

Sumber Data	Kelompok *Treatment*	Mean
Perkembangan Bahasa	Terapi Wicara tanpa Oromotor (*Speech Therapy Massage*)	3,19
	Terapi Wicara dengan Oromotor (*Speech Therapy Massage*)	4,00

Based on table 5, it can be seen that the average speech development of groups I and II is different (Group I = 3.19 and Group II = 4.00).

Table 6. Test of Group Variance Variance

Sumber Data	Kelompok *Treatment*	Sig	Keputusan
Perkembangan Bahasa	Terapi Wicara tanpa Oromotor (*Speech Therapy Massage*)	0,142	**Varians Homogen**
	Terapi Wicara dengan Oromotor (*Speech Therapy Massage*)		

Based on table 6, it can be seen that the variances of groups I and II are homogeneous (same) (sig = 0.142 > 0.05; then H0 is accepted and H1 is rejected).

Table 7. Test of Differences in Group Speech Ability

Sumber Data	Kelompok *Treatment*	F Hitung	Keputusan
Kemampuan Bicara	Terapi Wicara tanpa Oromotor (*Speech Therapy Massage*)	5,571	**Berbeda secara signifikan**
	Terapi Wicara dengan Oromotor (*Speech Therapy Massage*)		

Based on Table 7 it can be seen that the inference results; the calculated F value = 5.571. The alpha value is 5% or 0.05, so Numerator = number of variables – 1, i.e. (2-1 = 1), Denumerator = number of cases – number of variables, i.e. (32-2 = 30). The F table value from the calculation above is 4.17, which is, the calculated F value is in the rejection area (F arithmetic > F table), then H0 is rejected and H1 is accepted. The conclusion is that the speaking ability of the two groups is significantly different, so that it is found that there is "The Effect of Baby Massage on Language Development Disorders (Speech Delay)".

3.2 Discussion

Most of the children who were given treatment only with speech therapy (Group I) had severe autism, namely 11 people (68.8%) then most of the children who were given a combination treatment, namely Speech Therapy and Oromotor (Speech Therapy Massage) (Group II) also experienced severe autism is 9 people (56.3%). This shows that children

with severe autism really need speech therapy to deal with communication disorders that can be detected through speech delays (Speech Delay).

This study is in line with Leki, et al (2019) where data on autism sufferers in children under the age of 18 in developed countries is estimated at 0.5-2.5%, especially in Sweden with severe mental retardation (severe autism). For children with severe autism, speech therapy is considered very important, because almost all autistic children have difficulty speaking. Speech therapy can help in the development of non-verbal and verbal in children with autism. This therapy also serves to overcome emotional barriers in communicating with others.

Based on Siwi's research, FD (2021) found that there are neurological changes in autistic children that make it difficult for them to speak which makes it difficult to communicate with other people. This is what makes autistic children do not know how to interact with other people so they cannot express what they need and want. Therefore, learning to communicate always occupies the first level that must be mastered first through Speech Therapy.

Bariyyah (2019) also states that one of the invaluable roles of a speech therapist is to prioritize, design and provide therapy that meets the child's social communication needs. Speech therapists aim to enable autistic children to: take initiative through spontaneous communication in useful and functional activities, with any social partner and any social setting; understand verbal and non-verbal communication in social, academic and community settings; communicate reciprocally to help develop friendships and social networks; use and understand verbal and non-verbal means of communication such as gestures and facial expressions, speech or speech, signs or instructions, pictures, and written or written words.

Normality test results using Shapiro-Wilk all sig values for both groups are 0.00; 0.00, which are all <0.05, it can be concluded that the research data is not normally distributed.

The results of the different language development test using the Wilcoxon Signed Ranks Test (asymp sig 2-Tailed) show that; 1) In Group I; only children with severe autism category have differences in language development in pre and post treatment; 2) Then in Group II; children with moderate and severe autism categories have differences in language development pre and post treatment.

The results of this study were strengthened by Siwi, FD (2021), namely Effective Speech Therapy exercises in articulation learning for autistic students (but the ability is limited to the number of articulations they have, which is only able to pronounce 26 letters, 21 syllables, and 55 words) in SLB- C Catholic Santa Anna Tomohon.

The results of this study are in accordance with those obtained by Goa & Derung (2017), showing an increase in the expressive communication of children with autism after using the PECS method. The highest scores were obtained by MM and LV subjects, with an increase in the value of expressive communication by 12. KF subjects got an increase in scores of 10 and VR subjects. Thus, the PECS method can be used as a reference other than speech therapy to improve expressive communication in children with autism.

This study is in accordance with Bariyyah, K. (2019), that the language acquisition of AUD with autism in Talenta Kids increases through Five-Step Combination Therapy, including; 1) Identification of the child's needs is carried out when the child registers for the Autistic Talenta Kids School, either through observation of the child, interviewing parents, or by studying the child's medical record or therapy record. 2) Speech Therapy, which is carried out by professionals and also by the teachers themselves. This concept shows the inclusive nature of the school where classroom teachers also master the therapy

that must be given to children. Class teachers not only provide material but also provide therapy. 3) Message Therapy, which is also done by the therapist to help activate the nerves related to the child's sound production. 4) Interaction with peers, which is done every break and when school hours can stimulate children to have the desire to be able to talk like their friends. 5) Interaction with the environment around the school, which is carried out every Friday.

The F table value obtained from the calculation is 4.17, which is, the calculated F value is in the rejection area (F arithmetic > F table), then H0 is rejected and H1 is accepted. The conclusion is that the speaking ability of the two groups is significantly different, so that it is found that there is "The Effect of Baby Massage on Language Development Disorders (Speech Delay)".

The results of this study are in line with Ismet (2019) who found that Speech Therapy aims to launch oral motors so that they can speak better. There are two types of speech therapy provided, the first is Speech Therapy, namely by massaging and training the speech apparatus from the cheeks, chin and tongue. The second is to do articulation exercises with the help of different real objects, the therapist invites IM to mention the object repeatedly. In speaking IM has been able to say some words with proper articulation such as father, mother, eat, fruit but unfortunately IM only wants to talk to certain people such as the therapist or his parents, he still rarely invites his friends to communicate more. His actions also become more independent and willing to interact, although not yet optimal.

The results of this study are also in accordance with Leki, et al (2019) who found that based on the spearman rho test, the correlation coefficient = 0.511 and p-value = 0.002, so that at the 5% significance level (= 0.05) then p 0.05 so that H1 is accepted which means that there is a significant effect between the role of parents and speech therapy (Combination Therapy) on speech ability in children with autism at SDK St. Maria Asumpta and the Kupang Autism Service Center.

This research is also supported by Yanti, et al (2020) where the combination of speech therapy with the Glen Doman method and the ABA (Applied Behavior Analysis) method can significantly improve the speech ability of children with autism.

The results of research by Fernando, F (2021) also show that therapy for children with autism carried out at the Mutia Center is a combination of speech and behavior therapy using the ABA (Applied Behavioral Analysis) method which provides quite effective progress by helping to significantly increase children's communication skills.

IV. Conclusion

Based on the results and discussion, the problem formulation and research objectives can be answered so that it can be concluded that most of the children who were given treatment only with speech therapy (Group I) had severe autism, namely 11 people (68.8%) then most of the children who were given combination treatment namely Speech Therapy and Oromotor (Speech Therapy Massage) (Group II) also experienced severe autism, namely 9 people (56.3%). This shows that children with severe autism really need speech therapy to deal with communication disorders that can be detected through speech delays (Speech Delay). Normality test results using Shapiro-Wilk all sig values for both groups are 0.00; 0.00, which are all <0.05, it can be concluded that the research data is not normally distributed. The results of the different language development test using the Wilcoxon Signed Ranks Test (asymp sig 2-Tailed) show that; 1) In Group I; only children with severe autism category have differences in language development in pre and post

treatment; 2) Then in Group II; children with moderate and severe autism categories have differences in language development pre and post treatment.

The ANOVA test results obtained that the F table value from the calculation is 4.17, which is, the calculated F value is in the rejection area (F arithmetic > F table), then H0 is rejected and H1 is accepted. The conclusion is that the speaking ability of the two groups is significantly different, so that it is found that there is "The Effect of Baby Massage on Language Development Disorders (Speech Delay)".

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