Study of words repetitions in adults with and without stuttering

Estudo das repetições de palavras em adultos com e sem gagueira

Estudio de las repeticiones de palabras en adultos con y sin tartamudez

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Abstract

Introduction: *Speakers show disfluencies that can be classified as stuttering-like disfluencies (SLD), typical manifestations of person who stutters, or as other disfluencies (OD), which are common in any speaker's speech. People who stutter show high amount of SLD.* ***Objective:*** *to analyze word repetition in the speech of adults who do and do not stutter regarding the type (monosyllabic - MWR or non - NMWR), the frequency of occurrence, the position of the word repeated in relation to the sentence, the presence of muscle tension and/or physical concomitant, and to the number of repetitions.* ***Method:*** *Participants were 30 adults, 18-46 years old, divided in: RG (research group) with 15 adults who stutter and CG (control group) with 15 adults who do not stutter. The following procedures were applied: clinical and familial history, fluency assessment and Stuttering Severity Instrument.* ***Results:*** *The results obtained were significant for the comparison between the groups: adults who stutter showed more MWR and NMWR in relation to the total of the speech and the total of disfluencies. RG showed more MWR with tension and greater number of repeated units for the MWR when compared to the CG.* ***Conclusion:*** *Adults who stutter showed higher incidence of monosyllabic and non-monosyllabic word repetition in relation to fluent adults. Muscle tension presence and the occurrence of monosyllabic words repetitions in initial and medial positions were more frequent in adults who stutter.*

Keywords: *Speech, Language and Hearing Sciences; Speech; Stuttering; Speech Disorders; Evaluation; Adult.*

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Resumo

Introdução: *As disfluências fazem parte da fala de qualquer pessoa. Podem ser classificadas como disfluências típicas da gagueira (DTG), que caracterizam a fala de pessoas portadoras do distúrbio, ou como outras disfluências (OD), que são comuns na fala de todos os falantes. Pessoas com gagueira manifestam alta quantidade de disfluências típicas da gagueira. Objetivo: analisar as repetições de palavras da fala de adultos com e sem gagueira quanto ao tipo (monossilábica - RPM ou não - RPNM), à frequência de ocorrência, à posição da palavra repetida em relação à frase, a presença de tensão muscular e/ou concomitantes físicos e quanto ao número de repetições.* ***Métodos:*** *Participaram 30 adultos (18 a 46 anos), divididos em dois grupos: GP (grupo de pesquisa) composto por 15 indivíduos com diagnóstico de gagueira e GC (grupo controle) composto por 15 adultos fluentes. Os procedimentos realizados foram: história clínica e familial, avaliação da fluência e Instrumento de Gravidade da Gagueira.* ***Resultados:*** *Os resultados obtidos foram significantes na comparação entre os grupos: adultos com gagueira manifestaram mais RPM e RPNM em relação ao total da fala e ao total das disfluências. GP manifestou mais RPM com tensão e maior número de unidades repetidas na RPM em relação ao GC.* ***Conclusão:*** *Adultos com gagueira manifestaram maior ocorrência de repetições de palavras monossilábicas e não monossilábicas em relação aos fluentes. A presença de tensão muscular associada à RPM e a ocorrência das repetições de palavras monossilábicas em posições iniciais e mediais foi mais frequente nos adultos com gagueira.*

Palavras-chave: *Fonoaudiologia; Fala; Gagueira; Distúrbios da Fala; Avaliação; Adulto.*

Resumen

Introducción: *Las disfluencias ocurren en el habla de cualquier hablante. Pueden ser clasificadas como disfluencias típicas de la tartamudez (DTT), que caracterizan el habla de personas que tartamudean, u otras disfluencias (OD) que son comunes en el habla de todos los hablantes. Personas con tartamudez manifiestan alta cuantidad de DTT. Objetivo: analizar las repeticiones de palabras del habla de adultos con y sin tartamudez cuanto al tipo (monosilábica - RPM o no - RPNM), frecuencia de ocurrencia, posición de la palabra repetida en relación a la frase, a la presencia de tensión muscular y/o concomitantes físicos y con respeto al número de repeticiones.* ***Método:*** *Participaron 30 adultos (18 a 46 años), divididos en dos grupos: GI (grupo de investigación) compuesto por 15 adultos con diagnóstico de tartamudez y GC (grupo control) compuesto por 15 adultos fluentes. Los procedimientos utilizados fueran: historial clínico y familial, evaluación de la fluidez y Prueba de la Gravedad de la Tartamudez.* ***Resultados:*** *Los resultados fueron significativos cuando se comparon los grupos: adultos con tartamudez manifestaron más RPM y RPNM en relación al total de habla y total de las disfluencias. GI manifestó más RPM con tensión y un mayor número de unidades de repetición en RPM en comparación con GC.* ***Conclusión:*** *Adultos con tartamudez manifestaron mayor ocurrencia de repeticiones de palabras monosilábicas y no monosilábicas cuando comparados con adultos fluentes. La presencia de tensión muscular asociada a repetición de palabra monosilábica en posiciones iniciales y mediales fue más frecuente en los adultos con tartamudez.*

Palabras claves: *Fonoaudiología; Habla; Tartamudez; Trastornos del Habla; Evaluación; Adulto.*

Introduction

Disfluencies occur in the speech of any person and can be divided into two types: stuttering-like disfluencies (SLD) and other disfluencies (OD)[1]. For this research, the proposal of these authors which differentiate the following categories of disfluencies were used: part-word repetition, monosyllabic word repetition, prolongation and block as stuttering-like disfluencies, and interjection, revision/ unfinished word and multisyllabic word or phrase repetition as other disfluencies[1].

People who stutter show high amount of stuttering-like disfluencies[2-5], which is considered the main characteristic of the disorder. Blocks, prolongations, sound or syllable repetitions can be found in their own stuttering definitions[7]. Diagnosis of the disorder is performed through score of the

fluent and non-fluent syllables from audiovisual recordings of spontaneous speech, analysis of the frequency, duration, type and disfluency severity. Therefore, for proper diagnosis and treatment of stuttering, the characterization of the typology of the disfluencies is fundamental.

The literature presents tests and assessments with defined criteria for classifying disfluencies and calculating the percentage of the stuttering-like disfluencies[9-11]. However, some speech disruptions occur in the speech of people who do and do no stutter, and thus, the diagnosis becomes difficult. In addition, some differences are found in the descriptions of the tests related to what is considered as other disfluency, or common disfluency of any speaker, and stuttering-like disfluency, or one that occurs most often in people who stutter. One of these differences concerns word repetition.

Some researchers include the whole word repetition as stuttering-like disfluency[12-14], but not others[15-17]. There are pros[18] and cons[15] regarding the classification of the whole word repetition as a manifestation of stuttering.

The Stuttering Severity Instrument[9] described that the monosyllabic word repetition could be considered as other disfluency or as stuttering-like disfluency, according to the qualitative factor. If it occurs in a way that sounds abnormal, for example, sounds with tension effort, it is classified as a stuttering-like disfluency.

Yairi[18] (1997) introduced the designation of "stuttering-like disfluency (SLD)" for atypical disfluencies, and included the monosyllabic word repetition in this category. Later, Yairi and Ambrose[1] (1999) combined the multisyllabic word repetition with phrase repetition, because it involves more than one syllable and they are typically normal disfluencies, named "other disfluency (OD)". In this sense, the authors proposed the monosyllabic word repetition as a stuttering-like disfluency (SLD) because they are typical, but not exclusive to people who stutter.

The monosyllabic word repetition category includes the whole monosyllabic word repetition. However, two observations should be highlighted: (1) when the word is repeated for emphasis, it is not regarded as stuttering-like disfluency, and; (2) if the repeated word occurs with some interjection, repetition is not counted as stuttering-like disfluency[1]. Example: "I saw-um- I saw the dog running away." Although some researchers do not agree with this classificacion[19], the authors highlighted that the monosyllabic word repetition is similar to the part-word or syllable repetition, commonly classified as stuttering-like disfluency[6-7]. For example, it would be inconsistent to consider "a-a-a-a boat" as a word repetition (other disfluency), and consider "a-a-a-about" as a part-word repetition (stuttering-like disfluency). The unit of repeated speech and the nature of the disruption were similar in both cases[12]. The authors explained that as speech is co-articulated, the function of monosyllabic word repetition in the phrase is equivalent to the syllable due to fact to people do not speak separately.

The "Systematic Disfluency Analysis"[10] defined word repetition as the repetition of a whole word, including monosyllabic words. However, according to this assessment, this disfluency can be classified as typical (OD) or atypical (SLD), depending on age, tension and number of repeated units. For children over five years, monosyllabic word repetition is classified as typical (OD) when there is one or two repeated units and without tension. When the repetition occurs three times or more and with tension, it is categorized as atypical disfluency or SLD. Therefore, there was the addition of a quantitative factor, related to the number of times the monosyllabic word was repeated, to the qualitative factor.

In the guidelines about stuttering assessment described by ASHA[20], the monosyllabic word repetition should be classified as stuttering-like disfluency if it occurs three times or more and with tension. Therefore, ASHA[20] uses both qualitative criteria (presence of tension) and the quantitative (minimum of 3 repeated units) for classifying the monosyllabic word repetition as other disfluency or as stuttering-like disfluency.

The Fluency Test ABFW[11] classifies word repetition as other disfluency, defining it as a whole word repetition, including monosyllables, prepositions and conjunctions. However, if there are three or more repeated units, it is considered as a stuttering-like disfluency.

An analysis of the differences when whole word repetition is considered as stuttering-like disfluency was performed. Among the differences we found are: (1) the prevalence of stuttering is higher when it includes whole word repetitions as stuttering-like disfluency; (2) therapy begins as early as possible because many children who stutter show whole word repetitions, and; (3) in the

re-assessment to verify the obtained results, more manifestations occur, or more symptoms are assessed and consequently show changes when whole word repetition is included as SLD[21]. However, the authors also reported some adverse implications when whole word repetition is considered as SLD, i.e., therapy is carried out for children who do not stutter, and the claims that the therapy was effective may be not true.

In this context, the aim of this research was to analyze word repetitions of adults who do and do not stutter regarding the type (monosyllabic or multisyllabic), frequency of occurrence, position of the repeated word in relation to the phrase, presence of muscle tension and/or physical concomitant and the number of repeated units.

Materials and methods

Ethical procedures

This investigation was submitted to the Research Ethics Committee of Universidade Estadual Paulista "Julio de Mesquita Filho" - Marilia Campus - and approved under number 0456/2012. Adults signed an Informed Consent in order to participate of the research.

Background

This is a prospective, cross-sectional research of quantitative and qualitative approach conducted with adults who stutter and attend the Fluency Studies Laboratory – (FSL) at Education and Health Studies Center (EHSC) of Universidade Estadual Paulista, Faculdade de Filosofia e Ciências, and adults who do not stutter from the local community in Marilia and region.

The participants were 30 adults of both genders, 15 with persistent developmental stuttering (RG - research group) and 15 non-stuttering (CG - control group). Participants were aged between 18 and 46 years (X = 28.60, SD = 10.18), 24 males and 6 females, residents in Marilia-SP and region. All RG adults had a diagnosis of persistent developmental stuttering based on international criteria.

The inclusion criteria of both groups were: native speaker of Brazilian Portuguese and aged between 18-59 years. Adults who stutter (RG) should present: (1) persistent developmental stuttering diagnosis by specialist professional in the area; (2) stuttering onset should have occurred during childhood (developmental stuttering); (3) minimum of 12 months of disfluencies (no remission); (4) have at least 3% of stuttering-like disfluencies; (5) present stuttering classified at least as mild degree according to the Stuttering Severity Instrument - SSI-3[9]. Adults who do not stutter (control group - CG) were matched for gender and age with the RG, and should present the following criteria: (1) do not complain of current or previous stuttering; (2) negative family history of stuttering, and; (3) show less than 3% of stuttering-like disfluencies in the specific spontaneous speech assessment.

Adults who had other complaints, hearing, neurological, behavioral, learning changes, or other relevant changes that could cause misdiagnosis were excluded.

Regarding the characterization of RG adults, it was found that the average age at onset of stuttering was 4.13 years (Table 1). All participants had familial persistent developmental stuttering, with a variation in the percentage of stuttering-like disfluencies from 3 to 12.5% (mean = 7.17, SD = 2.72). Stuttering severity ranged from mild to severe, with an average of 26.33 (18-35) of the total score of SSI-3. Most adults had a mild degree stuttering (53.33%), followed by moderate (26.66%) and severe stuttering (20%). Adults from CG were matched for gender and age with RG. The percentage of stuttering-like disfluencies of fluent adults ranged from 0 to 1% (mean = 0.40, SD = 0.47) (Table 1).

Table 1. Description of research participants and control groups

Adults	Age	Gender	Family history	Stuttering Onset	% Stuttering-like disfluencies	SSI-3 score	Stuttering Severity
RG 01	21	M	Yes	4	8.5	30	Moderate
RG 02	27	M	Yes	7	4.5	26	Mild
RG 03	45	M	Yes	6	3.0	20	Mild
RG 04	23	F	Yes	3	4.5	23	Mild
RG 05	21	M	Yes	2	6.5	23	Mild
RG 06	42	F	Yes	4	8,0	31	Moderate
RG 07	19	F	Yes	4	10.5	35	Severe
RG 08	32	M	Yes	3	9.0	34	Severe
RG 09	36	M	Yes	8	7.0	24	Mild
RG 10	46	M	Yes	3	9.0	31	Moderate
RG 11	20	M	Yes	3	4.0	18	Mild
RG 12	18	M	Yes	4	9.5	28	Moderate
RG 13	18	M	Yes	3	6.5	22	Mild
RG 14	24	M	Yes	2	12.5	32	Severe
RG 15	37	M	Yes	6	4.5	18	Mild
Mean	28.60			4.13	7.17	26.33	
SD	10.18			1.81	2.72	5.67	
CG 01	21	M	No		0.5		
CG 02	28	M	No		0		
CG 03	45	M	No		1.0		
CG 04	22	F	No		0		
CG 05	20	M	No		0.5		
CG 06	42	F	No		1.0		
CG 07	19	F	No		0		
CG 08	31	M	No		0		
CG 09	36	M	No		1.0		
CG 10	46	M	No		0		
CG 11	21	M	No		0		
CG 12	18	M	No		1.0		
CG 13	18	M	No		0		
CG 14	24	M	No		1.0		
CG 15	37	M	No		0		
Mean	28.53				0.40		
SD	10.19				0.47		

Legend: RG= research group; CG= control group; SD= standard deviation; M= male; F= female; SSI= Stuttering Severity Instrument.

Methods

The performed procedures were: audiovisual recording of a spontaneous speech sample, transcription and speech fluency analysis of all participants (RG and CG), and classification of stuttering severity in RG adults.

The self-expressive speech sample was collected from all participants, consisting of 200 expressed syllables, i.e., fluent syllables[11], using a digital Sony camera and a tripod. The adults' speech was interrupted only with questions and comments, when encouraging speech production was deemed necessary in order to achieve the required number of syllables for analysis. The adults were video recorded for analysis and a comparison of the findings was carried out. Subsequently, analysis of the speech samples and characterization of disfluency types were performed according to the following description[1]:

- Other disfluencies: multisyllabic word repetition, phrase repetition, interjection, revision and unfinished word.

- Stuttering-like disfluencies: part-word repetition, monosyllabic word repetition, block and sound prolongation.

From the transcription of spontaneous speech, we counted the number of stuttering-like disfluencies and the total of disfluencies showed by the adults. The frequency of disruptions was calculated in two measures: percentage of stuttering-like disfluencies and percentage of the total of disfluencies[22]. The analysis of the presence or absence of muscle tension associated with word repetitions was performed, the number of repeated units was counted for each event, and the analysis of the position of the repeated word in the phrase was carried out.

The Stuttering Severity Instrument (SSI-3)[9] was used in RG adults to classify severity of stuttering. This analysis considers three measures: (1) frequency of stuttering-like disfluencies; (2) duration average of the three longest stuttering-like disfluencies in the analyzed speech sample, and; (3) presence of physical concomitants associated with disfluencies, and thus obtaining the total score[9].

Statistical analysis was performed using the Mann-Whitney test in order to verify possible differences among the variables considered between research and control groups. The significance level for the statistical tests was 5% (0.050). Data analysis was performed using SPSS (Statistical Package for Social Sciences), version 22.0.

Results

The results related to the characterization and comparison of word repetition (monosyllabic or multisyllabic) in the speech of adults who do and do not stutter were presented in tables.

The frequency of participants who showed repetitions of monosyllabic and non-monosyllabic words in both groups (research and control) is presented in Table 2.

Table 2. Frequency of participants that showed monosyllabic and non-monosyllabic word repetition

	MWR N (%)	NMWR N (%)
RG	15 (100%)	8 (53.33%)
CG	5 (33.33%)	1 (6.66%)

Legend: RG= research group; CG= control group; N= number of repetitions; %= percentage; MWR = monosyllabic word repetition; NMWR= non-monosyllabic word repetition.

Table 3 shows inter-group comparison of the frequency of monosyllabic and non-monosyllabic word repetition related to the total of speech, total of disfluencies and total of stuttering-like disfluencies. No difference was observed only for frequency of monosyllabic word repetition in relation to the total of stuttering-like disfluencies.

Table 3. Intergroup comparison of word repetition frequency in relation to total of speech, disfluencies and stutering-like disfluencies

Frequency of monosyllabic word repetition						p-value
		Mean	Standard Deviation	Minimum	Maximum	
Total of Speech	RG	2.43%	1.10%	0.50%	4.00%	<0.001*
	CG	0.17%	0.24%	0.00%	0.50%	
Total of disfluencies	RG	14.03%	7.11%	2.80%	30.80%	<0.001*
	CG	2.14%	3.26%	0.00%	8.30%	
Total of stuttering-like disfluencies	RG	34.85%	16.45%	5.50%	60.00%	0.083
	CG	30.00%	45.51%	0.00%	100.00%	
Frequency of non-monosyllabic word repetition						
Total of Speech	RG	0.47%	0.61%	0.00%	2.00%	0.005*
	CG	0.03%	0.13%	0.00%	0.50%	
Total of disfluencies	RG	2.37%	3.17%	0.00%	10.50%	0.010*
	CG	0.27%	1.03%	0.00%	4.00%	

Legend: RG= research group; CG= control group; P= significance value; *Statistical significance (p<0.05) - Mann-Whitney Test

The research group showed higher amount of monosyllabic word repetition associated with muscle tension when compared with control group. RG showed more monosyllabic and non-monosyllabic word repetitions without muscle tension compared to CG. The adults who stutter showed greater number of repeated units for monosyllabic and non-monosyllabic words compared to adults who do not stutter (Table 4).

Table 4. Intergroup comparison regarding muscle tension and number of repeated units

Muscle tension							
	Variable	Group	Mean	Standard Deviation	Minimum	Maximum	p-value
Monosyllabic word repetition	With tension	RG	0.53	0.52	0.00	1.00	0.001*
		CG	0.00	0.00	0.00	0.00	
Non monosyllabic word repetition	With tension	RG	0.07	0.26	0.00	1.00	0.317
		CG	0.00	0.00	0.00	0,00	
Monosyllabic word repetition	Without muscle tension	RG	4.33	1.95	1.00	7.00	<0.001*
		CG	0.33	0.49	0.00	1.00	
Non monosyllabic word repetition	Without muscle tension	RG	0.87	1.13	0.00	4.00	0.005*
		CG	0.07	0.26	0.00	1,00	
Number of repetitions							
Monosyllabic word repetition	Number of repetitions	RG	44.87	2.20	1.00	8.00	<0.001
		CG	00.33	0.49	0.00	1.00	
Non monosyllabic word repetition	Number of repetitions	RG	00.93	1.22	0.00	4.00	0.005
		CG	00.07	0.26	0.00	1.00	

Legend: RG= research group; CG= control group; P= significance value; *Statistical significance (p<0.05) - Mann-Whitney Test.

The comparison between the research and control group regarding the positions of monosyllabic and non-monosyllabic word repetitions in the phrases showed statistically significant differences for the initial and medial positions to monosyllabic word repetitions and for the final position to non-monosyllabic word repetitions, as shown in Table 5.

Table 5. Intergroup comparison regarding the positions of monosyllabic and non-monosyllabic word repetition in phrases

	Position of monosyllabic word repetition in phrase											
	Initial				Medial				Final			
	M	SD	Min	Max	M	SD	Min	Max	M	SD	Min	Max
RG	0.80	0.94	0.00	3.00	3.47	1.77	1.00	7.00	0.60	1.18	0.00	4.00
CG	0.20	0.41	0.00	1.00	0.00	0.00	0.00	0.00	0.13	0.35	0.00	1.00
p-value	0.041*				< 0.001*				0.285			
	Position of non-monosyllabic word repetition in phrase											
	Initial				Medial				Final			
	M	SD	Min	Max	M	SD	Min	Max	M	SD	Min	Max
RG	0.27	0.59	0.00	2.00	0.13	0.35	0.00	1.00	0.53	0.74	0.00	2.00
CG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.26	0.00	1.00
p-value	0.073				0.150				0.031*			

Legend: RG= research group; CG= control group; M= mean; SD= Standard deviation; Min= minimum; Max= maximum; P= significance value; *Statistical significance (p<0.05) - Mann-Whitney Test.

Discussion

By analyzing and comparing monosyllabic word repetitions (MWR) and non-monosyllabic word repetitions (NMWR) between adults who do and who do not stutter, it is clear that both repetitions occurred in the speech of participants in the two groups. Therefore, these disfluencies are not exclusive characteristics of people who stutter, in line with previous reports[1,5,9-11]. However, the research group (RG) showed a higher amount of monosyllabic and non-monosyllabic word repetitions. This finding reinforces the literature that described stuttering-like disfluencies and claimed that other disfluencies occur more frequently in people who stutter compared to people who do not stutter as these manifestations are stuttering characteristics[1,23,24]. Typical stuttering-like disfluencies are the main clinical manifestations of the disorder[6-7].

As described by Juste and Andrade[25], all speakers may present speech disruptions, but the distinguishing factor between people who do and who do not stutter is how often these speech disruptions occur, and the impossibility of quick recovery of the system by speakers who stutter.

Monosyllabic word repetition is a type of disfluency classified as stuttering-like disfluencies[1,12-14], while others described it as other disfluencies[15-17.] In this sense, this research conducted a quantitative and qualitative analysis of monosyllabic and non-monosyllabic word repetitions in the speech of adults with persistent developmental stuttering and in fluent adults.

The discussion will be initially carried out by monosyllabic word repetitions, followed by non-monosyllabic word repetitions.

The results showed that adults who stutter showed a higher amount of monosyllabic word repetitions (MWR) compared to adults who do not stutter. A study of adult speakers of Brazilian Portuguese in a sample of 100 words (150-250 syllables) reported that stuttering adults showed a total of 3.52 MWR, while non-stuttering adults showed 1.20 MWR[5].

All RG adults showed monosyllabic word repetition, while only 33.33% of fluent adults (CG) showed this type of disfluency. When the total of MWR was analyzed in relation to the total of speech and the total of disfluencies, RG showed greater amount compared to CG. These findings suggest that this disfluency is a frequent manifestation in the speech of stuttering people, as previously described[1,13,14], and therefore, it should be classified as a stuttering-like disfluencies.

Regarding the qualitative aspects, the presence of MWR with muscle tension associated in the speech of adults who stutter can be described as an exclusive manifestation of people who stutter, as it occurred only in RG and the CG adults did not show this characteristic. This finding is fundamental because it helps to distinguish a monosyllabic word repetition that should be considered as stuttering-like disfluencies from another that can be classified as other disfluencies. This qualitative aspect that can follow MWR was described as differential between SLD and OD by some researchers[9,10,20].

The number of repeated units was higher in RG compared to CG. Therefore, this finding is in line with researchers who reported that the occurrence of 3 or more repeated units is a factor that also distinguishes MWR classification as SLD or OD[10,11,20].

In reviewed literature there are no studies that analyze the position of MWR in phrases. However, this investigation found that adults showed greater amount of MWR in the initial and medial positions of phrases in relation to adults who do not stutter. In this sense, the collected data suggest that MWR that occurs in people who stutter located mainly at the beginning and middle of phrases.

Next, we present the analysis of non-monosyllabic word repetitions (NMWR). The frequency of these disfluencies was higher in RG compared to CG. However, it is important to highlight that among adults who stutter, all of them expressed monosyllabic word repetitions, while only 53.33% presented non-monosyllabic word repetitions. In the analysis of total of non-monosyllabic word repetitions in relation to the total of speech and the total of disfluencies, RG showed higher total when compared to CG. Although non-monosyllabic word repetition is not considered as a specific stuttering characteristic, it is known that people who stutter often show greater number of disfluencies than fluent individuals[1,23,24].

Interestingly, stuttering adults showed greater number of non-monosyllabic word repetitions without associated tension in relation to fluent adults, while the same disfluencies with muscle tension did not differ in quantity between the two groups. It can be suggested that the qualitative factor of muscle tension associated with other disfluencies are not typical of stuttering-like disfluencies, it is not a characteristic that differentiates stuttering and non-stuttering adults.

Although non-monosyllabic word repetition is considered as other disfluencies, or also known as linguistic disfluency, adults who stutter showed greater number of this type, as well as increased number of repeated units in relation to fluent adults. Therefore, people who stutter possibly show other disfluencies more frequently than people who do not stutter, to organize their speech.

Comparative analysis of the number of non-monosyllabic word repetitions among the initial, medial and final positions of phrases in both groups showed that adults who do and who do not stutter showed greater number of this disfluency in the final position. However, the groups differed only in relation to the final position, in which, RG showed greater number compared to CG.

Conclusion

The analysis showed that quantitatively adults who stutter showed a higher occurrence of monosyllabic and non-monosyllabic word repetitions compared to adults who do not stutter. Qualitatively, the presence of muscle tension, and the occurrence in initial and medial position of the monosyllabic word repetitions in phrases differentiated the groups. Regarding the number of repeated units, the behavior of the groups was similar between monosyllabic and non-monosyllabic word repetitions, i.e., adults who stutter showed greater quantity of both disfluencies compare to adults who do not stutter.

These findings may help in stuttering diagnosis as this study describes different and similar characteristics of words repetitions between adults who do and who do not stutter.

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