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Investigating Lexical Diversity & Lexical Density In Narrations Of 4-8 Year Old Persian Language Children Who Stutter And Who Don't Stutter

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Abstract

One of the fields that has been influenced by the linguistic methodology, and the results of the researches in the interdisciplinary fileds of psycholinguistics and clinical linguistics is the study of speech disorders, like stuttering. Stuttering is a speech disorder characterized by repetition of sounds, syllables, or words; prolongation of sounds; and interruptions in speech known as blocks. An individual who stutters exactly knows what he or she would like to say, but has trouble producing a normal flow of speech. In recent years many studies have examined whether there is a relationship between stuttering and linguistic features of the speech of those who stutter. This study is focused on the lexical domain, namely the lexical density, and lexical diversity that can be considered as the lexical richness. Lexical diversity is usually defined as the range and variety of vocabulary in a language sample. Lexical density provides a measure of the proportion of lexical items (i.e. nouns, verbs, adjectives and some adverbs) and function words in a language sample.

Therefore, this study is aimed at comparing the lexical density and diversity in the narrations of children who stutter (CWS) (aged between 4 to 8 years), and children who do not stutter (CWNS) in the control group. Therefore, it investigates whether children who stutter have limited verbal skills compared to children who do not stutter. Since some theories claim that CWS have poorer language skills, comparing their linguistic performance in different domains to their fluent peers can contribute to the studies in this field through shedding light on the weak and strong points of these children's language abilities. The sample consists of the narrations of 14 children who stutter (CWS) classified into two age groups: (4-6 and 6-8), and 14 age-matched children who do not stutter (CWNS) as the control group selected through convenience sampling method. They have been asked to narrate a wordless picture book, "Frog where are you?" (Meyer, 1969), and their narrations have been analyzed, and compared according to the lexical density and diversity between children who stutter, and the children in the control group, and also between the two age groups. The percentage of the use of different words in different grammatical classes, i.e. noun, verb, adjective, adverb, and different function words in their narrations was also compared between the groups. Lexical diversity was analyzed through computing MSTTR (Mean Segmental Type-Token Ratio) by Word Smith 6. To measure lexical density, Lexical and functional words in the children's narrations were counted, and classified. The results were

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compared between the experimental group and control group in different age groups. SPSS 21 was used to test the significance of the differences observed between the groups. The results revealed that CWNS demonstrated more lexical diversity compared to CWS, but the difference was not significant. CWS used more content words and less function words than CWNS in their narrations and the difference is statistically significant. Comparing different grammatical classes showed that CWS narrations contained more nouns than CWNS narrations, whereas CWNS have used more verbs, adjectives and adverbs. However, the difference in the percentage of adverb usage was the only statistically significant item.

*Keyword***s:** Lexical diversity, Lexical density, Children who stutter, Children who do not stutter, Narration, Persain language

1. Introduction

Understanding the relationship between fluency and language skills has been an area of focus in many studies. Many researches has examined whether the language abilities of children who stutter (CWS) are equivalent to those of children who do not (CWNS). Two of these language abilities in lexical domain are lexical diversity and lexical density which are aspects of a greater concept: lexical richness. Lexical diversity is usually defined as the range and variety of vocabulary in a language sample. Lexical density provides a measure of the proportion of lexical items (i.e. nouns, verbs, adjectives and some adverbs) and function words in a language sample. Therefore, the current study is aimed to answer these questions using narrative discourse:

- How do 4 to 8 year old CWS compare to peers in their lexical diversity?

- What is the difference between 4 to 8 year old CWS and CWNS in their lexical density?

Based on Demands and capacities theory (Neilson & Neilson, 1987; Starkweather, 1987), that predicts that fluency breaks down when communication demands exceed individual capacities, the hypothesis of this study is vocabulary skills are weaker in CWS compared to peers.

2. Methodology

Participants: participants were14 CWS classified into two age groups: (4-6 and 6-8), and 14 age-matched CWNS as the control group selected through convenience sampling method (gender was not matched). None of the children had suspected any other language disorders and displayed typical social-emotional development, normal hearing ability and no neurological problems, according to speesh therapists reports. Data Collection: Samples were elicited by having children construct a story that correspounded to a wordless picture story, Frog where are you? (Mayer, 1969) with 29 pictures. The reason for chosing narrative task was narration often contains more complex language than

conversation because speakers use more adverbial clauses and elaborated noun phrases to tie multiple characters and actions together,so given better samples for lexical density. Data Analysis: Each participant's narration were audio-recorded and transcribed by researchers. Each word in samples was labled based on whether it is a content or function word. Content words was categorised as noun, verb, adjective and adverb. Function words consisted: prepositions, conjunctions, pronouns, articles, object marker, determiners and auxiliary verbs. Number of total words, number and frequency percentage of total content words, total function words, nouns, verbs, adjectivse and adverbs were calculated for each particapnt sample. For assessing lexical diversity, number of unique word roots dividing by the number of total words in samples of total narratives of 4-6 and 6-8 year old children in each group (CWS and CWNS) calculated by WordSmith (V6) software. MSTTR (Mean Segmental type-token ratio) algorithm is used in WordSmith which calculates type-token ratio in samples with defference size. SPSS software (V21) and nonparametric tests Mann–Whitney U test and Kruskal-Wallis used to conduct statistical analyses.

3. Results

The results revealed that CWNS demonstrated more lexical diversity compared to CWS, but the difference was not significant. CWS used more content words and less function words than CWNS in their narrations and the difference is statistically significant. Comparing different grammatical classes showed that CWS narratives contained more nouns than CWNS narrations, whereas CWNS have used more verbs, adjectives and adverbs. However, the difference in the percentage of adverb usage was the only statistically significant item.

4. Conclusion

The findings suggest some subtle level of lexical skills like using divers words

in length, phonological or phonetic complexity and other linguistic factors in CWS. It seems their linguistic capacities in producing fluent speech isn't less than communicative demands. Also some theories like EXPLAN predicts function words are more likely to be stuttered in children compared to content words, so less using of function words in CWS can be considered as an avoidance behaviour. As well as eliminating adverbs that are adjunct can be a strategy to avoid words that probably produced stuttered.