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Disfluencies in Typical Children Speaking Malayalam

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Abstract

Speech fluency, which refers to the smooth and continuous flow of speech, develops gradually in children and often includes normal disfluencies such as pauses, repetitions, and revisions. The present study aimed to examine disfluency patterns in typical Malayalam-speaking children aged 4–8 years and to compare these patterns across CBSE (English-medium) and Government (Malayalam-medium) school contexts. A total of 60 children in the age group of 4-8yrs who were further divided into two groups 4-5.11yrs,6-7.11yrs. Speech samples were collected using three tasks: general conversation, story narration, and song recitation. The obtained data was analyzed using independent samples t-tests and one-way analysis of variance (ANOVA) with SPSS version 23, considering a p-value of less than .05 as statistically significant. The results showed no significant differences between the two age groups across tasks, suggesting that disfluency patterns remain relatively stable within this age range. However, children from CBSE schools showed significantly higher disfluency rates compared to those from Government schools across all tasks. No significant difference was observed across the three tasks within each group. These findings indicate that educational and linguistic context may influence disfluency patterns and highlight the need for context-specific norms for accurate clinical assessment.

Keywords: disfluency, Malayalam-speaking children, bilingualism, CBSE, Government schools, fluency development

1. Introduction

Speaking is not always so easy. Sometimes it is hard to decide the proper sequence for the elements of a message. Otherwise finding the correct word can really be a problem. It's already difficult just to know what to say. Whatever the precise causes of these problems, they tend to result in hesitancy, as the speech is interrupted by pauses, fillers, repetitions, false starts or corrections.

Yairi (1982) stated that speakers, children in particular, have hesitations or disfluencies in their speech. Disfluency usually terminates around 3 years of age particularly in children who are on their way to being competent language users. According to Starkweather (1987), children learn to deal with failures in fluency, such as discontinuities, in a more sophisticated way as they get older and their speech becomes more fluent.

The word fluency has a root in the Latin word fluere and is related to the act of smooth and uninterrupted flow of speech (Stein, 1967). Fluency is the ability to talk with normal levels of continuity, rate, and effort. Speech is always without disruption, which in turn leads to breaks in fluency that can be normal or pathological. Fluency is the flow and continuity of speech production and is characterized as being effortless, rapid, and smooth (Starkweather, 1987).

Disfluency typically refers to the non-fluent speech of a non-stutterer, whereas dysfluency is stuttered speech of a stutterer. Dysfluency is another term used to describe stuttered speech in people who stutter. While developing language skills, between the age range from 2-6 years, nearly 80% of children go through a period of normal non-fluency. The children whose speech and language development are delayed will also remain dysfluent, as they are more likely to develop a sense of failure as a speaker and learn to fight with its speech attempts (Bloodstein, 1980;as cited in Silverman, 1996). The dimensions of fluency are continuity or smoothness of speech, rate of speech, effort taken while speaking, and rhythmic structure of speech (Starkweather, 1982).

The existence of disfluency is a common event in the production of natural speech. Most children, when their language skills develop, experience some level of disfluency that is typical, particularly in the range of 2-6 years. Such disfluencies are typically insignificant and can be spontaneously created. At the same time some children may become less disfluent in their talking, and some will repeat words, syllables or sounds, interject and/or make revisions as they talk. To distinguish the features of incipient stuttering from typical disfluency, stuttering investigators have recently turned their interest to the collection of normative data on the normal disfluencies of healthy young children.

Adams (1977) from a clinical outlook, "recording features of speech of young children who begin to stutter is necessary to provide the basis for meaningful norms, which will form the basis for the development and the validation of differential diagnosis of stuttering in early childhood". It is also known that speech and language acquisition and incipient stuttering occur at the same period of rapid speech and language development between 2.5 and 5 years of age (Bloodstein & Ratner, 2008).

Jansson-Verkasalo, Silven, Lehtio & Eggers (2021) examined speech disfluencies in 54 typically fluent Finnish-speaking children (2-9 years). The dysfluencies were transformed to rates per 100 words and syllables and analyzed in speech samples. Findings indicated that the effect of age was not significant in the 2 to 4 years old group but it was significant in the 6 to 9 years old group.

Kuriakos, Nadig, and Hiremath (2020) compared disfluencies in 120 children (age 4–5), 60 from North Karnataka (Dharwad) and 60 from South Karnataka (Mysuru). There was no gender difference and disfluency of children from north Karnataka was significantly higher than children from south in mean percentage of total disfluencies.

Joseph (2019) examined disfluencies in 3 to 5 years old Telugu-speaking normal preschool children. Results indicated that disfluencies were greater as age increased (from 3 to 5 years old). In comparison to females, males exhibited the greatest amount of total disfluencies.

Shreshta (2013) assessed development of fluency in 3-6 years old Nepalese-speaking children and found that 3 years old had maximum disfluencies followed by 4 years old, 5 years old, and least in 6 years old.

James and Kumaraswamy (2011) examined disfluencies in 3-6 years old typically developing Malayalam-speaking children and found that speech of 3-6 years old normal speaking children contains almost all the disfluency types. High proportion of silent pauses, sound/syllable interjection, whole word interjection, and whole word repetition were the most frequent disfluencies that occurred in the entire task.

Studies have been done in a few Indian languages like Kannada (Nagapoornima & Indu Yamini, 1990; Rajendraswamy, 1991), Hindi (Sharma, 1991), Malayalam (Joby, 1998 & Umarajan, 2000) and Tamil (Pauleene & Boominathan, 2008). These information given by them are so diversified. Because stuttering and other fluency disorders are seen in all cultures and in all languages, the recognition is to examine the development trends of fluency in children of culturally and linguistically diverse backgrounds (Brutten & Miller, 1998; Carlo & Watson, 2003).

Rojas & Camacho, (2023)research on bilingual and multilingual children has recurrently shown that exposure to two languages can influence the amount and kind of disfluencies, such as higher revision and interjection rates that could be related to lexical search .Children in Government schools on the other hand are taught in their mother tongue which may enable better fluency in first language.

Need of the Study

Speech disfluency is a normal part of language development in children. However, the type and frequency of disfluencies can vary based on age and language environment. Most existing studies have focused on English-speaking children, and there is limited research on Malayalam-speaking children. In India, many children grow up in bilingual settings, especially in CBSE schools where both English and Malayalam are used. This bilingual exposure may increase the cognitive and linguistic demands on children and influence their speech fluency. In contrast, children in Government schools are mainly exposed to their native language, which may result in different disfluency patterns. There is a lack of studies comparing disfluency patterns between these two educational contexts.

The present study aims to analyze and compare disfluency patterns in typically developing Malayalam-speaking children aged 4–8 years across different school contexts, age groups, and tasks, in order to provide better understanding and support for clinical assessment.

METHODOLOGY

AIM OF THE STUDY

The aim of the present study is to understand the speech disfluency patterns in 4 to 8 years old typically developing Malayalam-speaking children across CBSE and Government school contexts

Objectives

1) To analyze type of disfluencies across school contexts and age groups
2) To compare performance across tasks: general conversation, song recitation, and story narration.

Subjects

60 Malayalam-speaking children in the age range of 4-8 years participated in this present study. They were divided into two age groups (4-5.11 years & 6-7.11 years), with 30 children from CBSE schools and 30 from Government schools who are native malayalam speakers with no history of hearing impairment, problems with speech intelligibility or fluency, or any cognitive or neurological deficits.

Procedure:

Speech samples were collected in a controlled, sound-treated environment to ensure optimal audio quality. Participants were seated comfortably, and each child's speech was recorded individually using a mobile

phone's built-in microphone. The recording device was placed approximately one foot from the speaker to maintain uniform recording conditions across all participants. Subsequently, the speech recordings were processed and prepared for advanced statistical analysis.

DATA COLLECTION:

Three different tasks were elicited to understand disfluency in children:
1) General conversation
2) Story narration
3) Song recitation
The recording of each child for general conversation and story narration was 8 minutes each, and song recitation was 1 minute.

DATA ANALYSIS:

Types of disfluencies considered were:
1) Repetitions: this category included part-word repetition, whole-word repetition, phrase repetition.
2) Revision: the content of a phrase is modified or there could be grammatical modification
3) Interjection: sound/syllable interjection.
4) Prolongation: sound/syllable prolongations
5) Incomplete phrase
6) Silent pause
7) Broken words.

Results & Discussion

The present study aimed to examine speech disfluency patterns in typical children speaking Malayalam aged 4-8 years, comparing CBSE (English-medium) and Government (Malayalam-medium) school contexts. For this purpose, specific tasks were used to evaluate disfluency across three speech elicitation contexts

Table 1
Shows the type of disfluencies across age groups

						To compare 4-5.11 vs 6-7.11yrs		
Task			**N**	**Mean**	**Std. Deviation**	**t value**	**p**	
Song Recitation	**CBSE**	**4-5.11 YEARS**	**15**	**5.27**	**1.486**	**0.552**	**0.585**	**NS**
		6-7.11 YEARS	**15**	**5.00**	**1.134**			
	Government	**4-5.11 YEARS**	**15**	**2.47**	**0.990**	**0.336**	**0.739**	**NS**

		6-7.11 YEARS	15	2.33	1.175			
General Conversation	CBSE	4-5.11YRS	15	5.67	1.113	0.636	0.530	NS
		6-7.11 YEARS	15	5.40	1.183			
	Government	4-5.11 YEARS	15	2.20	1.265	-0.394	0.696	NS
		6-7.11 YEARS	15	2.40	1.502			
Story Narration	CBSE	4-5.11 YEARS	15	5.80	1.082	1.680	0.104	NS
		6-7.11 YEARS	15	5.20	0.862			
	Government	4-5.11 YEARS	15	2.27	1.668	0.983	0.334	NS
		6-7.11 YEARS	15	1.73	1.280			

Fig 1

Shows the type of disfluencies across age groups

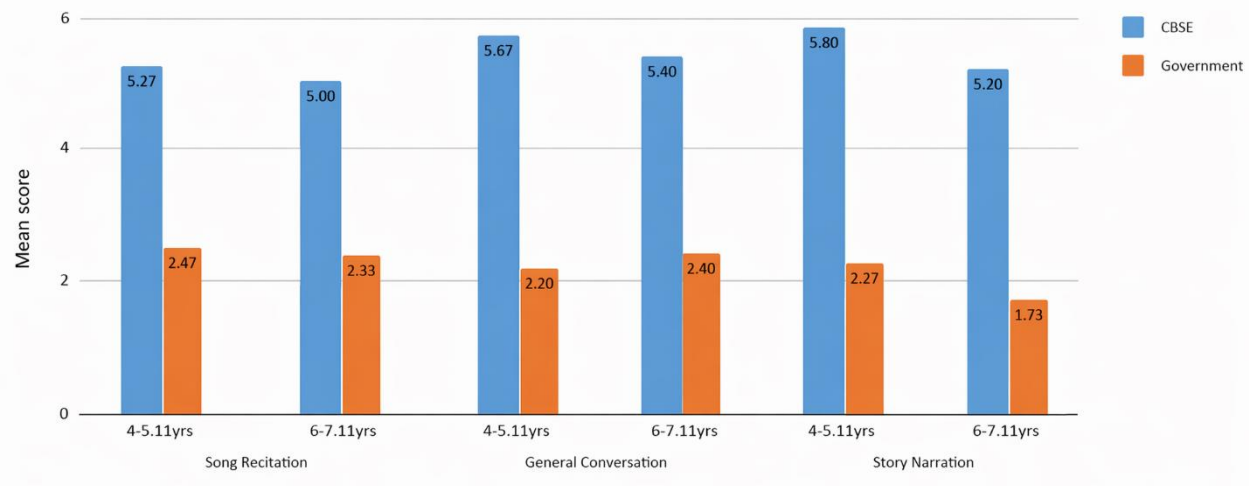

Table 1 and Fig 1 show the comparison of disfluency scores between the 4–5 years and 6–8 years age groups across CBSE and Government schools for Song Recitation, General Conversation, and Story Narration tasks. In the CBSE group, a slight decrease in mean scores is observed with age across all tasks, whereas the Government group shows minimal and inconsistent variations. Overall, the differences between the two age groups are small, and the t-test results indicate that these differences are not statistically significant for any of the tasks ($p > 0.05$).

Table 2

Shows the comparison type of disfluencies across school contexts CBSE vs GOVT

						To compare CBSE vs GOVT		
Task			N	Mean	Std. Deviation	t value	p	
Song Recitation	4-5.11 YEARS	CBSE	15	5.27	1.486	6.071	0.000	HS
		Government	15	2.47	0.990			
	6-7.11 YEARS	CBSE	15	5.00	1.134	6.325	0.000	HS
		Government	15	2.33	1.175			
General Conversation	4-5.11 YEARS	CBSE	15	5.67	1.113	7.970	0.000	HS
		Government	15	2.20	1.265			
	6-7.11 YEARS	CBSE	15	5.40	1.183	6.076	0.000	HS
		Government	15	2.40	1.502			
Story Narration	4-5.11 YEARS	CBSE	15	5.80	1.082	6.883	0.000	HS
		Government	15	2.27	1.668			
	6-7.11 YEARS	CBSE	15	5.20	0.862	8.701	0.000	HS
		Government	15	1.73	1.280			

FIG 2

To compare type of disfluencies across school contexts CBSE vs GOVT

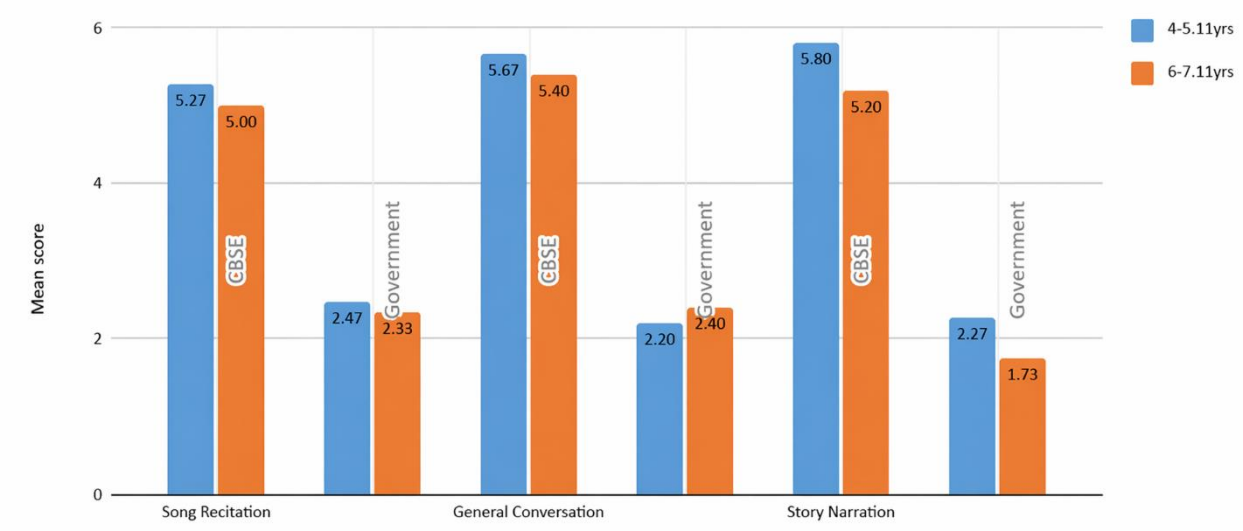

Table 2 and Fig 2 show the comparison of disfluency scores between CBSE and Government school children across 4–5 and 6–8 years age groups for Song Recitation, General Conversation, and Story Narration tasks. Across all tasks and both age groups, CBSE children consistently demonstrate higher mean disfluency scores than Government school children. The differences between school contexts are marked and consistent in all conditions. The t-test results reveal that these differences are statistically highly significant for all tasks ($p < 0.001$), indicating a strong effect of school context on disfluency patterns.

Table 3

Shows the comparison of performance across tasks: general conversation, song recitation, and story narration.

						To compare between the Tasks		
Age Group			N	Mean	Std. Deviation	One way ANOVA - F value	p	
4-5.11 YEARS	CBSE	Song Recitation	15	5.27	1.486	0.751	0.478	NS
		General Conversation	15	5.67	1.113			
		Story Narration	15	5.80	1.082			
	Government	Song Recitation	15	2.47	0.990	0.525	0.595	NS
		General Conversation	15	2.20	1.265			
		Story Narration	15	2.27	1.668			
6-7.11 YEARS	CBSE	Song Recitation	15	5.00	1.134	0.162	0.851	NS
		General Conversation	15	5.40	1.183			
		Story Narration	15	5.20	0.862			
	Government	Song Recitation	15	2.33	1.175	1.150	0.326	NS
		General Conversation	15	2.40	1.502			
		Story Narration	15	1.73	1.280			

Fig 3

Shows the comparison of performance across tasks: general conversation, song recitation, and story narration.

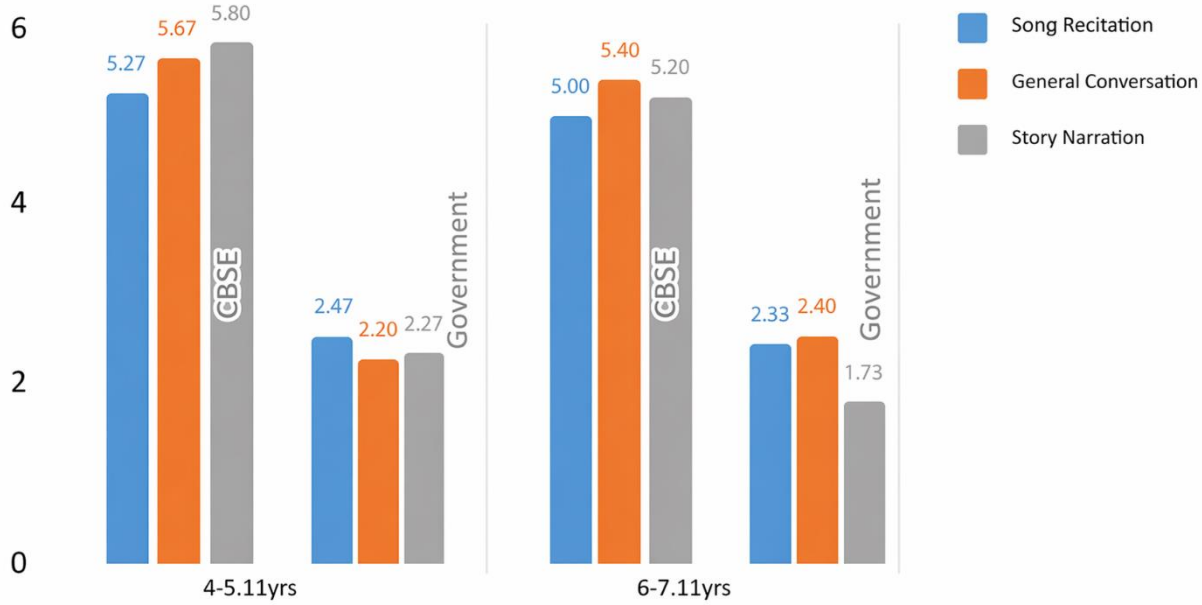

Table 3 and Fig 3 show the comparison of disfluency scores across the three tasks—Song Recitation, General Conversation, and Story Narration—within each age group (4–5 and 6–8 years) and school context (CBSE and Government). In both age groups, CBSE children demonstrate slightly higher mean scores across all tasks, with Story Narration and General Conversation showing marginally higher values than Song Recitation. In the Government group, mean scores remain relatively lower and show minor variation across tasks. However, the results of the one-way ANOVA indicate that the differences across tasks are not statistically significant for both age groups and school contexts ($p > 0.05$).

Discussion

The present study examined disfluency patterns in typically developing Malayalam-speaking children aged 4–8 years across CBSE and Government school contexts. The findings revealed that age-related differences in disfluency were minimal and not statistically significant, suggesting that disfluency patterns remain relatively stable between 4–5 and 6–8 years. In contrast, significant differences were observed across school contexts, with children from CBSE schools demonstrating higher disfluency scores than those from Government schools. This may be attributed to the increased linguistic and cognitive demands associated with bilingual exposure in CBSE settings. Task-wise comparisons indicated that general conversation and story narration elicited slightly higher disfluencies than song recitation; however, these differences were not statistically significant. Overall, the findings emphasize the role of educational context in influencing disfluency patterns in children.

Summary and Conclusion

The present study examined disfluency patterns in typically developing Malayalam-speaking children aged 4–8 years across CBSE and Government school contexts. The findings showed no significant differences between age groups, indicating that disfluency patterns remain relatively stable within this age range. However, significant differences were observed across school contexts, with children from CBSE schools demonstrating higher disfluency rates compared to those from Government schools. Task-wise comparison revealed no significant differences across general conversation, story narration, and song recitation. These findings suggest that educational and linguistic context plays an important role in influencing speech disfluency.

In conclusion, disfluency patterns in children are more influenced by language environment than age within the studied range. Children exposed to bilingual settings may show higher disfluencies due to increased linguistic demands. Therefore, it is important to consider contextual factors while assessing speech fluency. The study highlights the need for context-specific norms for accurate clinical evaluation and effective intervention in Malayalam-speaking children.

Limitations

The sample size was relatively small. The study was conducted within a specific geographic region, which may not represent all Malayalam-speaking populations. The study included only typically developing children, limiting its applicability to clinical populations.

Future Implications

Future research should focus on increasing the sample size to enhance the generalizability of findings. Longitudinal studies are recommended to track developmental changes in disfluency patterns over time. Additionally, including children with fluency disorders would allow for meaningful comparisons with typically developing populations.

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