

Investigating Familial Influence on Stuttering: A Descriptive Case Study in South Tangerang, Indonesia

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Abstract: A unique case of stuttering was found in South Tangerang, involving an entire family—both parents and their children—all exhibiting this kind of speech disorder. This study aims to investigate the nature and variation of stuttering experienced by each family member, with a focus on the structural placement of speech disfluencies, the situational conditions under which stuttering occurs, and the potential underlying causes. Employing a qualitative-descriptive research design, data were collected through interviews, direct observation, and stimulus-response techniques. The analysis was conducted through three linguistic lenses: structural (examining the linguistic form and placement of stuttering), cognitive (considering the influence of communicative context and processing load), and psycholinguistic (exploring internal and external causal factors). The findings reveal significant variation in the manifestation of stuttering among family members, with disfluencies occurring at different positions within utterances, affecting their sounds production, such as: 1). losing of several phonemes like /c/, /a/, and /m/; 2). repetitions, and 3). phonemes displacements. In addition, cognitive analysis showed that stuttering is triggered under varying communicative conditions. These findings suggest that both environmental and familial factors may play a significant role in the development and persistence of stuttering. This research contributes to the broader field of stuttering studies by offering new insight into hereditary and contextual influences on speech disorders within the Indonesian cultural and linguistic setting.

Keywords: Stuttering, speech disorder, phonology, sound production

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Introduction

Normally, the process of preparing words for speech production is fast and precise (Levelt et al., 1999) but in several cases, some people are often faced with various forms of language failure, each with its own characteristics. These failures can range from complex to mild, one of which is a language disorder known as stuttering. Stuttering is a speech disorder in which the flow of speech is unintentionally disrupted by repetitions and prolongations of sounds, syllables, words, or phrases, as well as unconscious pauses or blocks that result in failed sound production. This aligns with (Bailey et al., 2017) that explained stuttering as a speech condition that impairs fluency. According to (Chaer, 2009) and (Dardjowidjojo, 2005), stuttering causes speech disruptions such as abrupt pauses, repetition of the first syllable, or hesitation; yet, the speaker can only finish the phrase after overcoming these disturbances. These statements are influential as the basic foundation to this research.

Stuttering has been associated with malfunctioning brain, differences in brain anatomy, or condition due to genetic causes (Perez & Stoeckle, 2016). Stuttering in some cases can also be associated with worsened quality of life in adults (Corcoran & Stewart, 1998). In communication, stuttering is one of the rhythm and fluency disorders (dysrhythmia) in speech patterns (Daulay et al., 2021). The phenomenon discussed in this research is an anomaly. Typically, stuttering only occurs in one or two individuals within a family, but this case is different because the stuttering is experienced by several individuals simultaneously. Based on this situation, the researchers assume that there must be a cause behind the occurrence of this phenomenon. Therefore, through this study, that cause will be investigated.

Stuttering, as a form of speech disorder, can be identified as the interruption of speech at certain points, causing the utterance to be disrupted or hindered (Yairi & Ambrose, 2013). This causes the listener to be unable to accept the units of speech (Stojanovik et al., 2023; Perkins, 1990). According to several experts, stuttering often improves or even disappears in adulthood due to cognitive development. However, there are also cases where stuttering does not improve or disappear, and even into adulthood, an individual may experience permanent stuttering. This is in line with the findings of researchers, who have observed a phenomenon where stuttering occurs in an adult individual, and more interestingly, stuttering appears to be present in a family consisting of the father, mother, and both of their children.

Yairi et al (1996) mentioned that there is evidence showing the link between genetics and stuttering. A study of twins, nearly 70 percent of the variance in stuttering was attributable to genetics, with the remainder attributable to environmental influences. It demonstrated that stuttering does occur within families. According to the twin study, environmental variables account for the remaining variance in stuttering, whereas genetics accounts for almost 70% of the variation. Another research conducted by (Ambrose et al., 1993) showed that there is a possible connection between genetic and stuttering.

Additionally, he pointed out that stuttering can be brought on by a variety of things, including familial stress, strict parenting, a lack of freedom to express one's thoughts, or neurological damage to the hemispheres of the brain. According to Baihaqi (2016), stuttering is

a speech production failure brought on by abnormalities in the brain's Broca's region. Since stuttering is not correlated with intelligence, its severity might change throughout time, getting better or worse. Some cases show that stuttering takes on moderate to severe form in early childhood (Ambrose et al., 1993). Some experts call this issue as a kind of speech disorder. According to Lanier (2010) and Prayascitta (2008), stuttering is a speech impairment characterised by hesitancy when pronouncing words. He goes on to explain that this hesitation occurs when the speaker temporarily lacks the ability to articulate their ideas, which results in suppressed or repeated sounds until they are temporarily unable to communicate. This condition is often accompanied by muscle spasms in the neck and diaphragm due to imperfections in the speech muscles. Once the spasms subside or are managed, the speaker can resume speaking, although the spasms may reoccur.

The neurological and psychological aspects of stuttering have received much of the attention in previous research, with little focus on the importance of environmental factors, especially in familial contexts. Furthermore, there aren't many studies conducted in Indonesia in this field. By seeing this gap, the researchers want to explain the issue in terms of Indonesia settings. However, few studies have explored how familial dynamics and home environments contribute to the manifestation and severity of stuttering. This study uniquely investigates the relationship between home environment and stuttering, focusing on the impact of family interactions on the onset and progression of stuttering.

Based on the explanation above, the researchers try to determine that the symptoms of stuttering in an individual have several criteria, and the factors causing the stuttering are varied, including psychological, cognitive, and environmental factors. Additionally, those who stutter cannot be classified based on age, gender, or environmental background. This aligns with the findings of Guitar and Peters (1980), who reported that approximately 5 % of children in the United States experience stuttering, with children typically showing signs of speech disfluency between 18 months and 3 years of age. Although it is most prevalent between the ages of three and five, mild stuttering is typically seen between the ages of 18 months and seven. In contrast, older children—especially those around the age of seven—tend to have more severe stuttering. Stuttering is a modest kind of dysphasia, according to Chaer (2003), who also discusses the severity of stuttering. People who suffer from these symptoms exhibit traits including having trouble managing their speech, repeating words, and pausing abruptly when speaking. According to Teeson et al. (2003), knowledge about stuttering has changed over time. A system based on behavioral observations was developed as a result of their contributions to this subject. Stuttering is classified by this linguistic data as a speech mechanism that involves excessive behavior, stuck postures, and repetitive movements.

Individuals exhibiting symptoms of stuttering are often confronted with a range of challenges, encompassing both social difficulties and mental health concerns. Psychological issues such as low self-esteem, anxiety, and depression frequently emerge among those affected by stuttering. These issues are largely attributed to communication barriers encountered in various social contexts, including the workplace, educational institutions, and peer environments. This study aims to classify the manifestations of stuttering among individual family members and to provide a detailed examination of the underlying factors contributing to the widespread occurrence of stuttering symptoms within a single familial unit.

Theoretical Background

In this section, the discussion on the characteristics of stuttering includes various definitions and descriptions of the symptoms that emerge in individuals who experience stuttering. Generally, stuttering is divided into two types: developmental stuttering and neurogenic stuttering. In line with this, Dewi & Putri (2022) explains that developmental stuttering refers to stuttering symptoms that occur during the speech development stage of a child, when the child is learning to speak. In addition to stuttering resulting from the learning process, developmental stuttering is often also caused by genetic factors, which has led to research findings showing a consistent pattern of stuttering occurring within families. On the other hand, neurogenic stuttering is a form of stuttering caused by brain injury, which may result from conditions such as stroke, head trauma, or other types of brain injuries. The symptoms of these two types of stuttering differ because the damage in neurogenic stuttering is more severe, as it involves significant impairment of the brain's hemispheres.

Differentiating stuttering can be done by looking at its signs. For instance, stuttering can include significant pauses at the start of a speech, repeating sounds in syllables, or elongating sounds in words. These three characteristics are frequently seen in stutterers. One of these symptoms may be present in a person, or all three may manifest at the same time. For example, someone may stretch the sound "maaaaaaaa," then "maaaaaaa-ma-ma," and then hesitate for a long time as they find it difficult to enunciate.

Another way to classify stuttering is by when the symptoms first appear. Stuttering that starts between the ages of two and six, for instance, is frequently seen as normal and not a speech issue. According to Prins & Ingham (1983), children are still developing the linguistic abilities necessary to communicate their ideas at this age. But when a youngster enters school age, issues start to occur. Stuttering or disfluencies are thus viewed as a language disability, which can result in social problems including peer bullying and scholastic challenges. Numerous cases show that stuttering youngsters may experience a decline in confidence, which impacts their social relationships and frequently results in social disengagement. If stuttering continues into adolescence and maturity, the problem becomes more complicated. At this point, it might be difficult for stutterers to build their sense of self and identity.

According to Fahmi & Rosidin (2022), stuttering can be classified as either acquired or developmental. This is in line with other experts' opinions, which state that children under the age of five are more likely to experience developmental stuttering. On the other hand, acquired stuttering is permanent and usually affects adults or older people. It is frequently brought on by developing neurological illnesses or brain injuries like strokes. Psychological and emotional trauma or the use of specific drugs can also cause acquired stuttering.

There are differences in brain hemispheres between individuals who stutter and those who do not (Wingate, 1964). When the right hemisphere of the brain does motor programming for language units and both hemispheres process incoming information, stuttering may result. This situation shows the lack of brain's capacity to control linguistic segmentation in particular situations, such as semantic and syntactic processing (Fox & Hampton, 2008). In certain stutterers, it might suggest the significance of language segmentation linked to motor

programming. This problem could be difficult to manage and could be accompanied by other behaviours and unpleasant feelings like annoyance, humiliation, or anxiety.

The factors of Stuttering

Numerous experts have examined the elements that lead to a person developing stuttering. Each of these points of view might support the others or possibly run counter to the proposed theories. For example, some argue that cognitive development influences language development, while others contend that contextual factors impact language proficiency or that the appropriateness and intensity of stimuli determine linguistic aptitude. For instance, the time a child learns their first language has an impact on their language development, according to Ariyana (2019). Environmental elements pertaining to the child's growth is also impactful. These two elements define a child's cognitive capacity for language acquisition, whether it can be by visual, auditory, or audiovisual means.

Related to this, it can be outlined that the causes of stuttering may result from both internal and external factors. In terms of internal factors, stuttering may begin due to a genetic predisposition inherited from both parents. On the other hand, external factors can arise from dysfunctional parenting, especially when there is disharmony between the parents during the child's developmental phase.

Fahmi & Rosidin (2022) explains that speech disorders, such as stuttering, can be caused by several factors, including the conditions related to the situation during speaking, genetic factors related to the parents, external factors due to long-term use of certain medications, and nerve disorders that are related to speech ability (neurogenic). In line with this, Ingham (2003) explains that functional brain imaging research over the last 10–15 years has consistently shown that the speech of adults who stutter is associated with unusual brain activity. While findings are sometimes quite divergent. Additionally, Namasivayam & van Lieshout (2008) state that although it is widely believed to be caused by a deficit in neural processing for speech, this is influenced by linguistic and environmental factors.

Neurogenic reasons stemming from brain damage can induce stuttering. According to this study, stuttering can be distinguished from stroke patients' tendency in repeating words. The repeated words of stutterers nevertheless have significance in every syllable. This case may cause distinct kinds of disfluencies in people with neurogenic stuttering, and some characteristics are evident in all of them (Van Borsel & Taillieu, 2001).

Treatments for Stuttering Symptoms

Stuttering is something that many people with the case try to get over. This is due to the barriers in communication and the negative stereotypes associated with people who stutter. This aligns with Fidhzalidar's (Winter & Perrek, 2023) view that these barriers are often worsened by the lingering negative perceptions of society towards people with stuttering. In line with that, some studies related to public awareness of stuttering was conducted by experts (Abdalla & St. Louis, 2012., Chu et al, 2022., and Ma et al, 2024). As a result, persons with stuttering disorders often lack of self-confidence and self-esteem. When someone speaks, it's not just the speech organs and words that need to be prepared, but more than that — the person must be mentally, emotionally, and psycho-motorically ready, so that their pronunciation is fluent and accurate in word choice.

There are various methods and approaches for addressing this condition. One of the most used methods is speech therapy, specifically designed to address speech disorders like stuttering. Another approach is psychological treatment. The therapy under this method focuses on emotional maturation, helping individuals feel more comfortable when communicating. Both of these therapies have proven successful in addressing language and stuttering issues.

Methods

Research Design

This study employs a qualitative-descriptive research design to explore the phenomenon of stuttering. This approach enables a more comprehensive and nuanced analysis. The research seeks to address the following questions: *How is stuttering manifested among the five family members?* and *To what extent do familial and environmental factors influence this condition?*

The data were obtained through the researcher's focused observation of the speech processes occurring within the family. The observation process was reinforced by record techniques and verbal interactions conducted by the researchers. In line with this, Moleong (2017) explains that the descriptive method contains data, such as reports, that include citations to provide detailed presentation which may come from interview transcripts, field notes, photos, videotapes, personal documents, notes or memos, and other official documents. By adapting one of the data collection methods used by Manshur & Zaidatul, (2021), namely recording technique, the data in this study are valid as it aligns with the natural findings in the field.

Additionally, this study's data collection and analysis techniques involved the medical records held by each research subject. These medical records contain information related to the subjects' history of medication use or any medical treatments they have undergone. This approach is based on various theories that explain how stuttering may be influenced by multiple factors, one of which is the use of antidepressant medication.

Research Subject

Subjects of this research are five people of a family. They are having the same condition at this time, which is stuttering. To accommodate the analysis description, we code the subjects with specific criteria: RS is the acronym of *research subject*, RS1 for the father, RS2 for the mother, RS3 for the first child, RS4 for the second child, and RS5 for the third child.

Research Instruments

To obtain the data, the researcher conducted interviews with the five research subjects. The interview questions were prepared by referring to specific factors such as medical factors and family social interactions as can be seen in the following table:

Table 1
Research Instrument

No.	Questions	Answers
1.	<i>Bisakah Anda ceritakan tentang diri Anda?</i>	...

	(Can you tell us about yourself?)	
2.	<i>Apa aktivitas Anda sehari-hari?</i> (What is your daily routine?)	...
3.	<i>Sejak kapan Anda mengalami kegagapan?</i> (Since when have you experienced stuttering?)	...
4.	<i>Apakah Anda pernah memiliki riwayat medis terkait dengan kegagapan Anda?</i> (Have you ever had a medical record related to your stuttering?)	...
5.	<i>Siapa saja yang tinggal di rumah ini?</i> (Who lives in this house?)	...
6.	<i>Seberapa sering keluarga berkomunikasi satu sama lainnya?</i> (How often does the family communicate with one another?)	...

Analysis Technique

The data collected in this research are analysed by phonological approach to see how the phonemes of stuttering sufferers produced. After doing interview, the researchers classified the phonemes according to the anomaly occurrence in every single utterance produced by the research subjects. The anomaly of sounds found in the subjects are clustered in three categories. They are: 1). The losing of phonemes; 2). the repetition; and 3). phonemes displacement. The framework of analysis technique is adapted from Bailey, et al (2017).

Results

The characteristics of stuttering observed in each research subject show similarities. Therefore, in this study, the researcher has established several categories to determine the severity of the stuttering. The first category is the location of the interruption, which can occur at the first word, middle of the sentences, or the last word within a sentence. The second category involves the stops in a syllable of words that has more than one syllable. The third category is the addition of phonemes or speech sounds during a pause when the stuttering happened. These three categories will later be correlated with the interview results regarding the causes and the onset of stuttering symptoms in each research subject. This aligns with the formulation of the research problem outlined in this study, which is related to the characteristics of stuttering and the causes of the stuttering phenomenon in an entire family. The data analysis for each research subject is as follows:

The utterances from Research Subject 1 (RS1):

01 : *"pa..pa..pa ling bapak besok ke sinillagi"*

02 : *"yang kecil d..ari la...hir ikut sa...ma saya di Rempoa"*

03 : *"harganya 80 ribu,ni udah saya ka.....sih yang bagus"*

04 : *"....u....tup jam sembil....an kalo mau pesen dari se..se..se karang, bos"*

05 : *"bahk...annya dikasih kaca, kualitas udah bagus ini."*

From the first category, stuttering in RS1 occurs in all parts of words within the sentences. This means that stuttering happens at every phase of speech, from the beginning, middle, to the end of utterances. Based on the researcher's observations, the most frequent stuttering occurs at the beginning of words. It can be seen in data no. 01, 04, and 05. In the second category, stuttering happens in all positions of the syllables. For example, in data 01, stuttering occurs on the first syllable, such as *"pa..pa..pa.."*. The sound of the first syllable was reduplicated three times. This type of reduplication often occurs in words consisting of two syllables. In the middle of sentence, stuttering happened in word *"la..hir"*. In this case, the research subject has difficulty in placing the /h/ phoneme, which should be in the first syllable.

In the third category, there are several changes of phonemes that occur at the point of sonority, i.e., at the syllable. These changes happen when the subject experiences stuttering. For instance, the word *tutup* (close) is pronounced as *"utup"*, where the consonant /t/ is faded. This condition occurs because of RS1 is stuttering and ends up repeating the word as they attempt to pronounce it. Additionally, a phoneme change in data 05 shows the addition of the phoneme /k/ in the word *bahan* (material), turning it into *"bahkan"*. This happens when the subject reaches the second syllable and stutters, he is spontaneously adding the phoneme /k/ in the middle of the word.

As additional information, RS1 is 52 years old man. He has been experiencing stuttering for more than 15 years. Based on the interview, RS1's stuttering began due to a medication that was consumed regularly in their 30s. The medication was a specific type of antidepressant. It was only after SP1 stopped taking this medication that the stuttering symptoms began to appear. Initially, it only occurred with difficult words that had long syllable counts, but the symptoms progressively worsened. In his case, the stuttering occurred in every form, length, and position of the word.

Based on the analysis, RS1 can be classified as an individual with neurogenic stuttering. This is evidenced by the high frequency of disfluencies occurring at various word positions within a sentence—whether at the beginning, middle, or end. Furthermore, the stuttering behaviour has been exhibited repetitively and consistently for over 20 years. These findings align with the established characteristics of neurogenic stuttering, which typically emerge in individuals of mature age.

Additionally, the researchers observed that the stuttering pattern in RS1 manifests as disfluency characterized by hesitation to continue a word within a given sentence context. This hesitation leads to speech interruptions, and when attempting to resume speech, RS1 appears to struggle with selecting the appropriate word or seems to be impeded by an internal blocking mechanism.

The utterances from Research Subject 2 (RS2):

- 06 : *"airnya ditambahin biar aa.aa. gak panas"*
- 07 : *"Ba.ba.ba paknya belum pulang, paling besok lagi aja kesini"*
- 08 : *"tu bo....ocah gak ada sama sekali tanggung jawabnya"*
- 09 : *" nama saya Marni. "*

From the data above, we can see that there are no big differences between RS1 and RS2. However, the stuttering in RS2 tends to occur less frequently than RS1. In the first and second categories, RS2 experiences stuttering based on word placement and syllable position. As for the third category, RS2 does not show any addition or omission of phonemes during their speech. In data 06, the stuttering occurs in the middle of the sentence, and the repetition happens at the first syllable of a two-syllable word.

An interesting phenomenon is that RS2's stuttering consists of two types: reduplicative stuttering and silent stuttering. Reduplicative stuttering is observed in data 06, while silent stuttering is seen in data 08. Based on the investigation, it is known that RS2 has been stuttering for almost 10 years.

RS2 is identified as an individual with developmental stuttering, characterized by mild disfluencies, primarily occurring at the beginning of sentences. Given RS2's age, these disfluencies align with typical patterns observed during the development of oral and reading fluency. The stuttering mainly manifests as interjections and hesitation, with minimal self-correction. RS2 often omits or substitutes problematic words. Environmental factors appear to significantly influence the frequency and intensity of the stuttering episodes.

The utterances from Research Subject 3 (RS3):

- 10 : *"ku....liah di Un...pam pak, ma....suk pagi."*
- 11 : *"terusan ti.....ketnya, kalo bia....sa malah mahal."*
- 12 : *"ambil ke mana pa...k, ini ka....pata u....dah selesa.i."*
- 13 : *"macet te....rus, kagak ada berhentinya."*

Based on the data, it is evident that RS3 has certain characteristics of stuttering. These characteristics are reflected in the type of stuttering that involves pausing or holding back at specific syllables in speech. This pattern appears consistently across all the data collected from RS3. In the first category, which is based on the word placement in sentence constituent, it can be seen that the research subject experiences stuttering in all positions — at the beginning, middle, and the end of sentences.

The tendency for stuttering in RS3 is more complex compared to the two previous subjects, as seen in the greater number of words affected by stuttering. In one utterance, stuttering can

occur in two to three words, as seen in data 10, which consists of seven words, three of which are stuttered. In the second category, which is based on syllable position, stuttering occurs in all parts of the word. For instance, in data 12, stuttering occurs on the first syllable of the word “udah”, pronounced as “u.....dah”. Stuttering in the middle syllable can be seen in data 14, with the pattern of holding back on the second syllable “bia...sa”. Meanwhile, stuttering at the final syllable is seen in data 12, with the final syllable “...sa...i” held back in the word *selesai*.

An interesting phenomenon in RS3's stuttering, similar to RS2, is the change in phonemes that occur during stuttering. This can be observed in data number 12, where the phrase “*ambil ke mana pa...k, ini ka...pata u...dah selesai...i*” is produced. The word “*ka...pata*” (which should be *kacamata*) shows the losing of several phonemes — /c/, /a/, and /m/ — which changes it to /p/. Based on the researcher's observation, these losing of phonemes happen due to hesitation in speaking. The research subject shortens several syllables, forming a new word. Based on the findings, RS3 has been stuttering for 8-10 years.

While speaking, RS3 shows other physical symptoms that differ from the other subjects. These include eyes blinking, a reddening face with visible tension, neck muscle twitches, and hands that cannot remain still, often clenching into fists. Based on the literature review conducted by the researcher, such symptoms are commonly found in individuals with stuttering.

Although RS3 is still in adolescence, their stuttering appears relatively severe and varied, indicating characteristics of neurogenic stuttering. Recurrent secondary behaviors further support this classification, with the possibility of a more specific categorization as psychogenic stuttering. This type is often accompanied by physical movements during stuttering episodes.

The utterances from Research Subject 4 (RS4):

- 15 : “Mah, bu, nya su.. su.. sah amat dipanggil”
- 16 : ... nanti pu ... pu... pu lang sekolah aja, jamal nama anaknya”
- 17 : “kemarin kan udah, bapak do... do... sen Unpam”?
- 18 : “orang gak ada siapa-siapa, pa... pa... da pergi semua”

Based on the data above, it can be seen that the stuttering occurred in RS4 has reduplication pattern. This repetition occurs on several syllables, repeating one, two, or even three times. The repetition pattern or reduplicative stutter is similar to the data from RS2, which is the mother.

In comparison to the other study participants, RS4 exhibits the least severe stuttering, according to the researcher's findings. Stuttering typically happens in one or two words in a single utterance, whether it be basic or complex. All of the data, from data 15 to data 18, make this clear. RS4 spoke clearly and even showed that he could control his behavior when he was about to stutter throughout the interview. It's crucial to remember that RS4 has stuttering for the last seven years. When RS4 went back to live with his parents and siblings after attending

school for a year or two, the stutter reappeared. At the moment, RS4 is a sophomore in high school. This indicates that the stuttering experienced by RS4 could be influenced by his home environment.

The utterances from Research Subject 5 (RS5):

19 : *"nama saya Cipto. Usia saya sebelas ta.. hun"*

20 : *"belakangan ini aja gagapnya, dulu waktu ke..cil enggak"*

21 : *"nanti sama bapak dianter, pulang nya sama temen banyakan, sa..ya baru bisa pulang kalo enggak nanti bapak marah"*

22 : *"... SMP sekolahnya, mundar-mandir gak jelas tiap hari, ma... na sekolahnya jauh."*

Based on the data, it is obvious that RS5 has onset stuttering, evidenced by the slightly shorter stuttering symptoms that occur in each words. The symptoms of RS4 and RS5 stuttering patterns are nearly identical. The component that makes the difference is the syllabic pause. Following examination, it may be shown that stuttering symptoms only appear in words with two syllables, with the stutter in the first syllable.

Additionally, RS5 exhibits a physical indication of facial reddening when exposed to a term that promotes stuttering. This keeps happening over and over. According to the findings of the interview, the participant is unable to provide a detailed recollection of the onset of stuttering symptoms.

RS5 is identified as experiencing developmental stuttering, characterized by non-permanent disfluencies that can be significantly reduced with careful and focused speech. The stuttering primarily manifests as sound prolongation in the middle of sentences without abrupt interruptions. Given RS5's very young age, appropriate evaluation and intervention are crucial. Despite the stuttering, RS5 demonstrates advanced language comprehension and cognitive skills likely relative to their age.

Conclusion

In conclusion, the study reveals that each participant demonstrates a unique manifestation of stuttering, shaped by three key factors: the lexical positioning of the disfluency, the syllabic location within the utterance, and the occurrence of phonemic alterations during speech disruptions. The findings reveal significant variation in the manifestation of stuttering among family members, with disfluencies occurring at different positions within utterances, affecting their sounds production, such as: 1) losing of several phonemes like /c/, /a/, and /m/; 2) repetitions, and 3) phonemes displacements. Moreover, according to environmental observations and supported by medical documentation, it suggests that these speech patterns are most likely influenced by familial environmental conditions and the pharmacological effects of prescribed medications.

These findings contribute to the growing knowledge on the multifactorial nature of stuttering by emphasizing the complex interaction between linguistic structure, individual neurophysiological responses, and external environmental factors. This nuanced understanding may inform more personalized approaches to diagnosis and therapy, particularly in cases where stuttering presents heterogeneously within a single family unit. Future research is recommended to explore the longitudinal development of stuttering in similar familial contexts, as well as to investigate the specific neurocognitive and sociolinguistical aspects that may underpin such variability in stuttering patterns. Additionally, cross-cultural and multilingual studies could further elucidate the extent to which these influencing factors are universal or language-specific

Author Contribution Statement

Author 1: Conceptualization and Research Design; Data Curation and Investigation; Writing - Original Draft; Editing. **Author 2:** Methodology; Writing - Review & Editing; Validation. **Author 3:** Formal Analysis; Writing - Review & Editing.

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