PUBLIC AWARENESS ON SPEECH DELAY IN CHILDREN UNDER 5 YEARS

Project Report submitted to the

ST ALOYSIUS COLLEGE (AUTONOMOUS)

ESTD : 1880

in partial fulfilment of the degree of

BACHELOR OF SCIENCES

by

LARREN PETER PINTO

Reg No: 2120805

III BSc (SCs)

Under the supervision of

Ms Shwetha Bangera

to

The Department of Statistics

ST ALOYSIUS COLLEGE (Autonomous)

MANGALURU - 575003

Karnataka, INDIA

APRIL 2024

ST ALOYSIUS COLLEGE (AUTONOMOUS)

MANGALURU-575003

ESTD : 1880

DEPARTMENT OF STATISTICS

PROJECT CERTIFICATE

Certified that this is the bonafide record of project work done by Larren Peter Pinto during the year 2024 as a part of her/his B.Sc. (Statistics) VI semester course work.

Reg No: | 2 | 1 | 2 | 0 | 8 | 0 | 5 |

Project Guide   Head of the Department

Examiner

1.

2.

Date:10 April 2024
Place: Mangaluru

DECLARATION

I, **Larren Peter Pinto**, hereby declare that the matter embodied in this report entitled "**Public Awareness on Speech Delay in Children Under 5 Years**" is a bonafide record of project work carried out by me under the guidance and supervision of **Ms Shwetha Bangera,** Department of Statistics, St Aloysius College (Autonomous), Mangaluru, Karnataka, India. I further declare that no part of the work contained in the report has previously been formed the basis for the award of any Degree, Diploma, Associateship, Fellowship or any other similar title or recognition of any other university.

Date: 10 April 2024   Larren Peter Pinto
Place: Mangaluru   E-mail: larrenpinto628@gmail.com

ACKNOWLEDGEMENTS

Firstly, I would like to thank our Principal Rev. Dr. Praveen Martis SJ for providing the necessary facilities for the completion of this project work in our college.

I gratefully acknowledge my teachers at the Department of Statistics, St Aloysius College (Autonomous), Mangaluru, for their support during my project work.

Date: 10 April 2024   Larren Peter Pinto
Place: Mangaluru

Table of Contents

Abstract

This research initiative delves into the multifaceted nature of speech delay in children, examining the intricate interplay between various factors such as family history, gender, and the quality of parental care. Through the inclusion of a diverse sample of children and extensive data collection methods, including surveys, the study aims to elucidate the relationships between these key variables and the occurrence of speech delay. Notably, the research endeavours to uncover potential gender-related differences in speech development, considering variations in rates and manifestations of speech delay between boys and girls. Moreover, it seeks to understand how parental care practices can either contribute to or mitigate the risks of speech delay, emphasizing the crucial role caregivers play in fostering language development. By investigating prevalence rates across different age groups and genders, as well as identifying common sources of knowledge and attendance at awareness programs, the study aims to inform targeted interventions and support services. Furthermore, the findings shed light on the prevalence of speech delay across different age groups and genders, common sources of knowledge and attendance at awareness programs, as well as the effectiveness of home-based interventions. Through detailed examination of milestones, consultation patterns with therapists, and measures taken at home, is conducted to provide a comprehensive understanding of speech delay and strategies for its management. This research contributes to the ongoing efforts to improve speech development outcomes for children and enhance awareness among caregivers.

Keywords: Speech delay, Developmental milestones, Speech and Language development, Speech gender-related disparities.

CHAPTER 1

1.1 Introduction

As social beings, humans require a tool to interact with one another in their lives. Speech capability as a means of communication among people makes speech development, particularly in children, a concern for every parent. Numerous parents are upset when they find out that their child, who has entered the age range of 2–5 years, has constraints in terms of the capability to speak.

The child's speech delay could have been caused by the child's physical condition and environmental factors. Constraints due to physical factors, of course, can be handled by medical treatment, but impairments in the capability to speak due to environmental factors are a different problem that generally arises in informal education. This is because informal education, generally referred to as education in the family, is the first place a child learns to speak. Miscalculations made by parents and family in training the child's speech will produce a problem in the child's speech development. Kahlmar (2008) argued that the surroundings with lots of speech expressions is a place that encourages children to speak and exemplifies the use of emphasis, association, and shoptalk to help children develop and ameliorate their language chops. Meanwhile, Nilsen (2004) revealed that the capability to speak is the use of voice in expressing intentions to others in the form of words containing meaning to be understood by others.

At the heart of my investigation lies the examination of various tests aimed at elucidating key aspects of speech delay. We begin by analyzing the mean age differences between children with and without speech delay, seeking to identify potential patterns and trends that may inform early detection and intervention efforts. By comparing the developmental trajectories of these two groups, we hope to gain insights into the factors contributing to speech delay and potential avenues for targeted support. Gender-based disparities in the prevalence of speech delay represent another crucial aspect of our analysis. By determining whether there is a difference in the proportion of cases between genders, we aim to uncover any potential gender-specific risk factors or underlying mechanisms contributing to speech delay. Understanding these disparities is essential for tailoring interventions to address the unique needs of boys and girls affected by speech delay and promoting equitable access to support services.

Beyond demographic variables, we delve into the association between speech delay and family history, recognizing the influence of genetic and environmental factors on speech development. By examining the prevalence of speech delay among children with a family history of communication disorders, we aim to elucidate the interplay between genetic predispositions and environmental influences in shaping speech outcomes. This exploration is essential for informing genetic counselling practices and guiding interventions aimed at mitigating the impact of familial risk factors on speech development. Therapeutic interventions play a pivotal role in supporting children with speech delay on their journey towards improved communication skills. Through rigorous analysis, we seek to assess the effectiveness of therapeutic interventions by examining significant differences in speech development before and after therapy. By quantifying improvements in speech outcomes following therapeutic interventions, we aim to provide empirical evidence supporting the efficacy of various intervention approaches and informing best practices in clinical settings.

In addition to quantitative analysis, the project incorporates diagrammatic representations to provide visual insights into the demographic composition of respondents, prevalence rates across age groups and genders, and the distribution of parental involvement and knowledge regarding speech delay. These visual representations offer a comprehensive overview of the landscape surrounding speech delay, facilitating a deeper understanding of its prevalence, correlates, and implications for child development. By unravelling the intricate relationship between various factors and speech delay, this project seeks to inform parents and other care-takers in implementing evidence-based strategies to mitigate speech delay and enhance developmental outcomes in children. Thus, it's important to study the causes of the speech delay that happened to the child in order to find proper treatment to break the problem.

1.2 Literature Review

Shriberg et al. (1997), suggested that speech delay refers to the condition when a child's speech isn't in agreement with the child's development, linked by speech sound patterns. By providing a comprehensive framework and extensive data, this work contributes to our understanding of speech disorders across different age groups.

Dale et al. (1998), examined the association between speech delay and family history, highlighting the role of genetic predispositions and familial influences in speech delays among children.

Law et al. (2003), evaluated the effectiveness of speech therapy in improving speech development before and after therapy. Their study provided valuable insights into the efficacy of intervention programs in enhancing speech outcomes for children.

Alexander (2004), Pedagogy is described as 'the converse that informs and justifies the act of tutoring and literacy'. This article delves into the dynamics of pedagogy, highlighting the interplay between principles, pragmatism, and compliance in primary education

Zubrick et al. (2007), investigated gender differences in speech development and whether there is a difference in the proportion of speech delay cases between boys and girls. Their study revealed important insights into potential gender-related disparities in speech development.

McLeod et al. (2009), explored the relationship between parental confidence levels, educational levels, and understanding of speech development. Their findings emphasized the importance of parental involvement and education in supporting children's speech development.

Tomblin et al. (2009), conducted a longitudinal study examining the mean age differences between children with and without speech delay. They found that early identification and intervention are critical for improving speech outcomes in affected children.

Bond et al. (2009), proposed that the vocabulary used for speaking is from simple to complex rulings. They provided practical strategy for educators to create interactive learning environments that stimulate language acquisition and communication skills in young learners.

McLaughlin (2011), suggested that language development is a capability beyond acquiring vocabulary but also in producing language, which is used to communicate through colourful expression in conveying communication, feelings, and indeed ideas.

Santrock (2014), recommended that the people, grown-ups, and peers are supposed to help and encourage them in literacy, allowing them to go beyond the area where they can do so without others' help It means that the presence of others with a better understanding of particular literal and artistic practices could help children to be better.

Choo YY et al. (2019), emphasizes the importance of early detection and management of developmental delay within primary care. By implementing various evidence-based interventions and providing ongoing monitoring, these efforts contribute to improved developmental outcomes and societal integration for children with developmental delay.

Jullien (2021), the study highlights the importance of screening for language and speech delay in children under five. Early detection allows for timely intervention, crucial for maximizing developmental outcomes. Integrating screening into paediatric care practices is essential for fostering early communication skills and reducing long-term developmental challenges in children.

Esnazarova Zulfiya Oljabaevna (2022), sheds light on the impact of gadgets on children's development, particularly in relation to delayed speech. She highlights the importance of promoting balanced gadget use and providing alternative activities that foster healthy development in children.

1.3 Objectives

The purpose of the study was to evaluate public perception of speech delay in children.

- To find out the significant difference in the mean age between children with and without speech delay.
- To determine whether there is difference in the proportion of speech delay cases between genders.
- To analyze the association between speech delay and family history.
- To determine the significant difference in speech development before and after therapy.
- To investigate the relationship between individual's confidence levels in understanding the development of child speech and language and their education levels.
- To analyze the data through diagrammatic representation and graphs.

CHAPTER 2

2.1 Methodology

Using Cochran's formula, the sample was set at 390 units. Data collection was done using a spreadsheet linked to an online Google Form questionnaire. The Google form was circulated among the people in Mangalore. Data collection was done during the time period from the 1st of September 2023 to the 10th of January 2024. Data were exported, analyzed using Excel and SPSS, and visualized using Microsoft Power BI.

The independent samples t-test is used to determine whether there's a significant difference between the means of two independent (unrelated) groups. It's helpful when you want to compare the means of two different populations or groups to see if there's a statistically significant difference between them.

The Z-test for proportions is a statistical test used to examine if the percentage of successes in a sample differs substantially from a population proportion hypothesized. It is typically employed when comparing a sample percentage to a known or estimated population proportion.

The Chi-square test for independence is a statistical method used to determine if there is a significant association between two categorical variables. It's often applied to analyze the relationship between different attributes or factors.

The paired t-test is used to compare the means of two related groups or conditions. It's particularly useful when the data is paired or matched in some way – for example, when the same group of individuals is measured before and after an intervention, or when pairs of individuals are matched in some manner.

The Kruskal-Wallis test is a non-parametric statistical test used to determine whether there are statistically significant differences between two or more independent groups. It's often used as an alternative to the one-way analysis of variance (ANOVA) when the assumptions of ANOVA, such as normality and homogeneity of variances, are not met.

The diagrammatic presentation of data gives an immediate understanding of the real situation to be defined by the data in comparison to the tabular presentation of data or textual representations. The various representations used are pie-chart, bar graph and donut chart. A pie-diagram is a circle that is divided into sections and a bar graph consists of a group of rectangular bars of equal width for each class or category of data. A donut chart present categories in the form of arcs instead of slices.

2.2 Statistical Analysis

2.2.1 To find out the significant difference in the mean age between children with and without speech delay.

H_0: There is no significant difference in the mean age between children with and without speech delay.

H_1: There is a significant difference in the mean age between children with and without speech delay.

Group Statistics					
	Speech delay	N	Mean	Std. Deviation	Std. Error Mean
Age	YES	203	3.31	1.384	0.097
	NO	187	3.07	1.358	0.099

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
						Significance				95% Confidence Interval of the Difference
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Age	Equal variances assumed	0.355	0.552	1.658	388	0.049	0.098	0.231	0.139	-0.043	0.504
	Equal variances not assumed			1.660	386.461	0.049	0.098	0.231	0.139	-0.043	0.504

Here p-value is more than significance value (0.05). Hence, we accept the null hypothesis and conclude that there is no significant difference in the mean age between children with and without speech delay.

2.2.2 To determine whether there is difference in the proportion of speech delay cases between genders.

H$_0$: There is no difference in the proportion of speech delay cases between genders.

H$_1$: There is a difference in the proportion of speech delay cases between genders.

Independent-Samples Proportions Group Statistics					
	Gender	Successes	Trials	Proportion	Asymptotic Standard Error
Speech delay = Yes	= Male	98	203	0.483	0.035
	= Female	105	187	0.561	0.036

Independent-Samples Proportions Confidence Intervals					
	Interval Type	Difference in Proportions	Asymptotic Standard Error	95% Confidence Interval of the Difference	
				Lower	Upper
Speech delay = Yes	Agresti-Caffo	-0.079	0.050	-0.176	0.020
	Newcombe	-0.079	0.050	-0.176	0.020

Independent-Samples Proportions Tests						
	Test Type	Difference in Proportions	Asymptotic Standard Error	Z	Significance	
					One-Sided p	Two-Sided p
Speech delay = Yes	Wald H0	-0.079	0.050	-1.555	0.060	0.120

Here p-value is more than significance value (0.05). Hence, we accept the null hypothesis and conclude that there is no difference in the proportion of speech delay cases between genders.

2.2.3 To analyze the association between speech delay and family history.

H_0: There is no association between speech delay and family history.

H_1: There is an association between speech delay and family history.

Speech delay * Family history Crosstabulation					
			Family history		Total
			No	Yes	
Speech delay	No	Count	104	83	187
		Expected Count	107.4	79.6	187.0
	Yes	Count	120	83	203
		Expected Count	116.6	86.4	203.0
Total		Count	224	166	390
		Expected Count	224.0	166.0	390.0

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	0.487[a]	1	0.485		
Continuity Correction[b]	0.355	1	0.551		
Likelihood Ratio	0.487	1	0.485		
Fisher's Exact Test				0.539	0.276
N of Valid Cases	390				

Here p-value is more than significance value (0.05). Hence, we accept the null hypothesis and conclude that there is no association between speech delay and family history.

2.2.4 To determine the significant difference in speech development before and after therapy.

H_0: There is no significant difference in speech development before and after therapy.

H_1: There is a significant difference in speech development before and after therapy.

Paired Samples Statistics		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	before1	2.45	203	1.152	.081
	after1	4.06	203	.821	.058

Paired Samples Correlations		N	Correlation	Sig.
Pair 1	before1 & after1	203	.221	.002

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	before1 - after1	-1.616	1.259	.088	-1.790	-1.442	-18.290	202	<.001

Here p-value is less than significance value (0.05). Hence, we reject the null hypothesis and conclude that there is a significant difference in speech development before and after therapy.

2.2.5 To investigate the relationship between individual's confidence levels in understanding the development of child speech and language and their education levels.

H_0: There is no significant difference in confidence levels regarding understanding child speech and language development across different education levels.

H_1: There is a significant difference in confidence levels regarding understanding child speech and language development across different education levels.

Independent-Samples Kruskal-Wallis Test Summary	
Total N	390
Test Statistic	4.875
Degree Of Freedom	3
Asymptotic Sig. (2-sided test)	.181

Here p-value is greater than significance value (0.05). Hence, we accept the null hypothesis and conclude that there is no significant difference in confidence levels regarding understanding child speech and language development across different education levels.

2.3 Diagrammatic and Graphical Representation

2.3.1 To analyse and understand the demographic composition of the respondent population by examining the distribution of age and gender.

Age Intervals	Gender (%)	
	Male	Female
15-20	19.8	20.1
21-25	23.9	28.6
26-30	18.8	19.6
31-35	16.8	13.8
36-40	12.7	9.5
41-45	1.5	3.2
46-50	4.1	1.1
51-55	0.5	1.1
56-60	1.0	1.6
61-65	0.5	0.5
65-70	0.5	1.1
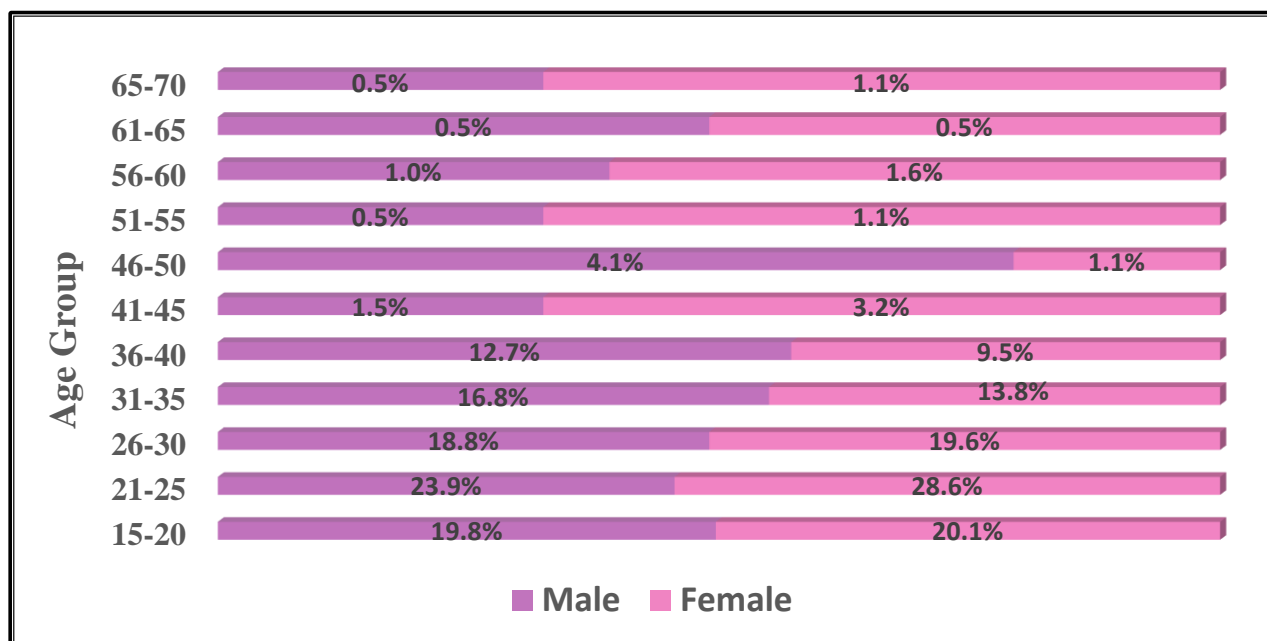
Figure 2.3.1 Demographic composition of the respondent population by examining the distribution of age and gender

Figure 2.3.1 represents the age interval 15-20, there are 19.8% male and 20.1% female who have filled the form. Moving to the 21-25 age group, 23.9% are male and 28.6% are female. As we progress to the older age brackets, the male percentage experiences a noticeable decline, reaching as low as 0.5% in the 56-60 and 61-65 intervals. For females, the percentages remain relatively stable until the 36-40 age group before gradually declining from 20.1% to 1.1%. Overall, there's a clear variation in gender representation across different age intervals, with males exhibiting a significant decrease in participation as age increases.

2.3.2 To analyze the data through a diagrammatic representation of the prevalence of speech delay in different age groups and genders.

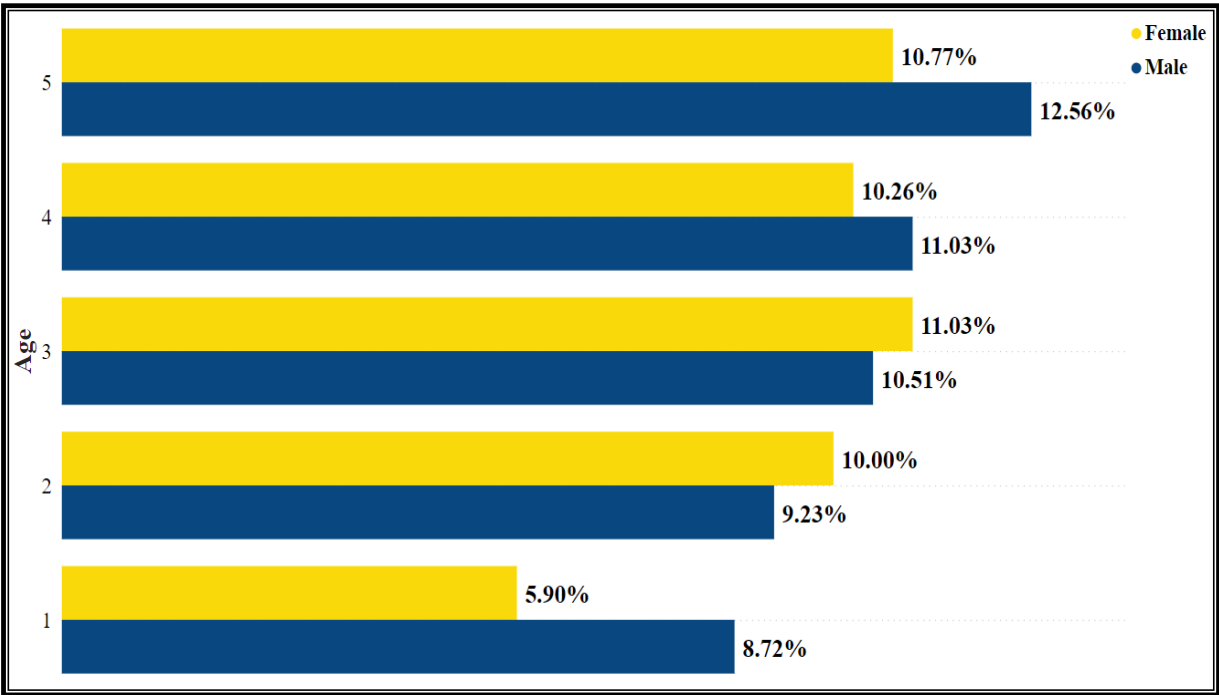| Gender	Age (%)				
	1	2	3	4	5
Male	8.72	9.23	10.51	11.03	12.56
Female	5.90	10.00	11.03	10.26	10.77

Figure 2.3.2 Prevalence of speech delay in different age groups and genders

Figure 2.3.2 represents speech delay prevalence in various age and gender categories is depicted in the bar graph above. 5.90% of the population is female, and 8.72 % of the population is male at age 1. Two-year-olds make up 10% of the population is female and 9.23% of males. 10% of boys and 11.03% of girls were three years old. 11 % of men and 10.26 % of women were in this age group at 4, and 12.5 % of men and 10.77 % of women were in this age group at 5. This indicates that in men, the condition is often diagnosed around age 5, and in women, at age 3.

2.3.3 To analyze the data through a diagrammatic representation comparison of parent and child mother tongues.

Language	Number of Children (%)	Number of Respondent's (%)
Konkani	16.15	20
Tulu	21.54	20
Kannada	20.51	12.82
English	11.03	16.41
Hindi	7.95	7.69
Malayalam	10.51	10.26
Other	12.31	12.82
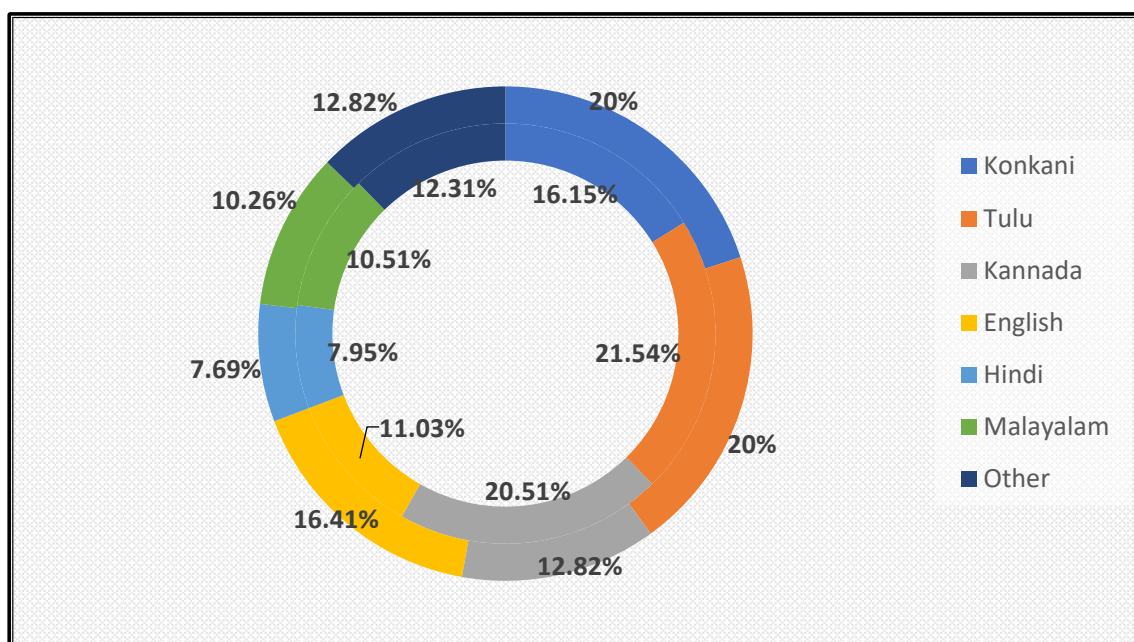
Figure 2.3.3 Comparison of Parent and Child Mother Tongues

Figure 2.3.3 represents comparison of parent and child mother tongues. Tulu has the highest percentage among both parents (21.54%) and children (20%). It seems to be a prevalent mother tongue in the given population. The percentage of parents speaking Konkani is higher than the percentage of children's. Kannada and Malayalam are also notable, with substantial percentages among both parents and children. These languages contribute significantly to the linguistic diversity in the dataset. The percentage of children with English as their mother tongue (16.41%) is higher compared to the percentage of parents (11.03%). This suggests a trend of English being more commonly spoken among the younger generation. Hindi is a mother tongue for a relatively small percentage of both parents (7.95%) and children (7.69%). The percentages of individuals speaking Malayalam are quite consistent between parents and children, indicating a relative stability in these language preferences. The Other category has similar percentages for both parents (12.31%) and children (12.82%).

2.3.4 To analyze the data through diagrammatic representation on the distribution of different relationships with a child.

Relation with the child	Count (%)
Cousin	24.62
Brother	22.05
Neighbour	18.97
Parent	18.21
Sister	13.85
Nephew	1.03
Niece	0.77
Grand Parent	0.26
Step Child	0.26
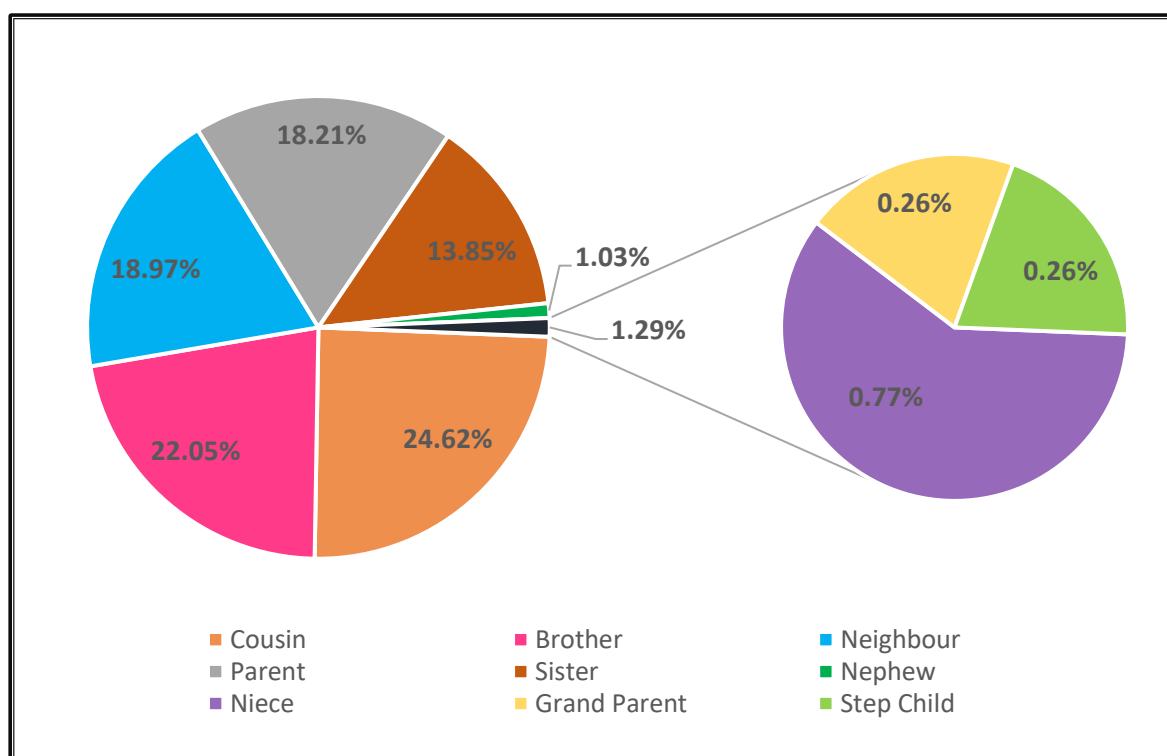
Figure 2.3.4 Distribution of different relationships with a child

Figure 2.3.4 represents various relationships with the child. The largest portion, comprising 24.62%, represents cousins, followed closely by brothers at 22.05%. Neighbours and parents hold significant shares as well, with 18.97% and 18.21% respectively. Sisters account for 13.85% of the relationships. Furthermore, there are smaller percentages for nephews (1.03%) and nieces (0.26%), as well as a minimal representation for grandparents and stepchildren, each around 0.2%. Overall, the chart reflects a diverse array of relationships with the child, with cousins and brothers being the most prevalent.

2.3.5 To analyze the data through diagrammatic representation on the duration of involvement in a child's life among respondents.

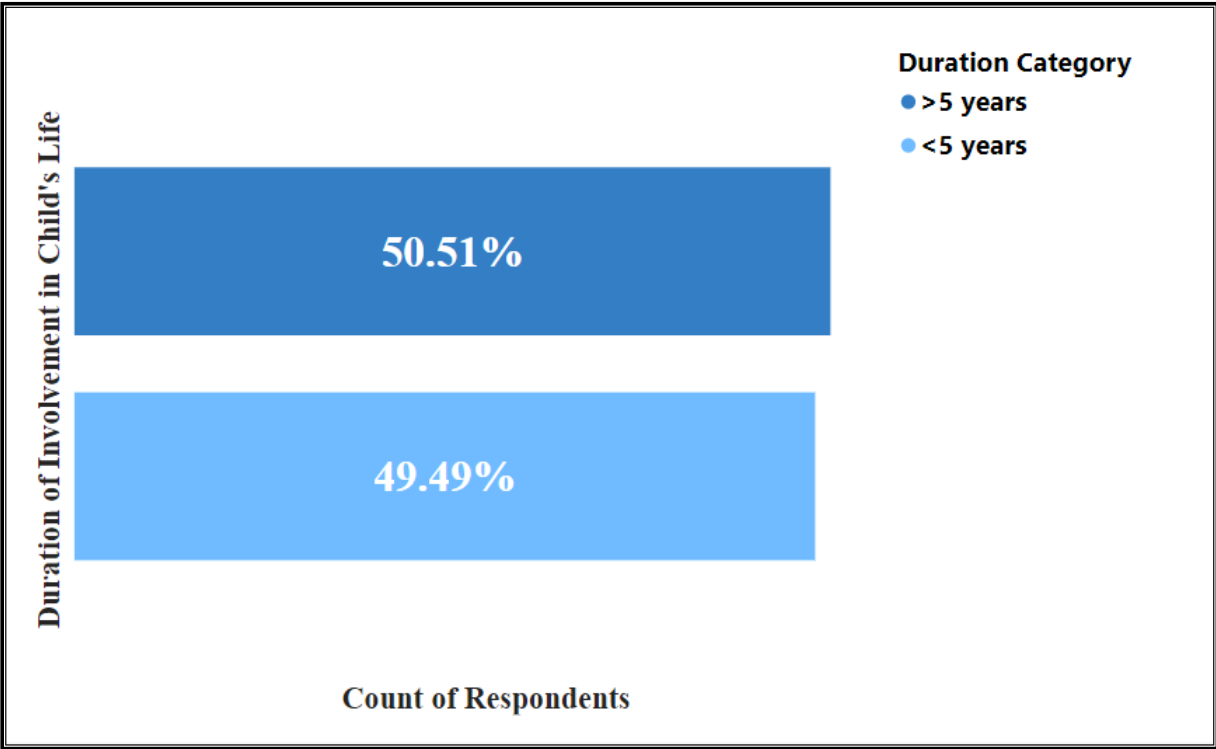| Time Period	Count (%)
>5 years	50.51
<5 years	49.49

Figure 2.3.5 Duration of involvement in a child's life among respondents

Figure 2.3.5 depicts the duration of involvement in a child's life reveals that a significant portion of respondents, comprising 51.5%, have been involved for more than 5 years. Conversely, 49.49% of respondents have been involved for less than 5 years. This indicates a fairly balanced distribution between those who have had long-term involvement with the child and those who have less involved. Overall, this distribution suggests a mix of long-term and relatively newer involvement in the lives of children among the respondents. It may reflect the diversity of relationships and roles that people play in children's lives, as well as changes in involvement over time due to various factors such as familial relationships, career changes, or community engagement.

2.3.6 To analyze the data through diagrammatic representation on the distribution of knowledge regarding speech delay among respondents.

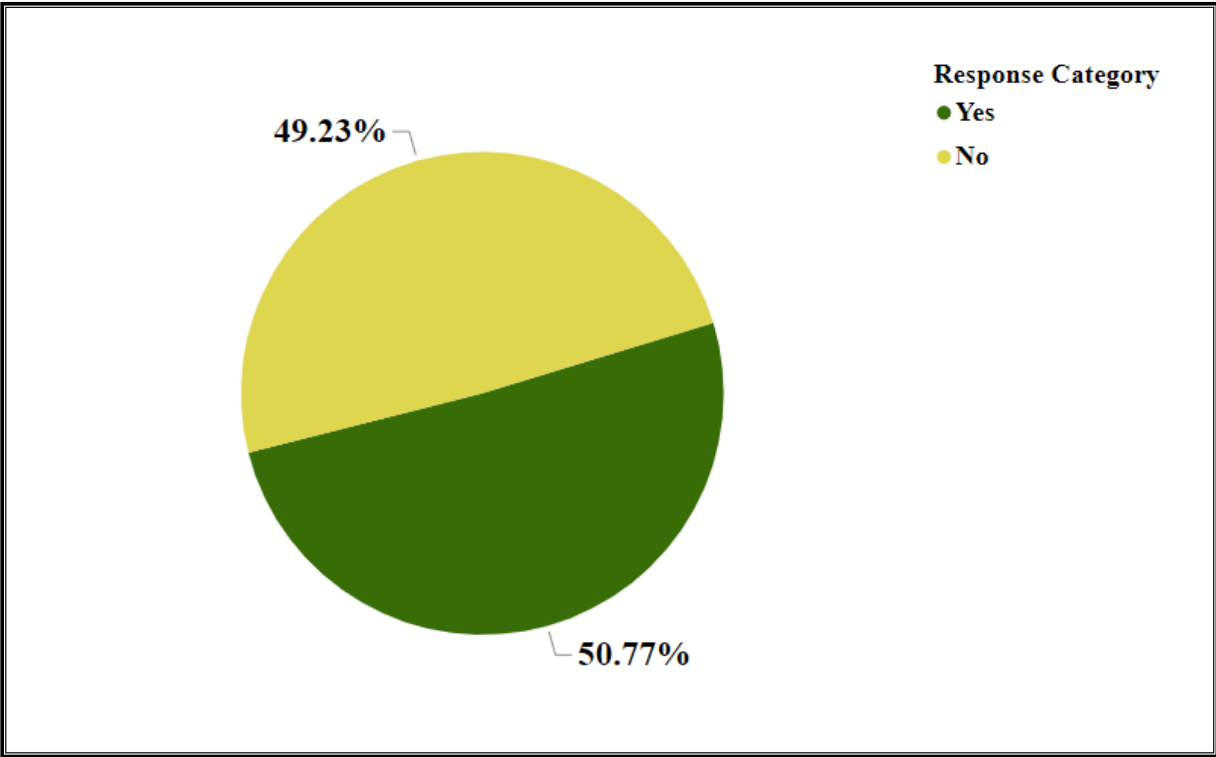| Knowledge About Speech Delay	Count (%)
Yes	50.77
No	49.23

Figure 2.3.6 Distribution of knowledge regarding Speech Delay among respondents

Figure 2.3.6 represents depicts the distribution of knowledge about Speech Delay indicates that respondents are relatively evenly divided on the topic. Approximately 49.23% of respondents reported having no knowledge about Speech Delay, while 50.77% indicated they possess knowledge about it. This suggests a balanced distribution of awareness among the surveyed population. It highlights the importance of raising awareness about developmental delays like Speech Delay and providing education and support to those who may not be familiar with it. Additionally, it indicates a potential need for further research, outreach, and education efforts in this area to ensure that more individuals are informed and equipped to address speech and language development challenges in children.

2.3.7 To analyze the data through the diagrammatic representation of various sources to know about speech delay.

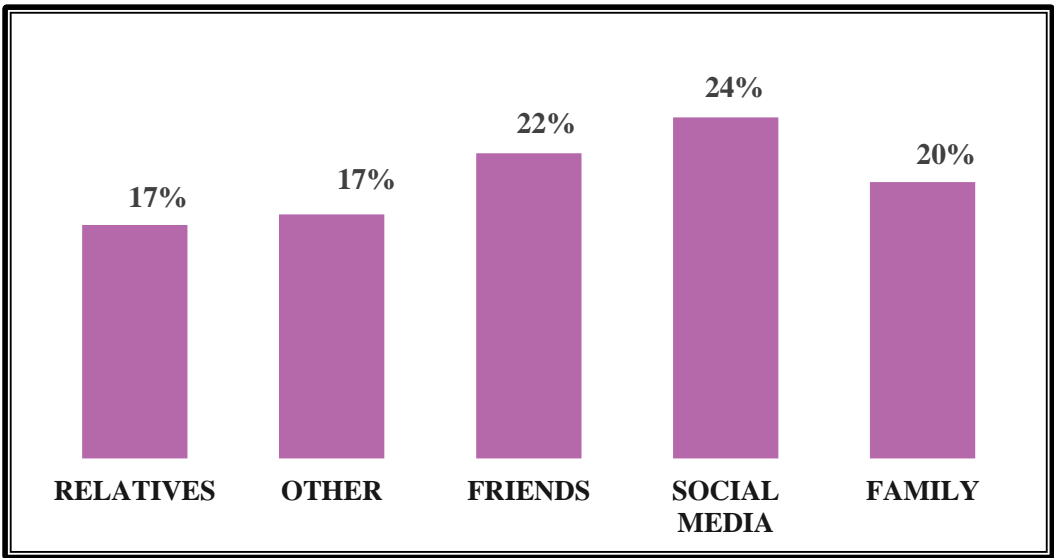| Sources	Number of people (%)
RELATIVES	17
OTHER	17
FRIENDS	22
SOCIAL MEDIA	24
FAMILY	20

Figure 2.3.7 Various sources to know about speech delay

Figure 2.3.7 depicts the many approaches for learning about speech delay. In this case, 24% of people learned about it through social media, 22% through friends, 20% through family, 17% through relatives, and 17% through other channels. Overall, the distribution of percentages across these channels indicates that there is a diverse range of sources through which people acquire knowledge about speech delay, highlighting the importance of both online and offline networks in raising awareness and understanding of developmental issues.
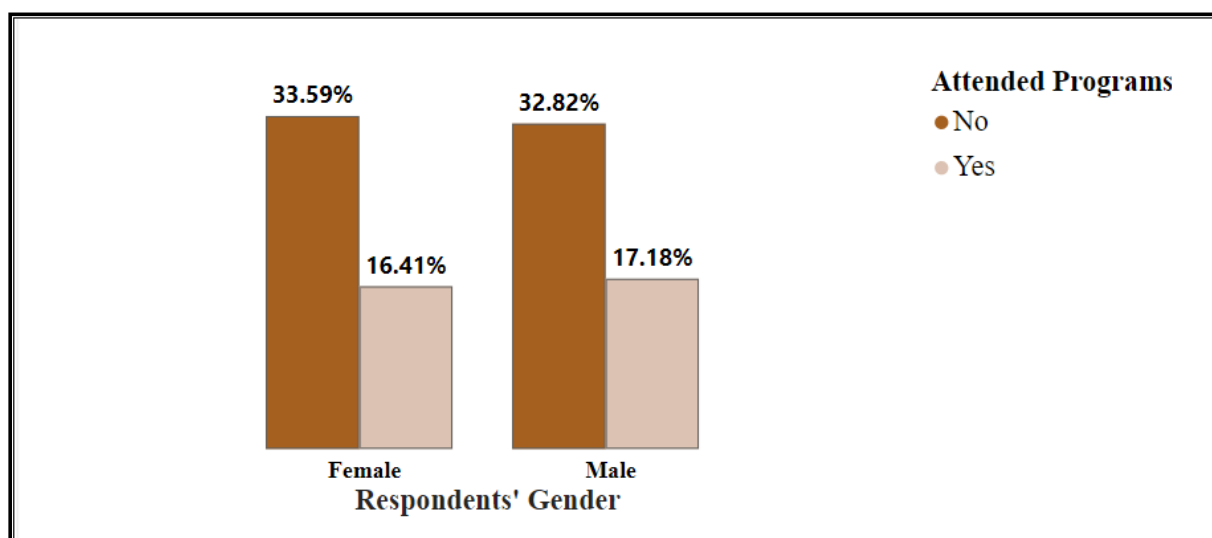
\

2.3.8 To analyze the relationship between gender dynamics and participation in speech delay and seminar programs among respondents.

Gender	Attended programs or seminars?	Count (%)
Female	No	33.59
Male	No	32.82
Male	Yes	17.18
Female	Yes	16.41

Figure 2.3.8 Relationship between gender dynamics and participation in speech delay and seminar programs among respondents

Figure 2.3.8 represents the confidence regarding a child's speech delay and language development reveals that among females, 33.59% responded negatively (no) while 16.41% responded positively (yes). Similarly, among males, 32.82% expressed no confidence, while 17.18% expressed confidence. This suggests that a notable portion of both males and females harbor concerns about their child's speech delay and language development

2.3.9 To analyze the data through a diagrammatic representation of the most common age of speech delay and gender.

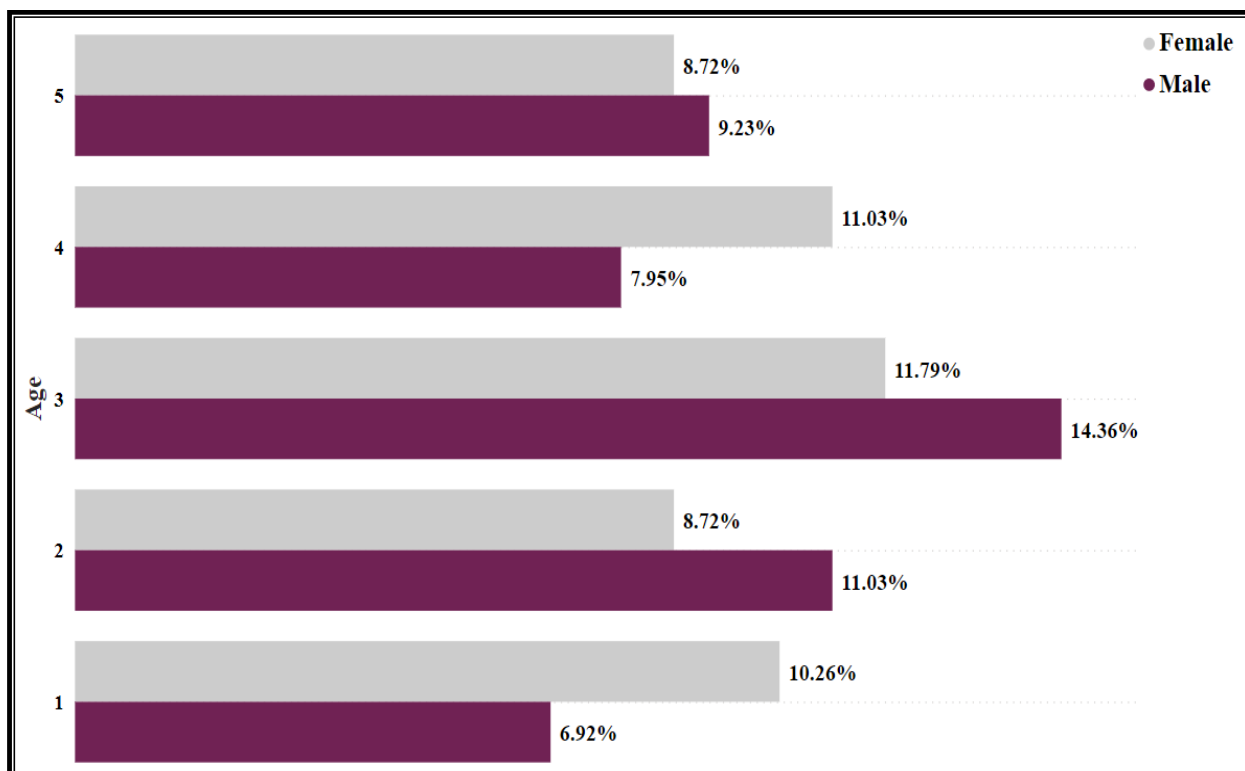| Gender	Age (%)				
	1	2	3	4	5
Male	6.92	11.03	14.36	7.95	9.23
Female	10.26	8.72	11.79	11.03	8.72

Figure 2.3.9 Most common age of speech delay and gender

Figure 2.3.9 depicts the prevalence of speech delay in various age and gender groups based on people's beliefs. At the age of one, 10.26% of the population is female, and 6.92% is male. Two- year -olds account for 8.72% of females and 11.03% of males. Three-year-old boys made up 14.36% of the population, while girls made up 11.79%. At the age of 4, 7.95% of males and 11.03% of females were in this age group, and at the age of 5, 9.23% of men and 8.72% of women were in this age group. This suggests that the disease is frequently detected in both men and women around the age of three.

2.3.10 To analyze the data through the diagrammatic representation of various speech milestones in the child.

2.3.10.1 To analyze the data through a diagrammatic representation of various speech milestones in the child at age 1.

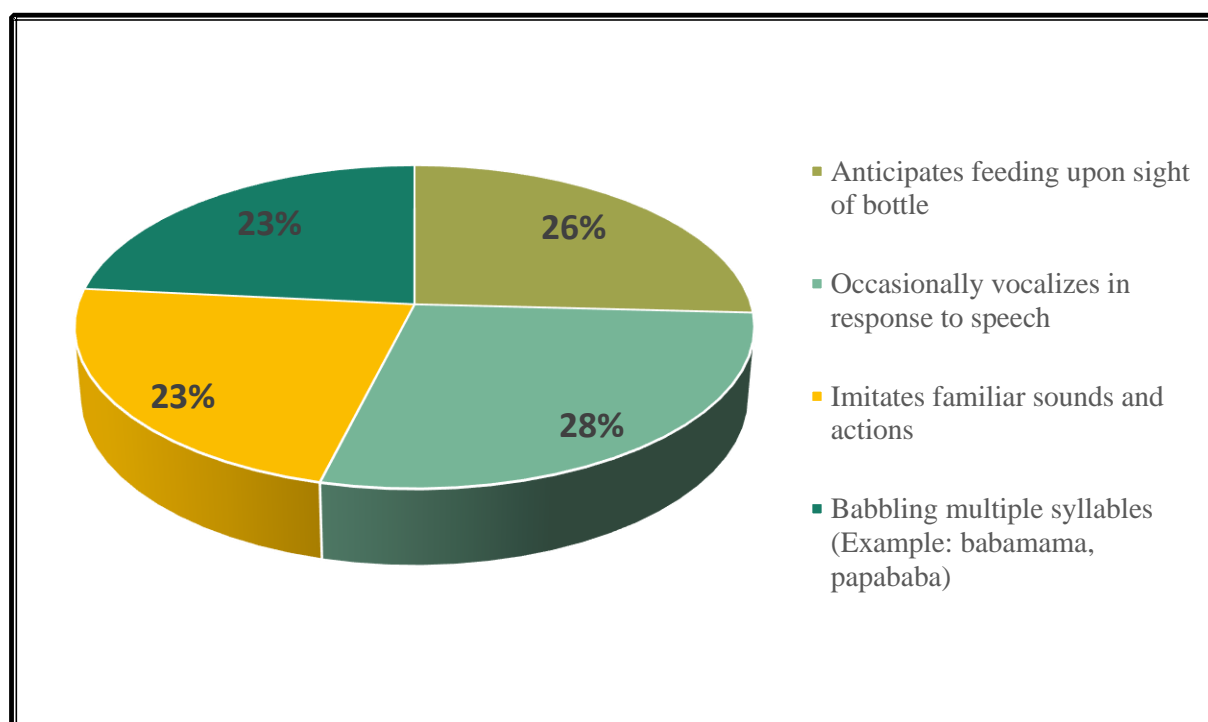| Milestones	Number of children (%)
Anticipates feeding upon sight of bottle	26
Occasionally vocalizes in response to speech	28
Imitates familiar sounds and actions	23
Babbling multiple syllables (Example: babamama, papababa)	23

Figure 2.3.10.1 Various speech milestones in the child at age 1

Figure 2.3.10.1 represents the various speech milestones in a child during age 1. Here, 26% anticipate feeding upon sight of a bottle, 28% occasionally vocalize in response to speech, 23% imitate familiar sounds and actions, and 23% babble multiple syllables like papababa. Overall, these percentages suggest that by the age of 1, most children are beginning to engage in early forms of communication and speech development. These milestones provide insight into the typical progression of language acquisition during this crucial stage of development.

2.3.10.2 To analyze the data through a diagrammatic representation of various speech milestones in the child at age 2.

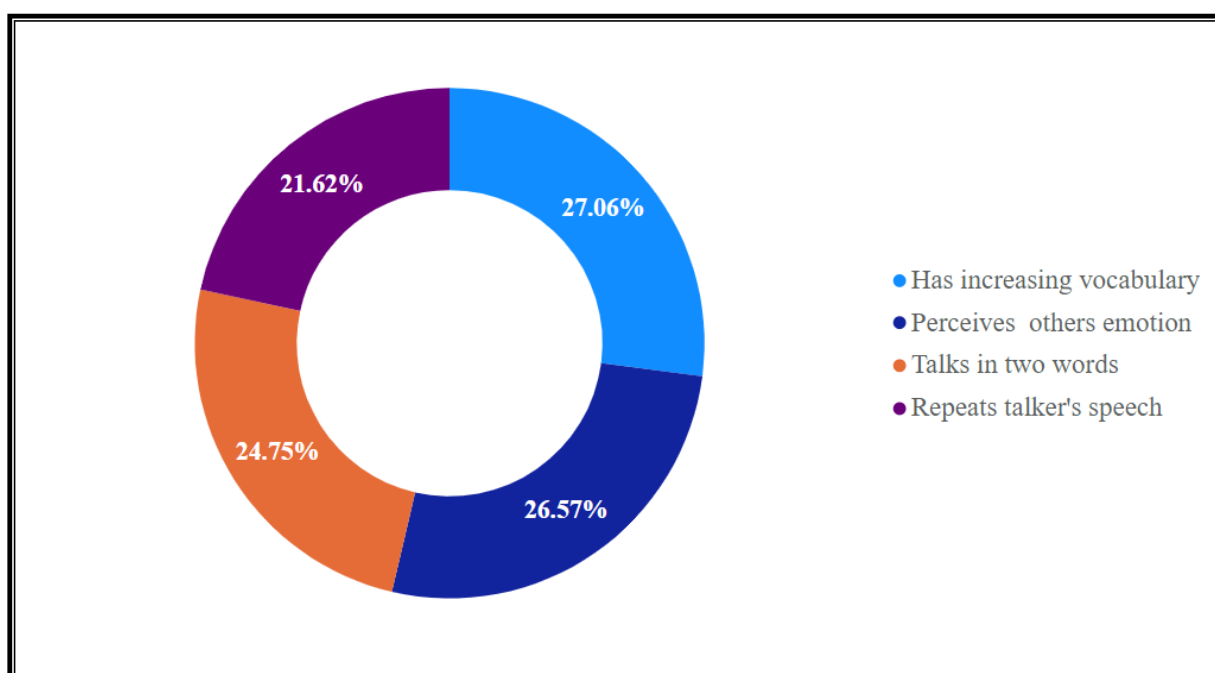| Milestones	Number of children (%)
Repeats talker's speech	21.62
Has increasing vocabulary	27.06
Perceives others emotion	26.57
Talks in two words	24.75

Figure 2.3.10.2 Various speech milestones in the child at age 2

Figure 2.3.10.2 represents the various speech milestones in a child during age 2. Here, 27.06% represents increasing vocabulary, 26.57% represents perceiving other emotions, 24.75% represents talking in two words, and 21.62% represents repeating the speaker's speech. Overall, these percentages suggest that by the age of 2, most children are making significant strides in their speech and language development. They are expanding their vocabulary, improving their ability to communicate, and beginning to understand and express emotions, all of which are important milestones in their overall cognitive and linguistic growth.

2.3.10.3 To analyze the data through a diagrammatic representation of various speech milestones in the child at age 3.

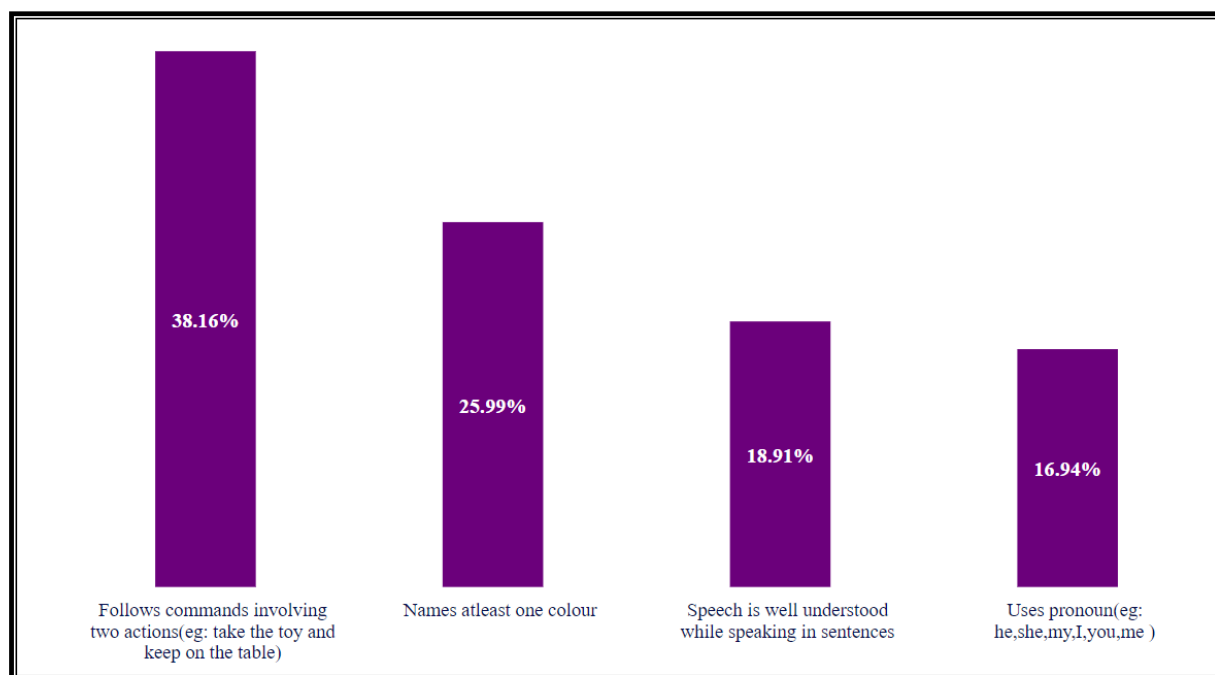| Milestones	Number of children (%)
Speech is well understood while speaking in sentences	18.91
Follows commands involving two actions (eg: take the toy and keep on the table)	38.16
Names at least one colour	25.99
Uses pronoun (eg: he,she,my,I,you,me)	16.94

Figure 2.3.10.3 Various speech milestones in the child at age 3

Figure 2.3.10.3 represents child's progress toward several speech milestones at age 3. In this instance, 38.16% of respondents indicate that they follow instructions involving two actions, 25.99% identify at least one color, 18.91% indicate that their speech is clearly understood when speaking in sentences, and 16.94% indicate that they use pronouns like he, she, my, you, and me. Overall, these percentages suggest that by the age of 3, most children are making significant strides in their speech and language abilities. They are becoming more proficient in following instructions, expanding their vocabulary, improving their speech clarity, and mastering basic grammatical elements, all of which are important milestones in their overall linguistic development.

2.3.10.4 To analyze the data through a diagrammatic representation of various speech milestones in the child at age 4.

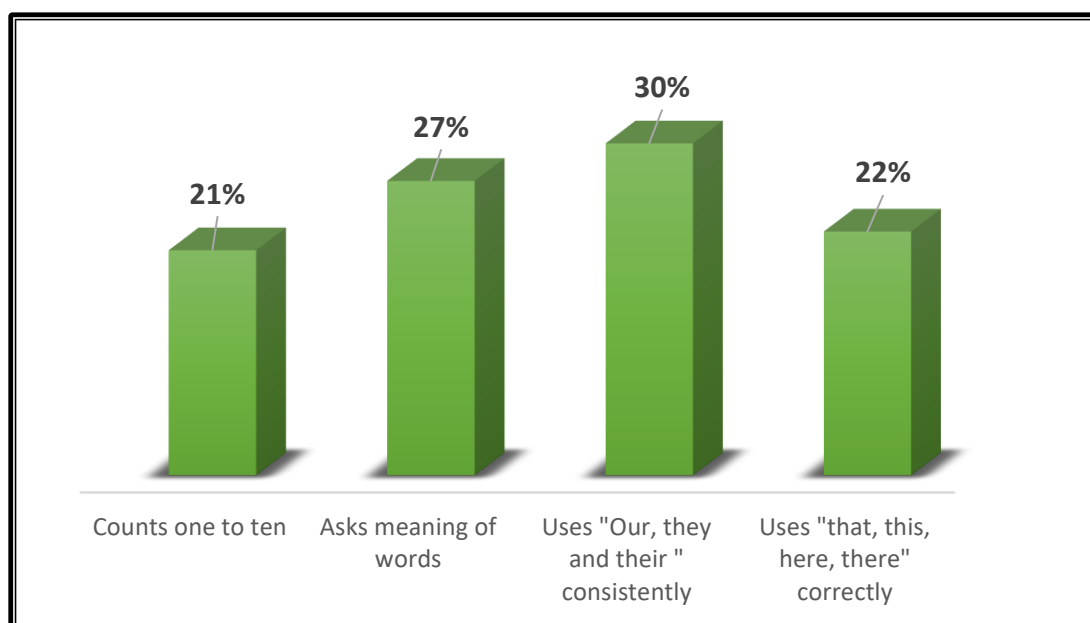| Milestones	Number of Children (%)
Counts one to ten	21
Asks meaning of words	27
Uses "Our, they and their " consistently	30
Uses "that, this, here, there" correctly	22

Figure 2.3.10.4 Various speech milestones in the child at age 4

Figure 2.3.10.4 depicts numerous speech milestones at age four. Here, 21% of children can count to 10, 27% of children inquire about the meaning of words, 30% of children consistently use our, they, and their and 22% of children properly utilize that, this, here, and there. Overall, these percentages suggest that by the age of four, most children are making significant progress in their speech and language development. They are expanding their vocabulary, asking questions to deepen their understanding of language, mastering grammatical concepts like pronouns, and developing numeracy skills, all of which are crucial milestones in their overall cognitive and linguistic growth.

2.3.10.5 To analyze the data through a diagrammatic representation of various speech milestones in the child at age 5.

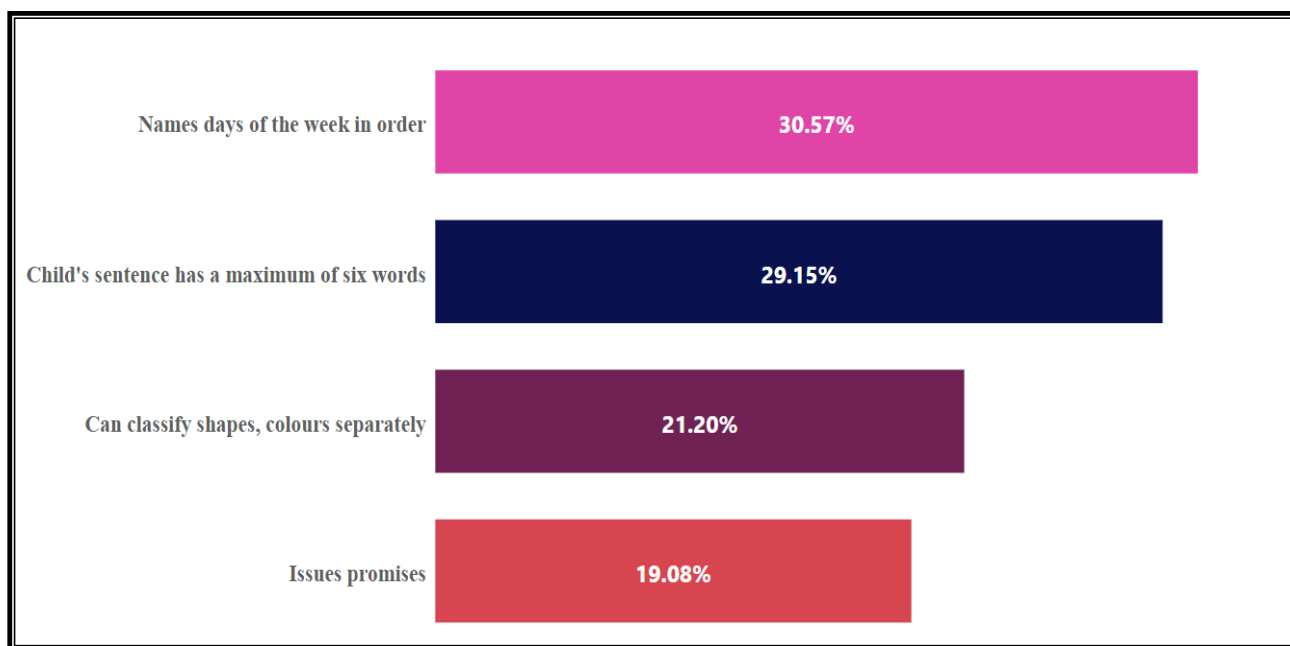| Milestones	Number of Children (%)
Can classify shapes, colours separately	21.20
Names days of the week in order	30.57
Child's sentence has a maximum of six words	29.15
Issues promises	19.08

Figure 2.3.10.5 Various speech milestones in the child at age 5

Figure 2.3.10.5 displays several speech milestones at the age of five. Here, 30.57% of children name the days of the week in sequence, 29.15% of children's sentences have a maximum of six words, 21.20% of children can classify shapes and colors individually, and 19.08% of children can make promises. Overall, these percentages suggest that by the age of five, most children are making significant strides in their speech, language, cognitive, and social-emotional development. They are becoming more adept at expressing themselves verbally, understanding temporal concepts, classifying objects, and engaging in social interactions, all of which are important milestones in their overall growth and development.

2.3.11 To analyze the relationship between speech delay realization and consultation with a speech therapist.

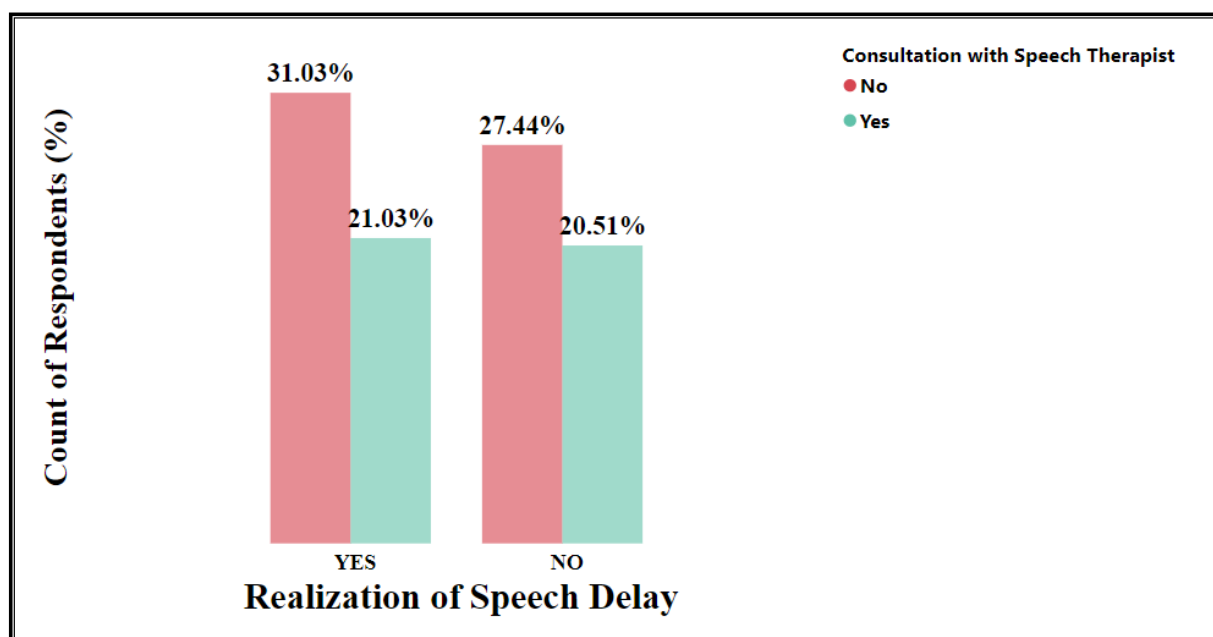| Speech Delay	Consulted a therapist	Count (%)
YES	No	31.03
NO	No	27.44
YES	Yes	21.03
NO	Yes	20.51

Figure 2.3.11 Relationship between speech delay realization and consultation with a speech therapist

Figure 2.3.11 illustrates the relationship between the realization of speech delay and consultation with a speech therapist. Among the respondents who experienced speech delay, only 21% sought consultation with a speech therapist. Conversely, 31% of those with speech delay did not seek consultation. Additionally, 20.5% of respondents who did not have speech delay consulted a speech therapist, while 27.4% neither experienced speech delay nor consulted a therapist. This suggests a gap in seeking professional assistance for speech delay, with a significant portion of individuals either not recognizing the need for intervention or not accessing appropriate services.

2.3.12 To analyze the data through a diagrammatic representation of various steps that can be taken at home.

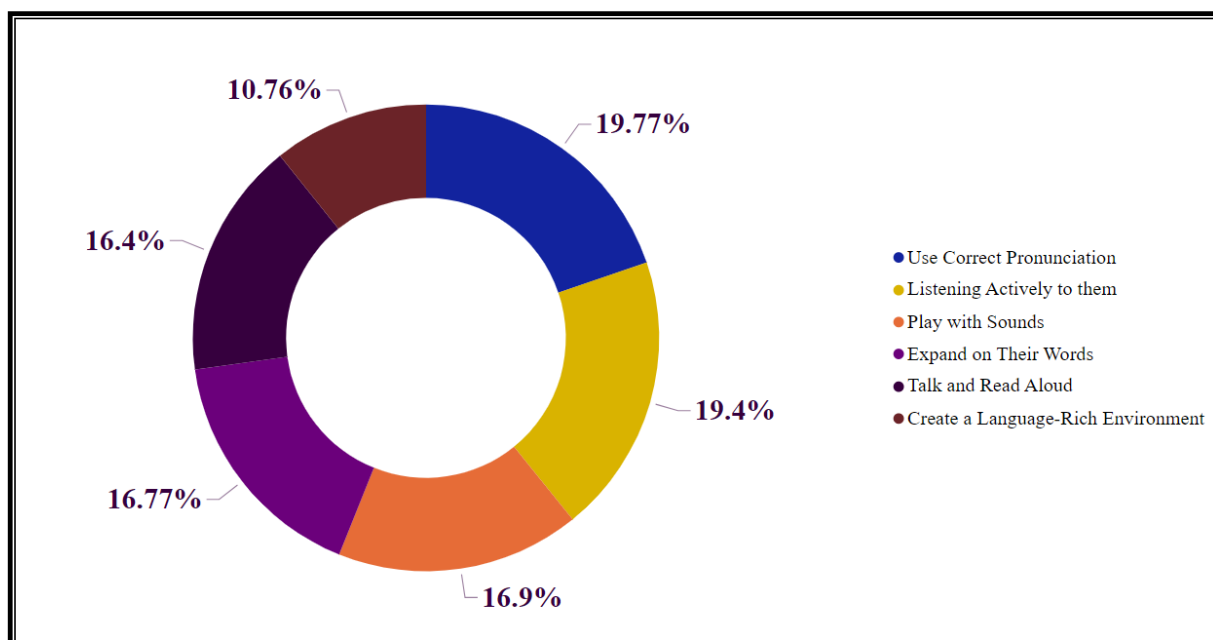| Measures	Number of participants (%)
Talk and Read Aloud	16.40
Listening Actively to them	19.4
Expand on Their Words	16.77
Use Correct Pronunciation	19.77
Play with Sounds	16.90
Create a Language-Rich Environment	10.76

Figure 2.3.12 Various steps that can be taken at home

Figure 2.3.12 represents what the parents have done to help their children with their speech. In this study, 19.77% of parents use correct pronunciation, 19.4% of parents actively listen to their child, 16.9% of parents encourage their child to play with sounds, 16.77% of parents help their child expand their vocabulary, 16.4% of parents talk and read aloud to their child, and 10.76% of parents create a language-rich environment. Overall, these percentages suggest that parents employ a variety of strategies to support their children's speech development, including modelling clear speech, active listening, vocabulary expansion, and creating opportunities for language enrichment. These efforts highlight the importance that parents place on nurturing their children's language skills and fostering effective communication from an early age.

CHAPTER 3

3.1 Discussion

Speech delay in children is a significant concern impacting various facets of early development. The ability to communicate effectively is fundamental to a child's social, emotional, and academic growth. Expectations regarding speech delay often encompass a multitude of factors rooted in developmental norms, theoretical frameworks, and practical observations. However, upon further investigation and analysis, the reality of speech delay might present nuances that challenge these initial presumptions.

3.1.1 One might initially anticipate that children with speech delay could potentially be either younger or older due to delayed or accelerated development, respectively. The absence of a significant difference in mean age between the two groups challenges the notion that speech delay is confined to a particular age range. This finding highlights the complexity of speech development, indicating that multiple factors beyond chronological age might contribute to speech delay.

3.1.2 Initial assumptions might suggest that there could be a gender-related discrepancy in the prevalence of speech delay. Common beliefs or anecdotal evidence might lead to expectations that one gender is more prone to speech delays than the other. Expecting that societal or environmental factors could impact speech development differently in boys and girls, possibly leading to differing rates of speech delay. The research findings might reveal no statistically significant difference in the proportion of speech delay cases between genders. This suggests that both boys and girls experience speech delay at similar rates. These findings might underline the notion that speech delay is not inherently linked to biological gender differences.

3.1.3 Initial assumptions might revolve around the belief that speech delay could be hereditary. Expectations could include a higher likelihood of children experiencing speech delays if their family members have a history of speech delay. Anticipating that children with a family history of speech delay might exhibit similar delays due to potential genetic factors or inherited traits related to speech and language development. The findings might reveal no significant correlation between a family history of speech delay and the occurrence of speech delay in children. Observing that speech delay is not solely determined by familial history highlights the diverse pathways and complexities involved in speech and language development.

3.1.4 One would expect a noticeable enhancement in a child's language skills post-therapy. This improvement might be measured in terms of clearer articulation, or better sentence construction. Actual results might show quantifiable improvements in language assessments, indicating concrete advancements in speech development. A significant outcome could be the child's enhanced confidence in expressing themselves verbally, actively participating in conversations, and engaging more confidently in social interactions.

3.1.5 Initially, one might expect individuals with higher levels of education, such as those with master's degrees or bachelor's degrees, to exhibit greater confidence in understanding child speech and language development. Findings might reveal no significant difference in confidence levels regarding understanding child speech and language development across various educational fields. This suggests that individuals from diverse educational backgrounds, including those with master's degrees, SSLC, PUC, and bachelor's degrees, exhibit similar levels of confidence in this domain.

3.1.6 Before diving into the research, there was an anticipation of encountering a variety of information sources to gain insights into speech delay. These sources likely included social media, advice from friends and family, and possibly guidance from medical professionals. It was expected to uncover common age ranges for speech delays, milestones in children's speech development, and practical measures that can be taken at home to support children with speech delays. Upon conducting the research, these expectations were largely met. It was found that sources such as social media, friends, family, and relatives did indeed offer valuable insights into speech delay. However, it was also realized that consulting reliable medical sources and professionals was crucial for accurate information. The common age range for speech delays was identified, along with the developmental milestones children typically reach at different ages. Additionally, practical measures to support children's language development at home were discovered, including techniques like correct pronunciation, active listening, and engaging activities to expand vocabulary.

In conclusion, the development of children's language ability is the result of processing the input obtained from the environment: family environment, peers, or community. The development of children's language can be achieved properly if the children enter its development by practicing things that will occur through life experience.

CHAPTER 4

Conclusion

The comprehensive analysis conducted in this study offers valuable insights into the multifaceted nature of speech delay and its associated factors. While the independent sample t-test, z-test for proportion, chi-square test, paired t-test and Kruskal Wallis test provide statistical evidence regarding speech delay's associations and therapy outcomes, the graphical representations of age, gender distribution, developmental milestones, parental knowledge, and methods for aiding the condition offer a holistic view of the topic.

The absence of significant age-based differences between children with and without speech delays suggests that age alone might not be a decisive factor in predicting speech delay. However, the gender-based variations in prevalence across different age groups hint at potential gender-specific trends in the onset or diagnosis of speech delay. Also, it indicates that there is a connection between speech delay and a child's family history of speech delay. We also determined that there is a favourable response of children who got therapy and have decreased their degree of the condition in the following aim. The absence of significant difference in confidence levels regarding understanding child speech and language development across different educational levels. This suggests that individuals from diverse educational backgrounds possess similar levels of confidence in this domain, emphasizing the universality of knowledge and insights related to child development.

Analysis of age and gender distribution revealed intriguing patterns. While the age interval 15-20 and 21-25 exhibited relatively balanced gender proportions, a notable disparity emerged in older age groups, with females comprising a significantly higher percentage than males. This disparity suggests potential shifts in participation or interest levels across different age cohorts, warranting further exploration. Investigation into familial relationships highlighted the diverse roles individuals play in children's lives. Cousins and siblings emerged as prominent relationships, indicating the significance of extended family networks in children's developmental contexts. The prevalence of interactions with neighbours, alongside parental involvement, underscores the multifaceted support systems contributing to children's growth and communication development.

The duration of involvement in a child's life showcased a relatively even split between individuals engaged for more than five years and those involved for shorter durations. This distribution suggests a mix of long-term caregivers and those with more recent connections to children, each potentially influencing children's language acquisition and developmental trajectories in distinct ways.

Awareness of speech delay and participation in educational programs emerged as crucial factors in addressing developmental concerns. While a majority of respondents reported awareness of speech delay, there remains a significant proportion yet to access information or resources in this domain. Similarly, the distribution of attendance in educational programs highlights opportunities for enhanced outreach and education initiatives to reach a broader audience.

Furthermore, the developmental milestones outlined in the graphs underscore the diverse progression of speech and language skills among children, highlighting the importance of early intervention and support tailored to individual needs. The insights gleaned from perceptions and learning sources emphasize the need for accessible and accurate information about speech delay dissemination, as well as the crucial role of parents in creating language-rich environments to aid in their child's speech development.

The utilization of therapy services among individuals with speech delay underscores the importance of professional intervention in addressing developmental challenges. While a notable percentage of individuals with speech delay have consulted therapists, there remains a segment yet to access these services, indicating potential barriers or gaps in access that warrant attention.

Recognizing speech delay early and initiating intervention is crucial for optimal outcomes. Parents and caregivers should be encouraged to seek support and professional guidance at the earliest signs of delay. Understanding the multifaceted nature of speech delay warrants a holistic approach to intervention, considering familial influences, developmental milestones, and diverse learning methods. Empowering parents with effective strategies to aid their child's speech development is essential. Promoting activities that foster language-rich environments can significantly impact a child's progress.

Language development is an important factor in the interaction with the society so that the problems experiencedby children, particularly in their speech ability, will affect the other developmental aspects. The appropriate speech activities conducted at home by parents should be able to provide variety of choices as sources of references for other parents who are interested to conduct speech activities on their own at home. As a conclusion, parental involvement is important in assisting the development of their children in overcome their speech difficulties. The parents showed a lot of relentlessly efforts in conducting the speech activities at home as long as the children could improve their speech and communication in their daily life.

Overall, this study contributes to a deeper understanding of speech delay by integrating statistical analyses with visual representations, shedding light on the complexities of this condition and the multifaceted strategies that can aid in addressing and supporting children with speech delays.

Reference

- Bond and Wasik, 2009, Conversation Stations: Promoting Language Development in Young Children, *Early Childhood Education Journal*, 36(6), 467–473.

- Choo YY, Agarwal P, How CH, Yeleswarapu SP. (2019) Developmental delay: identification and management at primary care level. *Singapore Med J.* ,60(3):119-123.

- Dale, P. S., Price, T. S., Bishop, D. V., & Plomin, R. (2003). Outcomes of early language delay: I. Predicting persistent and transient language difficulties at 3 and 4 years. *Journal of Speech, Language, and Hearing Research*, 46(3), 544-560.

- Esnazarova Zulfiya Oljabaevna. (2022). the impact of gadgets on children's development: delayed speech and autistic disorders. *American Journal of Interdisciplinary Research and Development*, 10, 13–16.

- Jullien (2021) Screening for language and speech delay in children under five years. *BMC Pediatr 21(Suppl 1)*, 362.

- Law, J., Boyle, J., Harris, F., Harkness, A., & Nye, C. (2000). Prevalence and natural history of primary speech and language delay: Findings from a systematic review of the literature. *International Journal of Language & Communication Disorders*, 35(2), 165-188.

- McLaughlin MR., 2011, Speech and language delay in children. *Am Fam Physician*, 83(10),1183-8.

- McLeod, S., & Harrison, L. J. (2009). Epidemiology of speech and language impairment in a nationally representative sample of 4- to 5-year-old children. *Journal of Speech, Language, and Hearing Research*, 52(5), 1213-1229.

- Robin Alexander, 2004, Still no pedagogy? principle, pragmatism and compliance in primary education, *Cambridge Journal of Education*, 34:1, 7-33.

- Santrock, J. W., Mondloch, C. J., & Mackenzie-Thompson, A., 2014, Essentials of life-span development.

- Shriberg LD, Austin D, Lewis BA, McSweeny JL, Wilson DL., 1997, The speech disorders classification system (SDCS): extensions and lifespan reference data. *J Speech Lang Hear Res.*, 40(4),723-40.

- Sunderajan T, Kanhere SV., 2019, Speech and language delay in children: Prevalence and risk factors. *J Family Med Prim Care*,8(5):1642-1646.

- Tomblin, J. B., Records, N. L., Buckwalter, P. R., Zhang, X., Smith, E., & O'Brien, M.,1997, Prevalence of specific language impairment in kindergarten children, *Journal of Speech, Language, and Hearing Research,* 40(6),1245-1260.

- Zubrick, S. R., Taylor, C. L., Rice, M. L., & Slegers, D. W. (2007). Late language emergence at 24 months: An epidemiological study of prevalence, predictors, and covariates. *Journal of Speech, Language, and Hearing Research*, 50(6), 1562-1592.