

Risk Factors for Delay in Speech Among Children At Babylon Province In Al-Hilla City

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Abstract: Background: Speech delay is common problem in early childhood. Some children with speech delay are able to catch up with their peers with time, but the delay might be part of more serious condition such as autism spectrum disorder or attention deficit hyperactivity disorder, which requires further diagnostic work-up, there is a limited data on the risk factors of speech and language delay from Iraqi studies. Aim: to identify the major risk factors and the main causes of speech delay in children in Al-Hilla town. Methods: a cross-sectional study conducted involved 2 centers which offer behavioral management and rehabilitation to children with speech delay at Babylon province in Al-Hilla town from 1\1 to 30\5 \2024. It is performed on 131 children with speech delay their age ranged 2-12 years old, complete medical and developmental history and clinical and developmental examination was done. Results: a total of 131 children was studied , 99 of them were male (75%) and 32 were female (25%) with male to female ratio 3:1 , their age range from 2-12 years old and 92% of them presented before 3 years of age. Family history of similar problem present in 23% of cases, 30.5% of cases the cause was autism spectrum disorder and 22.9% was attention deficit hyperactivity disorder and hearing loss, while environmental deprivation present in 17.5% .Conclusion: speech delay was more common in male, the most common causes of speech delay are behavioral disorders, and environmental deprivation was present in most cases.

Keywords: Risk factors, speech delay, al-hilla city.

Introduction: Speech can be defined as a sound that creature produced, while the language is a measure of intellectual capacity. An acquisition of speech and language is an important marker for the child's development and intellect. Speech delay defined as when the child's speech is either more incoherent than would be anticipated for age or is manifest by speech sound errors not suitable for age (Sunderajan, & Kanhere, 2019.)

Risk factors for speech delay are male, family history; oral sucking habits, ENT problems, difficult temper, low

parental tutoring, lack of support for learning in the home (Saeed, Abdulaziz, & Al-Daboon, 2018) speech or language delay are common disability among pediatric (Hoque, Akhter, & Mannan, 2021) it may associated with some developmental incapacities, as autism, and attention deficit hyperactivity disorders. (Jullien, 2021). An electronic devices, and TV, may reduce language, attention. (Salunkhe, 2021). Stuttering may influence normal fluency and patterning of language (Perez, & Stoeckle, 2016).

Aim of the study: to identify the major risk factors and

the main causes of speech delay among children in Al-Hilla city.

Methods

A descriptive cross-sectional study conducted involved 2 centers which deliver behavioral rehabilitation as well as treatment to children suffer from speech delay at Babylon in Al-Hilla town from 1\1 to 30\5\ 2024. (Center of Babylon for behavioral treatment, Sura Rasheed center for behavioral treatment).

Current study utilize of connivance sampling technique

on 131 children with speech delay their age ranged 2-12 years old and their mean age 7, complete medical and developmental history and medical and developmental consideration conducted once obtained consent from parents of these children who participated in current study. The data analyzed by utilize of Microsoft excel. SPSS v.20 had been used with both descriptive tests and inferential statistics used to meet study objectives.

Results:

Table 1: sex and age distribution of cases:

variable	No. (percent)	No. (percent)	
Sex	Male 99 (75%)	Female 32 (25%)	
Male: female ratio 3:1			
Age groups	No.		percent
2-6 years	94		(72%)
7-12 years	37		(28%)
Age at presentation			
1-3 years	104		(78%)
>3 years	29		(22%)

This table shown that (75%) of study sample was males, (72%) of sample ages 2-6 years, highest percent (78%) of them their ages at presentation 1-3 years.

Table 2: risk factors of speech delay

variable	No.	percent
Family history	23	(18%)
Educated family	67	(51%)
Bilingual family	15	(11%)
Mobile use (by parents)	56	(42%)
Mobile use (by children)	120	(92%)

This table illustrated that (92%) of participants reported that mobile use was the risk factor for speech delay, (51%) among educated family, while only (11%) caused by bilingual children.

Table 3: distribution of causes of speech delay:

Cases	No.	percent
Autism spectrum disorder	40	(30.5%)
Hearing impairment	30	(22.9%)
ADHD	30	(22.9%)
Environmental deprivation	23	(17.5%)
Intellectual disability	6	(4.5%)
Stuttering	2	(1.5%)

The table documented that (30.5%) of sample with Autism spectrum disorder that result in speech delay, while Stuttering construct only (1.5%) as cause of delay in speech.

Table 4: Association between selected risk factors and type of diagnosis

Risk factor	ASD (n=40)	ADHD (n=30)	Hearing loss (n=30)	Environmental (n=23)	p-value*
Family history (n=23)	10 (25%)	4 (13%)	6 (20%)	3 (13%)	0.08
Low parental education (n=64)	18 (45%)	12 (40%)	14 (47%)	20 (87%)	<0.01
Bilingual family (n=15)	6 (15%)	4 (13%)	2 (7%)	3 (13%)	0.62
Child mobile use (n=120)	38 (95%)	28 (93%)	27 (90%)	27 (96%)	0.74
High screen time (>4h/day)	26 (65%)	18 (60%)	16 (53%)	20 (87%)	0.02
Parental mobile use (n=56)	20 (50%)	12 (40%)	10 (33%)	14 (61%)	0.09
Active training present (n=76)	28 (70%)	20 (67%)	18 (60%)	10 (43%)	0.11

This table shown a comparison among children with ASD, ADHD, Hearing loss, and environmental factors, it clarify that most of studied factors shown no significant relationship. While a high significant association between low paternal educational level and long screen time.

The study sample involved 131 children suffer from speech delay their age ranged from 2 to 12 years old, comprehensive medical, developmental history, as well as clinical, developmental examination was performed for each one. The distribution of study sample shown that (75%) of study sample were males, and female (25%) of study participants. (72%) of sample ages 2-6 years, and (28%) ages 7-12 years. The analysis of data demonstrated that the highest percent (78%) of them their ages at presentation 1-3 years, and (22%) more than 3 years old age at presentation. While analyze the data it's reported that (92%) of participants reported that mobile by children use was the risk factor for speech delay, (42%) mobile use by parents, (18%) family history, while only (11%) caused by bilingual children. The table documented that (30.5%) of sample with Autism spectrum disorder that result in speech delay, (22.9%) related to hearing loss as well as ADHD, (17.5%) belong to environmental deprivation, (4.5%) of participants documented the cause is intellectual disability, while Stuttering construct only (1.5%) as cause of delay in speech. This table shown a comparison among children with ASD, ADHD, Hearing loss, and environmental factors, it clarify that most of studied factors such as family history, bilingual family, child mobile use, parental use for mobile, active training shown no significant relationship. While a high significant association between low paternal educational level and long screen time more than 4 hours per day.

Discussion

In this study we found that male to female ratio was 3-

1, sex variances in language can be signs of cognitive variances, Females have a slight linguistic advantage over males, males be more than females in the lowest 10th percentile in speech assessments (2:1), causing males to more often be diagnosed with developmental disorders, which rely on tests of language development (Wallentin 2020). The majority of patients presented between 1-3 years of age (78%) of cases, which is the age that most people recognize that their children are delayed in development especially the speech development , which goes with many studies like Frelinger, et al (2023). While (22%) existing after age 3 years either may related to neglect or wrongly hoping their children s speech will improve with age.

Also we found that (72%) of cases in the age range of 2-6 years old and (28%) older than 6 years old , and we expect that a large number are not under training either because of family denial for diagnosis or refusal for training because of lack of education. This study the most commonly known risk factors for speech delay , family history was present in (18%) of cases especially those with environmental deprivation and those with hearing loss and few cases of ASD , as evidenced by many studies like Çalışkan Demir, & Özcan (2021).

There are controversy regarding bilingualism, some studies shows speech delay in bilingual children like Hambly, Helen, et al (2013). Others shows controversy between speech delay and acceleration like Müller, Natascha et al (2017). In present society bilingualism is not common so we found only (11%) of cases had bilingualism. Low maternal and paternal education had a well-known association with speech delay in many

studies like Sunderajan, Trisha et al (2019). In our study we found that (49%) of families were not educated.

Use of mobile phones and their effects on language acquisition is under study, however many studies found that Mobile device screen time of one hour or more per day is associated with poorer language development among toddlers (Levine, et al., 2019).). In our study we found that (92%) of children use mobile phones on average of 1-10 hours per day.

Current study also found that (42%) parents of children with speech delay use mobile phones on average of 1-7 hours per day which negatively affect their children language development because of lack of time for contact with their children and for training them to acquire language, which goes with many studies like Kara, & Acikel, (2020). In contrast (58%) of families train their children on average of 1-8 hours per day especially after their children diagnosis and specialists instructions.

Regarding the causes of speech delay we found that the most common cause was autism spectrum disorders in a percent of 30.5% as most cases of autism present with speech delay and need speech and behavioral rehabilitation as in our previous study which shows that 62.7 % of autistic children present with speech delay (Nadeem, et al., 2019).

The study also found that 22.9% of children with speech delay had ADHD as most children with ADHD had speech delay as one of the major presenting feature and also as associated feature as in Rohrer-Baumgartner, et al. (2015). Hearing loss remain one of the common causes and the first diagnosis to be excluded in speech delay, in our study we found that 22.9% of children had history of hearing loss and treated with hearing aids and now receive speech rehabilitation, quick identification of deafness and causes of it may help with management and cooperate with the families (Lieu, et al., 2020).

The study also found that 17.5 % of children had no underlying behavioral disorder but had environmental deprivation either because of low maternal or paternal education or excessive mobile phones use by parents, or parents' absence because of their job and consequently no training of their children which goes with many studies like Sultana, et al. (2020). 4.5% of cases was with intellectual disability diagnosed by pediatric neurologist (Houwen, et al., 2016). Only 1.5% of cases had stuttering and both of those children had family history of the same problem.

Conclusion

speech delay was more common in male, the most common causes of speech delay are behavioral

disorders, environmental deprivation was present in most cases, most children and their families use electronic media for long times.

Recommendations:

A large campaign to increase the public awareness about normal speech development and signs of delay, as well as using social media to increase the public awareness about sequelae of speech and language delay, and early signs of behavioral disorders and the importance of early intervention. Further longitudinal studies involve larger sample to detect the causes behind the speech delay.

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